

INTERNATIONAL **J**OURNAL FOR **I**NNOVATIVE **R**ESearch IN **M**ULTIDISCIPLINARY **F**IELD

(ISSN: 2455-0620) (Scientific Journal Impact Factor: 6.719)

Monthly Peer-Reviewed, Refereed, Indexed Research Journal

Index Copernicus International Journal Master list with - IC Value: 86.87



Two Day International E - Conference on “Trend Issues and Development of Physical Education and Sports”

Theme

All round development of human personality

(30 & 31 July, 2020)

Special Issue - 17

July - 2020

(Conference Proceedings Issue)

RESEARCH CULTURE SOCIETY & PUBLICATION

Email: rscsjournals@gmail.com

Web Email: editor@ijirmf.com

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Two Day International E - Conference on “Trend Issues and Development of Physical Education and Sports”

Theme
All round development of human personality
(30-31 July, 2020)

(Conference Proceedings – Special Issue)

Chief Editor

Dr. Chirag M. Patel

Research Culture Society & Publication – IJIRMF

Co-Editors

Prof. T. Inaobi Singh

Head, Department of Physical Education and Sports Science, MU. Canchipur.

Dr. L. Santosh Singh,

Assistant Professor, Department of PESS, MU

Jointly Organized by:

**Department of Physical Education and Sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University,
Canchipur, Imphal**

**In collaboration with
National Association of Physical Education and Sports Science (NAPES)
Research Culture Society**

International E - Conference on “Trend Issues and Development of Physical Education and Sports”

Theme

***All round development of human personality
(30-31 July, 2020)***

(Conference Proceedings – Special Issue)

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Published By:

INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN MULTIDISCIPLINARY FIELD

(ISSN: 2455:0620)

Research Culture Society and Publication.

(Reg. International ISBN Books and ISSN Journals Publisher)

Email: editor@ijirmf.com / rcsjournals@gmail.com

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About the Conference:

International E - Conference on “Trends Issues and Development of Physical Education and Sports” is being jointly organized by the Department of physical education and sports science, Fit India Campaign Committee and Fit India Club, Manipur University, Canchipur, in collaboration with National Association of physical education and sports science (NAPESS). The recent advances in the knowledge of physical education and sports science has improved the lifestyle of the society generation. This International E-Conference has been undertaken by the department to share the knowledge of the professionals through their research work and expertise in the field of physical education and sports science. The main aim of the International E-Conference is to bring together leading academicians, scientists, researchers and research scholars to exchange and share their experiences and research findings in the area of physical education and sports.

About the University:

The Manipur University, established under the Manipur University Act, 1980, came to existence on June, 5, 1980. It became a Central University on October 13, 2005. Under the Manipur University has 77 affiliated College inclusive of 2 medical colleges. Manipur Institute of Technology (MIT) is a constituent college of the University.

The main objectives of the University are to disseminate and advance knowledge by providing instructional and research facilities , to make provisions for integrated courses I humanities, natural and physical science, social science, forestry and other allied disciplines in the educational programmes; to take appropriate measures for promoting innovations in teaching – learning process ,inter – disciplinary studies and research ; to educate and train manpower for the development of the country in general and North Eastern Region in particular too pay special attention to improvement of the social and economic condition and welfare of the people of the state , and also to enhance their intellectual, academic and cultural development.

About the Department of Physical Education and Sports Science:

The Department of Physical Education and Sports Science established in November, 2008, is one of the emerging professional departments of the Manipur University. The department offers four year integrated course in the Bachelor of Physical Education (BPED), Master of Physical education (MPE) and Ph.D. Programme.

Physical Education, which is an integral part of education, aims at improving the human performance through the medium of physical activities selected to realize the desired outcome. It also includes the acquisition and refinement of motor skills, the development and maintenance of fitness for optimal health and well-being, the attainment of knowledge and growth of positive attitude towards physical activities Physical Education. Moreover, Physical Education is concerned not only with the physical outcomes that accrue from participation in activities but also with the development of knowledge and attitudes conducive to lifelong learning and participation. In fine, it aims for the development of physically, mentally, socially and emotionally fit citizens.

About the Fit India Campaign Committee and Fit India Club:

The Hon'ble Prime Minister of India launched the Fit India Movement on August, 29, 2019. He urged the people of the country to make fitness their life style. Today lifestyle diseases are on a rise in India affecting even the young. Cases of diabetes and hypertension are on the rise and even common among children in India. But small lifestyle changes can prevent these lifestyle diseases and help people to live a healthy and prosperous life. “Fit India Movement” is an effort to bring these small lifestyle changes.

As a part of Fit India Movement, Manipur University has constituted two committees e.g. Fit India Campaign Committee and Fit India Club to be taking initiative to be part of the novel Fit India Movement through various activities. Accordingly, the Fit India Campaign Committee and Fit India Club has prepared schematic action plan for implementation in the University.

Vision: All the Students, Faculty members, Officers and Non-teaching staff of the University to have physical fitness, mental fitness, social fitness, emotional and intellectual well-being.

Mission: To inculcate the habit amongst the students, Teaching and Non-teaching staff of the University to lead a healthy life by adopting a healthy lifestyle.



No. MU/VC/Admtr/2018/1

28-07-2020



MESSAGE

It gives me immense pleasure to welcome all an Invited Speakers and Participants to the Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee ad Fit India Club, Manipur University in collaboration with National Association of Physical Education and Sports Science to be held from 30th to 31st July 2020.

I feel that this International E-Conference is an excellent platform to interact with the learned personalities from different corners of the world, where students, scholars and professionals share their knowledge and experience. I am sure that the International E-Conference will explore the possibility of sharing the advanced Trends and Development of Physical Education and Sports for achieving academic excellent.

The effort made by the Department of Physical Education and Sports Science for organizing this particular International E-Conference is praise worthy and I am sure this conference will open up new vision and openings in the field of Physical Education and Sports Science.

I wish the International E-Conference a grand success.

(Jarnail Singh)

National Association of Physical Education & Sports Science

Prof. P. Chinnappa Reddy
Chief Patron of the NAPERSS
& Patron of the Conference
Email: putha_cr@yahoo.co.in
Mobile: +919985814666



MESSAGE

Dear Professional Colleagues,

I am extremely happy that Manipur University is organizing Two Day International E-conference on “Trends Issues and Development of Physical Education and Sports” under the aegis of the National Association of Physical Education and Sports Science. The main theme “All Round Development of Human Personality” selected by the organizers are exemplary.

The present scenario is to have an all round development of an individual by staying at home. Hence the subthemes selected will attract many delegates to present their research papers. This E-conference has a special attraction of inviting the research papers which will be published in the recognized journal.

I whole heartedly congratulate the organizing committee for their novel idea of organizing in this pandemic situation. I am sure many participants will enrich their academic knowledge by listening to the eminent speakers and the experienced moderators. I wish the conference a grand success.

With all good wishes.

Prof. P. Chinnappa Reddy

PROF. R.A.S. KUSHWAHA

Dean, School of Human & Environmental Science
Manipur University, Canchipur
& Patron of the Conference
Email:rs_kushwaha@rediffmail.com



MANIPUR UNIVERSITY

Canchipur, Imphal – 795003
Manipur, India



MESSAGE

I am happy to know that Two Day International E-Conference on “Trends, Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee and Fit India Club, Manipur University in collaboration with National Association of Physical Education and Sports Science (NAPESS), Hyderabad, India from 30 – 31 July 2020.

This International E-Conference will provide a platform to the entire physical educationist and others participants to share their views and promote the knowledge in the field of physical education and sports at International level.

I wish good luck for the grand success of International E-Conference.

(Prof. R.A.S. Kushwaha)

Prof. W. Chandbabu Singh
Registrar
& Patron of the Conference
Phone: +913852435125/+913852435143
Email: info [A] manipuruniv.ac.in



মণিপুর বিশ্ববিদ্যালয়
MANIPUR UNIVERSITY
Canchipur, Imphal – 795003
Manipur, India



MESSAGE

I am happy to welcome all the invited speakers and participants to the 2 Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee, and Fit India Club Manipur University in collaboration with National Association of Physical Education and Sports Science during 30-31 July 2020.

I believe, this International E-Conference will helpin redefining the strong connect between physical education and sports science and the holistic development of students in the academic institutions.

Lastly, I extend my best wishes to the organizers of the conference. The deliberations in these two days will pave the way for further development of physical education and sports science in our country.

(Prof. W. Chandbabu Singh)



MESSAGE

I am glad to learn that a Book of Proceedings of the Two Day International E-Conference on Trends, Issues and Development of Physical Education and Sports held on 30th and 31st July, 2020, which Was successfully Organised by The Fit India Campaign and Fit India Club, Manipur University is going to be published as a memoir of the Conference. Certainly, it will be a very significant document and a valuable reference book for the researchers in Physical Education and the general Public also.

I wish the Publication a great success.

(Prof. Th. Ratankumar Singh)

PROF. K. YUGINDRO SINGH
Dean, School of Mathematical & Physical Sciences



MANIPUR UNIVERSITY
Canhipur, Imphal-795003
Manipur, India

&
Chairman, Fit India Campaign Committee



MESSAGE

It gives me immense pleasure to learn that a Proceedings Book of the 2-Day International E-Conference on “Trends, Issues and Development of Physical Education and Sports” under the theme of “ALL ROUND DEVELOPMENT OF HUMAN PERSONALITY” jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee and Fit India Club, Manipur University in Collaboration with National Association of Physical Education and Sports Science (NAPESS), India held during July 30- 31, 2020, is going to be published soon.

The publication of the said Proceedings Book shall be a landmark in the history of Physical Education and Sports in Manipur University. I am sure that the materials contained in the book shall be immensely useful for advancement of knowledge in the subject and for all round development of human personality of all persons whosoever read the book.

I take the opportunity to congratulate the organizers of the E-Conference for having successfully conducted it in the midst of the deadly COVID-19 pandemic which has badly affected the entire country including Manipur. I wish the publication to be a grand success with a profound sense of fulfilment in the pursuit of academic excellence in the field of Physical Education and Sports.

(Prof. K. Yugindro Singh)

Prof. T. Inaobi Singh

Head, Department of Physical Education and Sports Science
Manipur University, Canchipur
& Chairman of the Conference
Email: drinaobisinght@gmail.com
Mobile: +9196120556701



MANIPUR UNIVERSITY

Canchipur, Imphal – 795003

Manipur, India



MESSAGE

It is a matter of great please that in collaboration with National Association of Physical Education and Sports Science (NAPESS), India, the Department of Physical Education and Sports Science, Fit India Campaign Committee ad Fit India Club, Manipur University is jointly organizing Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” from 30 – 31 July, 2020 and a Conference Proceedings Book is also being brought out to mark this unique and marvelous occasion.

The significance of the conference lies in its “All Round Development and Human Personality” such a conference provides to the participating scholars an opportunity to meet together, exchange ideas and view which help in the promotion mutual understanding which will ultimately play a vital role ensuring development co-existence and national integration. This conference helps in strengthening the spirits of physical education and sports and unity. This is the need of the hour.

I am very happy the conference success.

(Prof. T. Inaobi Singh)

Dr. Pradeep Deshmukh

President NAPESS

Former Dean & Member of Council

SRTMU Nanded (M.S.)



MESSAGE

It is a matter of pleasure that Two Day International E-Conference on “Trends, Issues and Development of Physical Education and Sports” under the theme “ALL ROUND DEVELOPMENT OF HUMAN PERSONALITY” was jointly organized by : Department of Physical Education and Sports Science, Fit India Campaign Committee and Fit India Club, Manipur University in collaboration National Association of Physical Education and Sports Science (NAPESS) India from 30-31 July, 2020.

It gives me a great pleasure to learn that the Organizing Committee of this event is going to publish Proceedings Book with ISBN and International Index Journal with ISSN. I extend my warm and heartiest congratulations to the organizing committee for the publication of Conference Proceedings Book. I am sure the publication of the Proceedings book will circulate the content of the event among the academicians. The theme of the E-Conference was quite suitable in the present circumstances of the pandemic COVID 19. There is a need of all-round development of human personality which will boost human beings to stand against the unprecedented disasters. It was a joint venture to contemplate over the importance of personality development on the e-platform provided by Manipur University and NAPESS. Many research scholars, delegates, academicians and experts from different parts of the world have graced the event with their active participation.

Once again, I congratulate Manipur University and NAPESS for organizing this E-Conference on TIDPES, and wish the Proceedings Book a great acceptance.

With regards,

Dr. Pradeep Deshmukh

Professor Dr. Oleksandr Krasilshchikov

Exercise and Sports Science Programme

School of Health Sciences

Universiti Sains Malaysia

MALAYSIA

ELMS High Performance Sports Consultant

for Sports authority of Gujarat

INDIA



Vice-President, International Physical Activity Projects (**IPAP**)

Director, Exercise & Sports Science International Consultancy

(**ESSICON**)

olek@usm.my ; hikatso@yahoo.com

MESSAGE

Dear Organisers, Speakers and Participants of the International E-Conference on "Trends, Issues and Development of Physical Education and Sports". It is a wonderful and well orchestrated event Jointly organized by: Department of Physical Education and Sports Science, Fit India Campaign Committee and Fit India Club, Manipur University in Collaboration with National Association of Physical Education and Sports Science (NAPESS) India.

The E-Conference featured keynote and invited speakers from various countries, delivering talks on important issues of all round development of human personality, which was the Theme of the Conference.

Conference organisers made this event a meaningful professional gathering, which contributed to further development of Physical Education and Sport in India.

Ideas and findings shared during the two days of the E-Conference will be further developed by the scholars of Manipur University in order to achieve further success of the University, the State and the Country.

With about a 1000 registered participants for this event, it was a definite success and Organisers made their best effort to make it a memorable happening.

Thank you and Regards.

With Best Wishes from Malaysia,



Professor Oleksandr Krasilshchikov

Prof. Dr. habil. Dr.h.c. Klaus-Peter Herm
Institut für Bewegung und Sportanthropologie
Bad Oeynhausen
Germany



MESSAGE

Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” Jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee ad Fit India Club, Manipur University in collaboration with National Association of Physical Education and Sports Science to be held from 30th to 31st July 2020.

Thank you very much for inviting to the virtual conference at your University. During Covid-19 sport has a difficult time. So we must powerfully look to new ways to develop also Sports Sciences.

Especially for children and youth we have to look, what is the right and best way to help our youth to participate in sports. So this conference gives the possibility to develop new steps for sports in India.

Wish the E-conference a grand success.

(Prof. Dr. habil. Dr.h.c. Klaus-Peter Herm)

Dr. Khaled Khalifa Dougman
Abu Dhabi Sports Council
Sport Science Specialist
Email: kdougman@adsc.gav.ae
Mobile: +971565034913



MESSAGE

Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” Jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee ad Fit India Club, Manipur University in collaboration with National Association of Physical Education and Sports Science to be held from 30th to 31st July 2020.

During the COVID-19 pandemic, it is extremely important for people of all ages and abilities to be as physically active as possible. I think the lockdown is an ideal starting point to encourage and support those individuals who’ve become interested in physical activities/exercise to maintaining good health until such time it becomes part of their everyday lifestyle. Additionally, support individuals to achieve their fitness or health-related goals by providing basic facilities and simple educational material to incorporate structured and higher-intensity exercise into their routine which would be much cheaper and provide measurable results and overall, will help us all on our fight against this awful Coronavirus. So with this thought, this is (lockdown) an ideal opportunity for all countries to now start over, with regards to their own community fitness levels and health initiatives. To educate everyone now and to move forward with strength, motivation and encouragement that they then might have improved health to fight off any unsuspected viruses or disease in the future.

This International E- conference will provide a platform to all the Physical Education and Sports profession and other participants to share their views and promote the knowledge in the field of physical education and sports. Thank you so much to organizing committee for inviting me as an invited speaker. Congratulation and appreciate to your efforts.

Best wishes the conference a grand success.

أخصائي علوم رياضية
(Dr. Khaled Khalifa Dougman)

Dr. L. Santosh Singh

Assistant Professor

Department of Physical Education & Sports Science

Manipur University, Canchipur, Imphal

Manipur, India

Organising Secretary of the Conference



Convener: Fit India Campaign Committee &

Fit India Club, Manipur University, Imphal

Office No.03852435865

Mobile No.: +918974376540

Email: santoshlaishram[A]manipuruniv.ac.in



MESSAGE

It is my privilege and great pleasure to have a warm welcome to all the keynote speaker, invited speakers, moderator and participants to the Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” under the theme of “All Round Development and Human Personality” Jointly organized by the Department of Physical Education and Sports Science, Fit India Campaign Committee and Fit India Club, Manipur University in collaboration with National Association of Physical Education and Sports Science to be held from 30th to 31st July 2020.

With an extensive youth population we have an opportunity to regain India's glory in Physical Education and Sports. Simultaneously there is a huge buzz about National Education Policy 2020 in the Country. I am happy to learn that Physical Education and Sports is one of the compulsory subjects in the National Education Policy 2020 in the country. The opportunity that exists in the intersection of physical education and sports is abundant. Two Day International E-Conference on “Trends Issues and Development of Physical Education and Sports” will provide the right platform to raise awareness, to bring about modernization and to create the enthusiasm that is needed in the field of physical education and sports science.

I wish the event a huge success and my sincere special appreciation goes to the keynote speaker, invited speakers, moderators and entire organizing committee who have put in tremendous effort in hosting and organizing an event of such importance during COVID-19 Pandemic situation.

(Dr. L. Santosh Singh)

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COACH LEARNING AND EDUCATION

¹Oleksandr Krasilshchikov, ²Erie Zuraidee Zulkifli

School of Health Sciences,
Universiti Sains Malaysia, MALAYSIA

Abstract

High performance sport in many developed and developing countries is becoming a significant and respected activity that attracts attention of the public and mass media. Coaches who work with high-profile athletes are held responsible for producing winning performances; hence their role in modern highly professionalized society gets progressively more and more recognized. Movement towards a professional work force that would commit full-time to expert coaching, might value and seek professional development and turn coaching into a well-reputed career choice, would be crucial in the process of coaches' development and education (Taylor & Garratt 2010). Many maintain the stand that coaches might still progress well without formal education and descent pay; some feel that coaches can still deliver the sought performance after attending few brief courses; others think that coaching at any level requires properly educated professionals. Therefore the ideas of coaches' learning and education aren't always straightforward and unanimously agreed upon.

Key Words: coach, high performance sport, coaching roles, coach occupations, experiential learning, educational pathways, life-long learning.

1. INTRODUCTION:

1.1. Major forms of Coaches' learning/learning situations:

Scholars in the field of sport coaching have highlighted that coaches learn and developed their coaching knowledge through various modes. Werthner and Trudel (2006) highlighted coaches participate in three main learning situations namely mediated (i.e., having a set of learning material and a person executing it to the learner; e.g., coaching course), unmediated (i.e., learner self-initiation; e.g., search the library and internet), and internal learning (i.e., reconsider and/or reflection on existing ideas; e.g., coach question their knowledge content). Within the same year, Trudel and Gilbert (2006) emphasized that coaches learned by two main metaphors namely acquisition (e.g., large-scale coach education programs) and participation (e.g., own experience) metaphors. Large-scale coach education program can be classified as 'formal' kind of learning pathways (Mallett, Trudel, Lyle, & Rynne, 2009). Although expressions such as formal learning, non-formal learning, and informal learning are used by many authors, (Lohman 2006, Nelson et al 2006, Merriam et al 2007) some (Jarvis, 2006, Trudel et al 2010) suggest that it is also appropriate to discuss about learning in situations that are formal, non-formal or informal.

A *formal situation* refers to a situation that is supervised by an institution where the teaching is curriculum-driven and the learning recognized with grades or certifications. In the coaching field, it would be the coach education training programs that provide a certification. To complement their compulsory program for certification, coaching organizations or institutions will often organize conferences or workshops. In this case, learning opportunities can be seen as continuing coach education and tend to be short-term, voluntary, and have few if any prerequisites. They form the category called *non-formal situations*. Coaching organizations can encourage coaches to attend these conferences or workshops or can impose a minimum attendance at such events as a proof of their ongoing learning to maintain/renew certification or to obtain the next, higher certification level.

Finally, *informal situations* refer to the learning opportunities outside of those provided under the coach education system (Trudel et al 2010). Within these types of learning situations, Merriam et al (2007) and Jarvis (2006) also recommend differentiating the *intentional learning* from the *incidental learning*. A coach calling a colleague or surfing on the Internet to find information is an example of intentional learning. The incidental learning is often unconscious and could include learning about the sport sub-culture. For example, only when individuals are in a coaching position will they realize that through their experience as an athlete they have

unconsciously developed some coaching knowledge, or that some of the knowledge acquired during their schooling can now be applied to their role as a coach (Trudel et al 2010). Conversely, Cushion et al, (2010) reported that elite and/or expert coach favor 'self-directed learning' where coaches take their own initiative, identify their learning needs and resources, execute appropriate learning approach, and evaluating the outcomes.

2. EDUCATIONAL PATHWAYS:

Educational pathways in Coach Education include two major streams: academic/degree and postgraduate studies through Universities and colleges; and educational/certification programmes provided by National and International sport governing bodies, i.e. National and International Sports Associations.

Academic/Degree Programs: In early 1960s Eastern Bloc countries have developed the uniformed and comprehensive approach to coaches' education and have introduced common curriculums throughout broad based network of Institutes/Universities of Physical Culture (equivalent of Physical Education in many countries). With some minor to major modifications it is still in existence and is being taught till day in Eastern (and sometimes in Western) Europe. Traditionally, those curriculums included social, pedagogical, medical & biological and sports specific disciplines grouped in several major clusters including:

Social Sciences: History (of a Country or a Party), History of Sports, Philosophy, History of Religion/Atheism, Scientific Communism (not anymore);

Pedagogical Sciences: Pedagogy, Basic Psychology, Sport Psychology;

Medical and Biological Sciences: Human Anatomy, Human Physiology, Sports Physiology, Basic Biochemistry, Sports Biochemistry, Biomechanics, Hygiene, Sports Medicine, Massage & Physiotherapy;

Basic Sports Disciplines: Theory and Methodology of Physical Education, Theory and Methodology of Sports Training;

Sport Specific Disciplines: Theory and Methodology of the Sport chosen as Specialization. Those included all Olympic sports, since those were on any Government priority list as delivering medals at the Olympics Games was always among major objectives of Sport Developing Policies. Notably all listed disciplines were compulsory with no electives as such on offer. Graduated were offered coaching jobs in the wide network of Government sponsored Sport Schools and Trade Unions run Sport Clubs.

In the early 1980s, a number of countries (Canada, Australia, France and Great Britain) were beginning to establish generic forms of coach education that would go some way to support the development of coaching as professional practice (Campbell 1993). The direct engagement of universities in the education of coaches and coaching in the UK has also been marginal. In fact, until the mid-1990s there were very few higher-education degrees explicitly dealing with the pedagogical fundamentals of coaching. Those that covered the subject did so under the dominance and facade of the biophysical sports sciences, where the skills required for successful coaching were often confused and conflated with notions of practical achievement and/or the distant application of psychology and physiology, as well as other biomedical approaches. In recent years, however, named coaching degrees have emerged across the higher-education sector (Taylor & Garratt 2010). Bush (2007) reported that in 2006 there were 192 undergraduate degree courses in the UK concentrating on coaching, representing 11 % of all sports-related degrees. A review of university-based coach education programs in the United States showed a traditional, and uniform, curriculum (McMillin & Reffner 1999). All programs included a mix of coaching theory, sport science sub-disciplines (i.e., biomechanics, sport psychology) and some form of coaching practicum. Sports coaching bachelor's degree programs are often structured as a set of sports science core courses and coaching electives. Some programs may offer units for specific team and individual sports. Possible courses include:

- Sports psychology
- Conditioning and fitness training
- Coaching technology
- Coaching theory and methods
- Officiating sports

Some Universities offer Sport Coaching Programme with such core units as:

- Principles of Coaching
- Fitness for Sport
- Research Methods for Sports and Exercise
- Coaching Children and Young Performers
- Application of Fitness Testing and Training
- Applied Techniques in Sports Psychology
- Applied Principles of Biomechanics
- High-Performance Coaching

Optional courses offered typically include:

- Sports Massage
- Work-based Learning
- Strength and Conditioning
- Diet and Nutrition
- Applied Principles of Performance Analysis
- Sports Coaching and Development
- Professional Practice in Physiology
- Professional Practice in Sports Psychology
- Professional Practice in Biomechanics
- Sports Science Support
- Sports Conditioning
- Injury Prevention and Management
- Complementary Therapies for Sport
- Professional Practice in Sports Performance Analysis
- Sports Nutrition and Performance
- Physical Education Teaching

Students can benefit from access to wide range of sporting facilities, including multiple sports halls and outdoor resources. They also utilize the well-equipped sport science laboratories. Universities strive to establish the links with local and national sports organizations, schools and clubs which provide relevant part-time work, internship opportunities and mentoring. They also contribute to the content and delivery of the programme. The courses typically provide opportunities allowing students to work with and alongside community and elite coaches and athletes.

3. COACHES EDUCATION THROUGH NATIONAL & INTERNATIONAL ASSOCIATIONS' EDUCATIONAL PROGRAMS

Various National and International Sports Ruling bodies offered their own views on coaches' education and development and versions of implementing both as well. Football and Athletics, being among the most popular world's sports give us examples of highly professional systems of coach education. Football Association of Ireland (FAI), for instance, runs the Coach Education Unit of the FAI Technical Department which oversees all stages of the coaching ladder, from the introductory Kick-Start 1 course up to the UEFA Pro Licence, the highest point of the coaching ladder. One of the features of the system is well planned and adjusted list of aims and objectives which gradually and systematically disseminates layers of knowledge and skills required by coaches while upgrading their professional qualifications. Following is the level to level progression of aims and objectives of FAI coaches' education program:

Kick Start; Kick Start 2; Youth Certificate; Senior Intro; UEFA B Licence; UEFA A Licence

International Association of Athletic Federations (IAAF) suggests its own vision of coaches' education with an assumption that the resources and effort involved in developing an education program may be beyond capabilities on a national level, thus offering to unite the resources and facilities of National and International bodies. The IAAF operates a Coaches Education and Certification System (CECS) which is available as a service to Member Federations which would like to make use of it. For each course level the IAAF provides a standard syllabus, qualified lecturers and the necessary learning support materials.

Level	I	–	Youth	Coach.
Level	II	–	Assistant	Coach.

Level III – Coach.

The Level III course is designed to be an introduction to performance coaching for coaches who have performed well at Level II and have gained a level of coaching specialization in one of the following six event groups:

- Sprints and Hurdles
- Middle and Long Distance Running
- Race Walks
- Jumps
- Throws
- Combined

Level	IV	–	Senior	Events Coach.
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Level V – Academy Coach.

The IAAF Academy currently offers the following courses:

- Chief Coach
- Youth Chief Coach
- Elite Coach (head coach for events group)
- Coaching Development Director

The Academy aims to provide the coach with the relevant professional knowledge, understanding and practical experience to create an environment capable of delivering high levels of individual and team performance at specific events, or the development of innovative coaching development environments, over multiple seasons (<https://www.worldathletics.org/news/news/the-iaaf-coaches-education-and-certification>).

4. COOPERATION AND SYNCHRONIZATION BETWEEN THE PATHWAYS:

Since long, qualifications offered and awarded through various educational pathways were not standardized and mutually adjusted. That quite often led to overrating some while undermining other professional qualifications, resulting in certain degree of tension and sometimes misunderstandings between various education/certification agencies. The pioneering initiative to eradicate the existing discrepancies was taken in 2007 by the European Coaching Council, a sub-committee of the European Network of Sport Science, Education & Employment which has initiated a 'Review of The EU 5-Level Structure for the Recognition of Coaching Qualifications'. The need for the Review was identified by the members of the European Coaching Council, given that the initial structure for the recognition of coaching qualifications was first developed in 1999. It was also felt that there was a need to more fully engage with the International Federations on the issue of coach education, competence and qualifications. In addition, there have been several wider developments within vocational education and training in the European Union that have significant implications for the way in which coaches are educated and their competence and qualifications recognized. The Review proposed major initiatives in relation to coach education through various pathways including the one regarding educational levels of the coaches. It was suggested that the direct equation of educational levels with coaching roles was to be replaced with recognition of the *Federation*, *Vocational* and *University* coach education streams. These educational streams were recommended to demonstrate a clear link with the coaching roles, the standard occupations and the associated coaching competences. As a result a new Framework for the Recognition of Coaching Competence and Qualifications should be worked out: with vocational education agencies, national and international federations determining the number of levels of education appropriate for their country/sport and demonstrate the relationship between these educational levels and the coaching roles/standard occupations. University qualifications in coaching should be recognized in line with the Bologna process and demonstrate the relationship between these qualifications and the coaching roles/standard occupations. A system for the recognition of coaching qualifications between vocational and higher education sectors within each country was proposed.

Important step was suggested on the recognition of prior learning and current competence pointing out that coaches carrying out their role should have either completed a formal and recognized course of learning and/or had their prior learning and current competence formally assessed. As part of the process of moving coaching towards the status of a regulated profession it was recommended that all coaches should hold a sport-specific coaching license. The coaching license should act as a registration and recognition system overseen and validated by the sports federations and, if needed, by the national competent authority. The coaching license should be the primary criterion for the recognition of the coaches' mastery of the practical demands and competencies of sports coaching (Review of the EU 5-Level Structure for the Recognition of Coaching Qualifications, 2007). The document expressed recommendations that all national competent authorities in coach education should oversee, recognize and, if needed, conduct the sports coaching education programs. These authorities may identify various public or private organizations or agencies to deliver these programs, as recognized coaching education agencies. These recognized coach education agencies can be federations, universities-higher education institutions or public/private institutions/agencies as identified by the national competent authorities that will follow the guidelines set by the authorities. Given the sport specific nature of coaching, the unique position of national federations in the conduct of coach education programs should be recognized.

The revised structure for the recognition of sport coach qualifications should consist of three primary strands:

- Federation-based education
- Higher Education-based education
- Other recognized coaching education agencies -based education

Federation-based education: This strand has to be delivered, recognized and/or validated by federations at various levels of responsibility be it local, regional, national, continental or international.

Higher Education-based education: This strand has to delivered, recognized and/or validated by institutions of higher education and/or other post second cycle institutions (e.g. sports academies).

Other recognized coaching education agencies-based education: This strand has to delivered, recognized and/or validated by national competent authorities or by public or private organizations recognized by them. These organizations can be public or private institutions/agencies recognized by the national competent authorities. It was also recognized that other agencies (e.g. private sector) might be involved in the delivery of the coach education.

Cooperation between these strands was recommended with a view of maximizing the quality of coach education and the available combined resources. It was recommended that where joint-working occurs the parties cooperate in all aspects of the education process, regardless of the agency involved in delivery. It was also recommended that all strands should be recognized by the rest of the parties involved in the process, so that coaches could utilize their knowledge and expertise transparently and for the mutual benefit of all parties involved regardless if employed by a Sports Authority, a Higher Education Institution or a Federation.

5. LIFE-LONG DEVELOPMENT THROUGH LEARNING AND EDUCATION:

Learning and education apparently are not limited to the forms of learning and learning situations. Neither are they time bound or limited to weeks/years being spent attending courses or classes in colleges and universities. Lifelong learning concept is progressively gaining popularity among educationists and experts in learning. Lifelong learning can be viewed as an all-embracing concept that encompasses learning in many spheres of life (family, school, work, sport) and which occurs in the educational system and outside of it. Difference though comes into picture while comparing the meaning of lifelong education and lifelong learning. While the former suggests that the State or the employers have to be responsible for providing education, the latter (which focuses on learning), maintains the stand that the responsibility rests with the learners (Jarvis 2006). Therefore, the responsibility to develop as a coach should stay in the hands of the coaches. It might include the obligation to obtain a coaching certificate delivered by a recognized institution or national coaching governing body, but it will certainly not be limited to this one way of learning. As long as the sport system is not able to offer coaches a sustainable career pathway similar to other professions, (teaching, health sector, etc.) the responsibility to develop as a coach should stay primarily in the hands of the individual (Trudel et al 2010). The notion of lifelong learning suggests that coaches, like any adult learners, learn how to coach through various learning situations across their lifespan (see *Attaining coaches' knowledge experience and expertise*). This conclusion is supported by the limited but growing, research available on coach learning. Considering that coaches learn to coach through a variety of situations (formal, non-formal, and informal), their involvement in coach education training programs will correspond generally to only a few hours of learning in their lifelong learning journey. In the literature though there are many studies where coaches said they had appreciated this type of learning situation (Salmela 1995, Wright et al 2007) and there is also evidence of impact on the coaches' belief in their coaching capacity (coaching efficacy) (Campbell & Sullivan 2005, Trudel et al 2010). Lifelong learning is as well encouraged by many National sports associations (e.g. New Zealand Football) and is promoting continued personal development and self-responsibility for learning (<http://www.footballsouth.co.nz/index.php?id=376>). This new approach provides certain degree of synchronisation between learning opportunities that allow coaches to identify and fulfil their needs in personal development that corresponds with the players they are coaching and their specific developmental needs. The concept of Continuous Coach Education (CCE) grows in popularity around the world. International Coach Federation (ICF) in particular, (<https://coachfederation.org/>) advocates for the continuity in Coach Education, especially for coaches who already have certain credentials. Continuing Coaching Education refers training, writing, or research in advanced coaching skills directly related to ICF Core Competencies or the professional development of a coach (<https://coachfederation.org/be-a-coach>).

6. EFFICIENCY, PRACTICALITY AND TRENDS IN COACH EDUCATION:

It is a documented fact that experts make significant efforts and investments in learning what they need to know about their subject, their athletes and their coaching (Schempp et al 1998, 1999). At coaching workshops, clinics or conferences many of the experts will be the presenters, but many experts also attend as learners. And it is a well-known fact that expert coaches attempt to benefit from attending workshops and conferences. Moreover, they become expert partially because they seldom pass up opportunities to learn (Schempp & McCullick 2010). The issue of professional development of coaches was addressed by Jones et al (2004) in a study of elite coaches. They suggest that in a critical number of cases coach education courses were found to be of little direct benefit to the professional development of different areas of sports coaching. The suggestion was that in the past coach education courses have tended to focus primarily on the technical issues of

coaching, often ignoring the importance of the development of pedagogical and conceptual knowledge and understanding. The inherent failure to make the process more intellectual has been blamed for effectively undermining coaching in its claim to possess a theoretical body of occupational knowledge (Taylor & Garratt 2010). Rynne (2008) asked 24 high-performance individual and team sport coaches to rate the value of contribution of a variety of coach development activities at three stages of their coaching career: (a) first 2 years, (b) middle 2 years, and (c) last 2 years. The high-performance coaches in his study rated 'on the job experience' as the most valued coach development activity during all three stages of their careers. Personal reflection and discussions with colleagues were also highly valued by the participants in the study, although, interestingly, these were more valued as the coaches developed their craft. Experiential learning and the significance of 'reflection-in-action' and 'reflection-on-action' (Schon 1983) in sports coaching was highly valued too. Keys to the transformation of experience into coaching knowledge were 'reflection-in-action' (during coaching work), 'reflection-on-action' (post coaching work) and 'retrospective reflection-on-action' (after the season) (Gilbert & Trudel 2001, Trudel & Gilbert 2006). Surprisingly, tertiary study was not rated highly, but those who had actually completed tertiary study valued highly their university education, especially in the middle and latter stages of their career. Salmela and Moraes (2003) also found their coaches highly valued tertiary education. Overall, Rynne's data suggested that as high-performance coaches developed they seemed to value a greater variety of sources for developing their craft. That finding might be linked to an increase in self-efficacy (Eraut 2004) and increased access to learning opportunities (e.g. working with other colleagues). In some cases the increase in access might be connected with a move from voluntary and/ or part-time to full-time coach employment (Mallett 2010). Moving up the professional ladder from recreational/developmental coaches to high performance coaching brings along another professional opportunity - to deepen own coaching expertise (although possibly narrowing it a bit) by deputing certain functions/jobs to para-professionals/sport scientists. It is known that success of the high performance coaching depends greatly on the availability and access to other expertise. Coaches often imply the services of a multidisciplinary team of sport scientists (e.g. sports medicine expert, psychologist, strength & conditioning expert, tactical analyst) in order to deliver the planned performance during main competitions. This requires the high-performance coaches to exercise managerial skills as well. With obvious benefits of such union of highly trained professionals, situation should not result in weakening the coaches' drive to master the basics of sports medicine, psychology, conditioning etc. in the process of their learning/education. Certainly, knowledge dissemination channels must also be adjusted through properly planned curriculums of the university programs and certifying professional bodies.

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Retrieved on August 6th 2020
- <https://coachfederation.org/>
Retrieved on August 6th 2020
- <https://coachfederation.org/be-a-coach>
Retrieved on August 6th 2020

Two Day International E-Conference on
“Trends Issues and Development of Physical Education and Sports”
All Round Development of Human Personality

**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

“Issues and Development of Children and Youth Sports”

Klaus-Peter Herm

Institut für Bewegung und Sportanthropologie
D-32549 Bad Oeynhausen Kortenweg 7

PD Dr.habil. Dr. h.c.

Retd. Professor

GERMANY

Email: ibs.herm@t-online.de

Abstract

According Covid 19 pandemic, there are following aspects of developing children and youth sports:

- 1. During early age (first year of life) developing brain with helps of easy exercising.*
- 2. Recognize the best time for developing training programs.*
- 3. Finding the best time and loading for strength, speed and endurance.*
- 4. Finding the best methods for developing coordination*
- 5. Using modern medium and methods for training in Children and youth Sports*

1. There are following aspects of developing children and youth sports:

During early age (first year of life) is developing brain with helps of easy exercising.

Recognize the best time for developing training programs.

- Finding the best time and loading for strength, speed and endurance.
- Finding the best methods for developing coordination
- Using modern medium and methods for training in Children and youth Sports

According Corona – Covid 19 - since March 2020 „sport for children fell worldwide into the water“!?

The Answer is: Yes and no!

- Suddenly from today to tomorrow Sport was like a „handicapped child “for all!
- Nearly the most indoor and outdoor sports were restricted!
- An only individual sport was restricted isolated possible!
- Children’s and youth sports were hit particularly hard!

The problem 1:

More social media time, more video chat time, and more time on other virtual platforms may introduce less time to have sports!

The social distances lead to fewer opportunities for physical competition among the children.

The problem 2:

The very important development step for children:

-Physical Education at Schools was out!

-Sport in organizations was out!

-Training was out!

→ In Germany the Sports Organizations lost nearly 40 % of Children's membership!

2. In Kolkata my Colleague and Athletic Coach Bantu Roy from Athletic Coaching Camp in Sodepur wrote:

“Our Government stopped the training area for training of all athletes.

So we stopped it temporarily but training for the senior athletes are done by online training with proper training

plan and with restricted training equipment's.

From May end we started to train Senior National Level athletes only but with some restriction".

1. No partner training
2. After each workout we sanitized the equipment's
3. As mask is not advisable so we use sanitization of hands
4. Temperature Control done by Hand Temperature Gun before entering the Training Area
5. Regular Immune booster medicine has been advised for all athletes
6. Use of ICMR Medical guideline followed
7. Every day Health control of each athletes have been monitored.

The Problem with Online Training I faced that is these athletes are not full professional we are building them to be professional so the training intensity and technical aspects cannot be done online. We know that the presence of a coach in front is very necessary to rectify every technical action. Secondly as the athletes come from mediocre family it's impossible to buy equipment's on their own. So is coming from high training plan suddenly breaking it and coming to Bodyweight or maximum some Resistance Bands workout. Especially Middle Distance or Long Distance Runners having big problem as Reusable Training Effects of Endurance break within 7 days of not doing the Aerobic Run. So, they faced huge trouble while they return to training again as we have to start again from basics running. Football players don't have so much problem as the season just ended in March and they were in transition phase and returning to training was easy as in the beginning we were doing some just Mobilization and basic Resistance Band workouts. And specially the next Football season will start from November (approximately) and we got much time to recover to high Performance Training later.

3. For top level athletes: The agonizing fear of the athletes for Tokyo Games!

In Germany last week started the first Athletic competitions for top level athletes

For Children we have to find How to find a right started time for Sports again!

What is new for Children according Covid 19 Pandemic?

1. Very early learning of physical movements and especially coordination for developing the own movement without outside help.
2. To develop the right methodical way for development Coordination, endurance, strength and speed.
3. To use well-known parameters of growth and development as with the help of Anthropometry.

Problems for Physical Education after the outbreak of the COVID-19 pandemic

- Children have a lower risk of infection with Covid 19 than adults!
- Children can also spread COVID-19
- Children need personal contact during training

We have to look at problems of growth and development in sports (Herm 2006, 2020)

1. Normal Growth and development and differences in sports
 1. Body composition
 2. Somatic type
 3. Fat, Muscle and bone
2. What to do during growth phases with training and loading
 1. Technical sports kinds
 2. Endurance sports kinds
 3. Strength sports kinds
3. Results to use experiences of growth and development in praxis of sports

4. We have to look at

- Growth and Development Parameters
- Brain development
- Somatic growth and development of body dimension and body proportion.

With Somatic growth and development of body dimension and body proportion, we have according more than before a look,

1. How is influence of Growth on athletic development,

2. How is influence of athletic exercising on Growth and Development
3. What is importance of the connection between individual physical development like Growth and athletic training?

Physical Education,
Body Composition,
Somatotype and
Growth Type during Childhood

5. At first we have to look to the “Movement program and growth dynamic for babies and early age children”

Please look to the manual at the IBS according HERM (1993).



- I. Fundamental, simple and clear movement exercising with the baby and the small child.
We use

1. Transport exercise (Fig. 1)
2. Massage exercise (Fig. 2)
3. Reflex exercise (Fig. 3)
4. Passive exercise movements (Fig. 4)
5. Active exercise movements (Fig. 5)
6. Expand and stretching exercise (Fig. 6)
7. Exercise for orientation in the space (Fig. 7)

1. **Transport exercise:** Means the transport/carry of the baby by carrying it through the mother, father or other persons. It does not mean to transport by car!

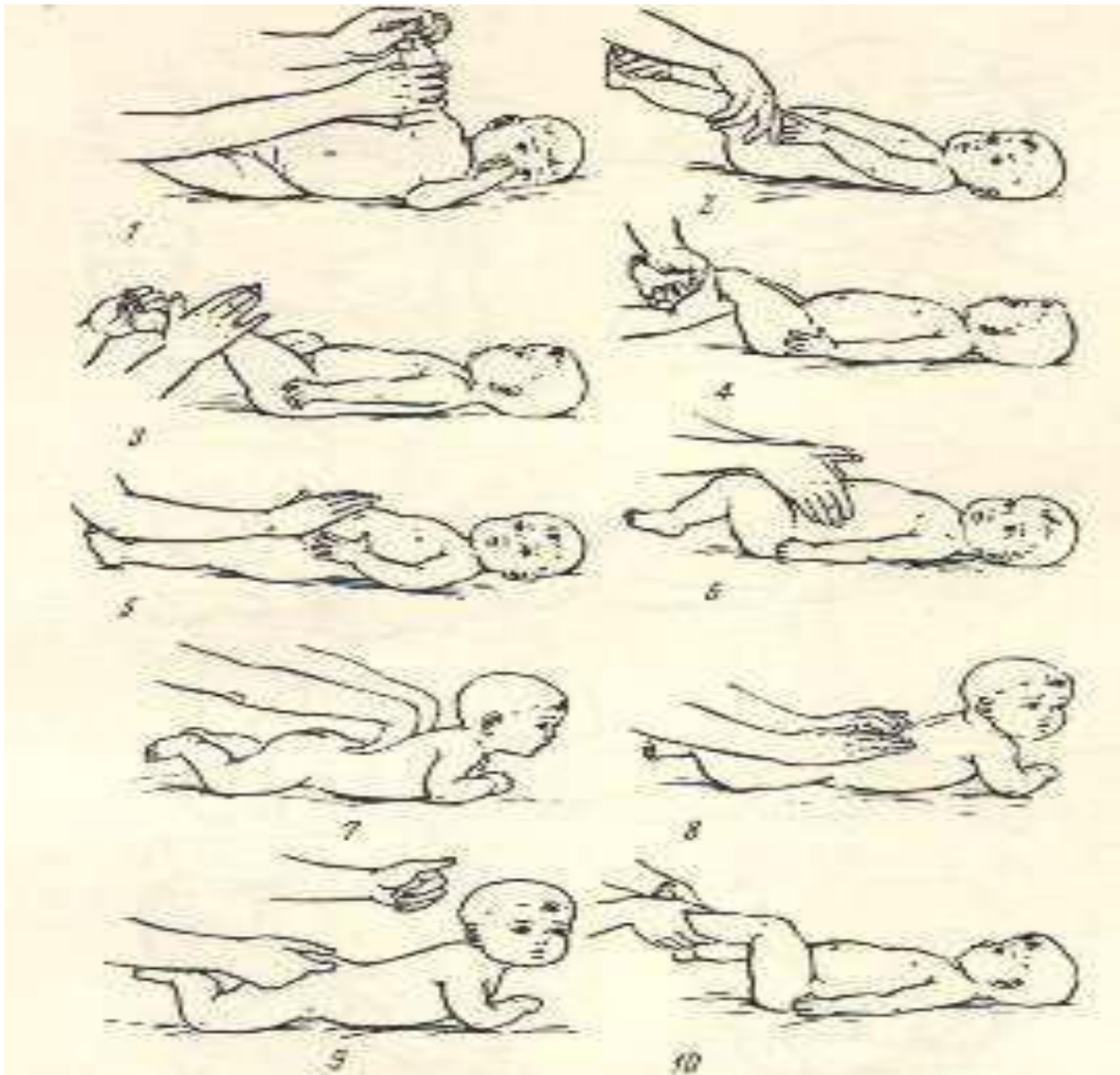
(Fig. 1: Transport exercise)



2. Massage exercise (with 1 ½ month) with (Fig. 2)

- Caress (-Streicheln)
- Rub (-Reiben)
- Knead (-Kneten)
- Hoe (-Hacken)
- Vibration (-Vibration)

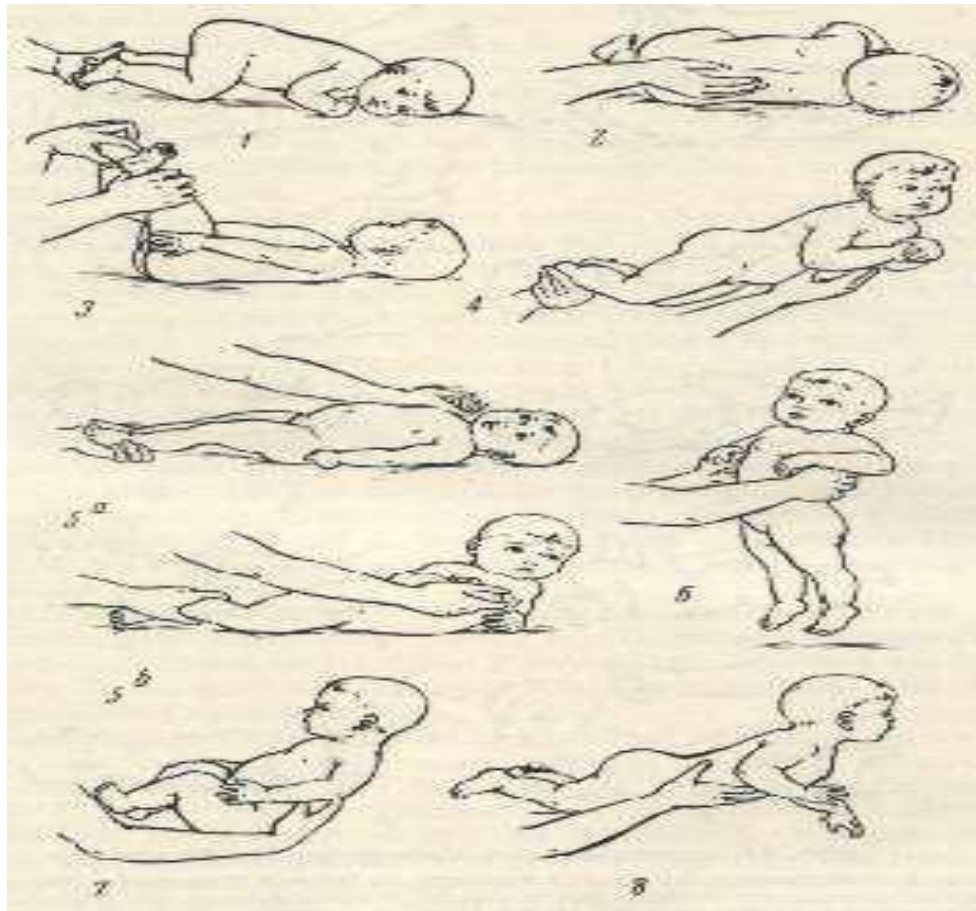
Fig. 2: Massage exercise



1.

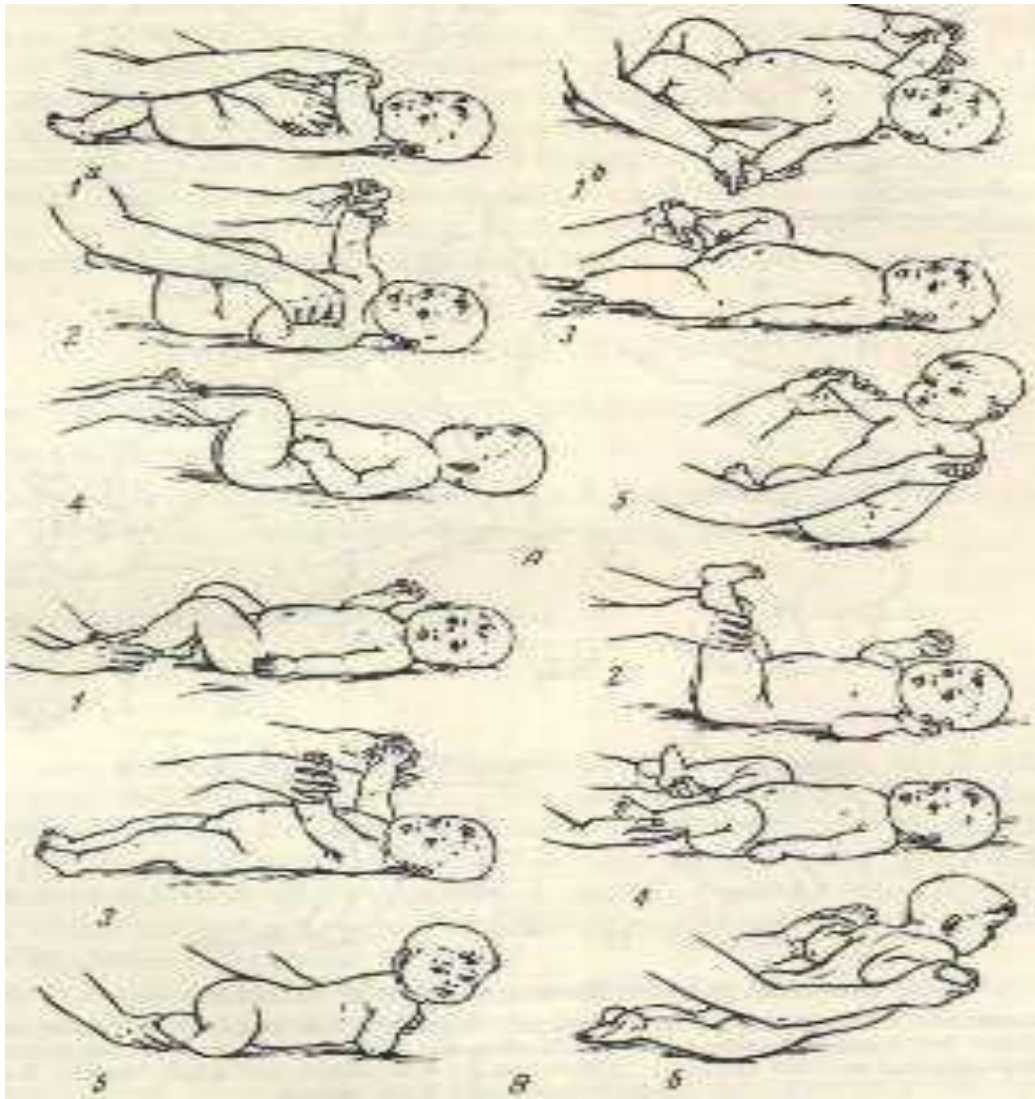
Reflex exercise (Fig. 3): Use natural reflexes of the baby

Fig. 3: Reflex exercise

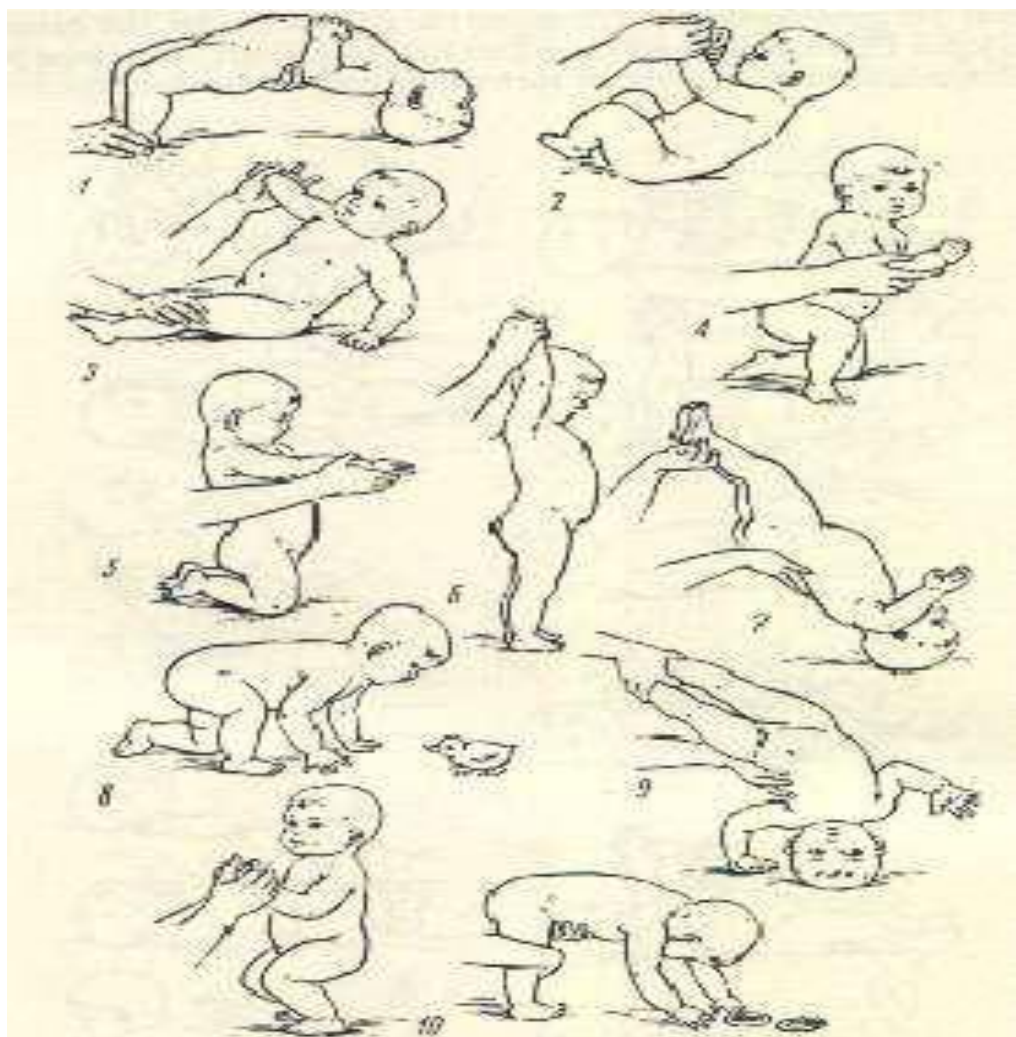


Passive exercise movements

(with 4 month) The Coach moves the baby body. **Fig. 4: Passive exercise movements**



Active exercise movements
(with 5 month) the baby has to move his own body. (Fig. 5) **Active exercise movements**



Expand and stretching exercise Fig. 5: Orientation in the space



Exercise for orientation in the space Fig. 6.: Orientation in the space



II. Movement exercising with child which stimulate all sense, promote the movement experience and the motor patterns of the child as well as develop the handling through the parents (mother, father or grandparents)

Raise exercise

Perception exercise

Steer exercise

Set ups, standing up with resistance (e.g. against gravitation)

Standing exercise

Stabilisation of the trunk and the hips

Balance on one leg

Coordination and posture stabilisation

Standing exercise for muscle strengthening

Exercise for improved breathing of the child

Breath and sound exercise of the parents to develop the ability of hearing, listening, looking and touching of the child

Exercising for development of movement anticipation

(Expectation of future events and situational change)

Organisation and methodical aspects

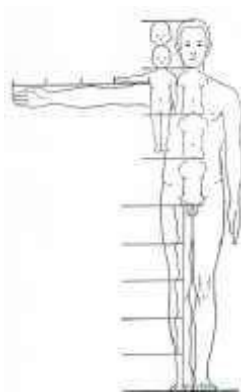
- Begin with 6-8 weeks
- duration of the course 2-3 month up to 1 year
- Once up to twice a week up to 60 minutes
- Room temperature 20 degree Celsius
- Table or floor with carpet
- 1 ½ hours after meal
- Every exercises repeat 5 – 7 times
- After exercising sleeping according fatigue
- Home exercising: 1-2 times per day (5-15 minutes)

Fig. 7: Organisation of mother baby gym



Anthropometrical results see Figure 8.

Fig. 8 Body proportion of new born child and adult person



5. CONCLUSION:

- The conception for movement and diagnostic of body composition for babies and small children is developed.
- Movement program, anthropometrical measurements in INDIA can be realise in a pilot project.
- Start is possible – let's go!

That means: bad follow for children up to adults

- Increasing fat
- Decreasing muscle mass
- Decreasing bone density
- Motoric problems
- Somatic problems
- changing of blood fat
- Overweight/adiposities
- Osteoporosis

But see also: To enjoy for exercise and movement have by children another regulation then by adults.

Important is somatic growth and development of body dimension and body proportion.

We have according more than before a look,

1. How is influence of Growth on athletic development,
2. How is influence of athletic exercising on Growth and Development
3. What is importance of the connection between individual physical development like Growth and athletic training?

The body adiposity significantly increases with age. This is because as people grow older their metabolic rate falls and energy Expenditure decrease. The older age people are most at risk for Corona and physical activity decreased! The interaction of genetic, environmental and psychological factors acting through the psychological mediators of energy intake and expenditure!



We have to see in Sport Anthropology:

1. the general and specific body peculiarities the different sports require, that means the body composition as assumption for sport performance and health;
2. the influence of training and motor activity to the body composition, which means that body composition, is a result of training and motor activity;
3. in this connection it is useful to see the individual differences of body build. In these directions we have to see and to recognise dynamic system of man from childhood to older age.

From lots of possibilities to analyse should be demonstrated **growth dynamic specifics and Somatotype of sports participating children.**

Practice of Sport Anthropology

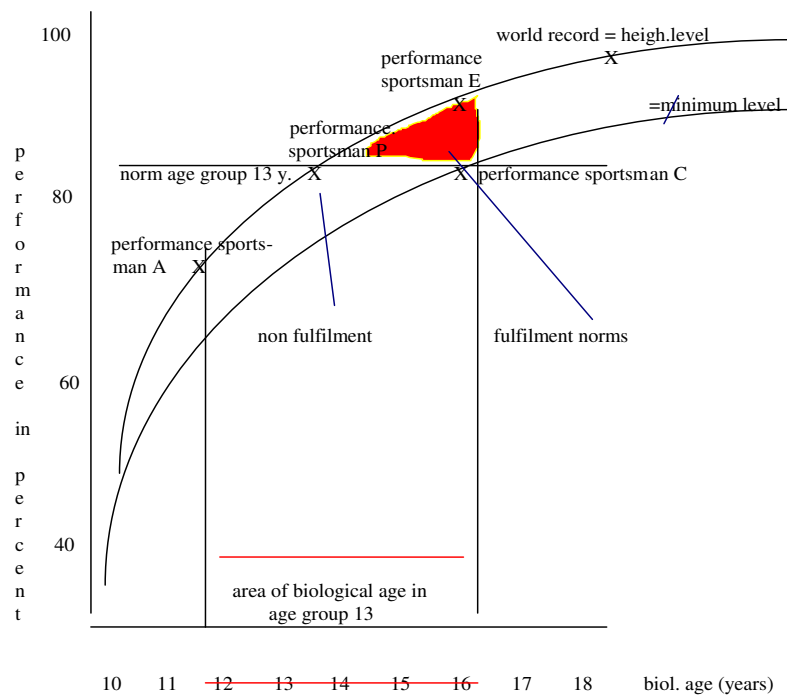
1. Description models of body parts and locomotion's (dimensions and proportions of sportsmen in different kinds of sports)
2. Comparison models of body structure and sports (based on similar systems like distribution curves)
3. Regression models of body parts and in relation to locomotion
4. Relationship and correlation models (multivariate statistics)
5. General allometric equation (models of growth curves, relation to training loading and growth)
6. Dynamical models (growth and development, growth dynamic, as a description of changing of body development)
7. Somatotype models
8. Body composition analysis (muscle, bone, fat)
9. Anthropology of body image in sports
10. Models of movement place design and equipment of sports and biomechanical aspects)
11. Sports performance models like morphological optimisation, selection of talents, implication or talent selection in different kind of sport)
12. Norms of different groups of sports kinds
13. Health models (overweight, anorexia nervosa, malnutrition, obesity and adiposities etc.)
14. Sports training and heredity of body structure
15. Evolution of human body size (secular trend of development)
16. Computerised anthropometric and allometric databases

For the future we have to develop new aspects of **NORMS FOR TALENT SELECTION IN YOUTH SPORT!**

- To find and develop Norms for talent selection in youth sport is the main task in all sports kinds.
- Success and failure in Anthropology of Sports depends on the aim of the investigations. The problem in different kinds of Anthropology is to recognize the individual development of modern Homo sapiens. In this position turned and developed the „Special Norm” for variant kind of sports.
- During different investigations of talent selection was found especially in sport differing high degree of adaptation not alone in high performance sport as well as in health or recreational sports.

- Guide sentences are:

1. Motor activities include performance development.
2. Size of performance development depended on size of the possibilities to develop specific sports performance.
3. Process of development with performance prerequisite and performance development
4. Performance result in relation to performance prerequisite and in relation to the calendar, to the biological and to the training age.
5. There are different possibilities and methods for developing talent selection.



• What to do with Corona-Virus-Pandemy?

1. Cross sectional studies,
2. Longitudinal studies,
3. Mixed cross sectional and longitudinal studies,
4. Pilot studies,
5. Short term investigations,
6. Specific age data,
7. Investigations to determine influenced parameter,
8. Investigations to recognize different aspects of growing children, youth and adult persons like problems of "Biological Age",
9. Investigations about motor and training activities,
10. Different mathematical statistical analysis for developing new models of norms.

Use estimation of biological age

- **Body –Development-Index**
- *(Körperbau-Entwicklungs-Index (KEI) for estimation of the biological age*
- $= (\text{mittl. Breite} * \text{Umfg. korr.}) / KH \text{ etc.}$
- $= (\text{middle breadth} * \text{circumference corrected}) / \text{size etc.}$
- **Growth and Development** (according Herm 1987) =
- *Growth-type (dynamical type, stable type)*
- *Prognose of finale Stature,*
- *Prognose of short time growth,*
- *Estimation of growth dynamic,*

So we need for Anthropology of Sports more contact less investigations like following figures shows:

3-D- Laser Scanning :Hamamatsu Body Line Scanner 9036 model (Hamamatsu Photonics, Japan) which uses class 1 lasers of 690 nm to triangulate the body position in a standard pose.

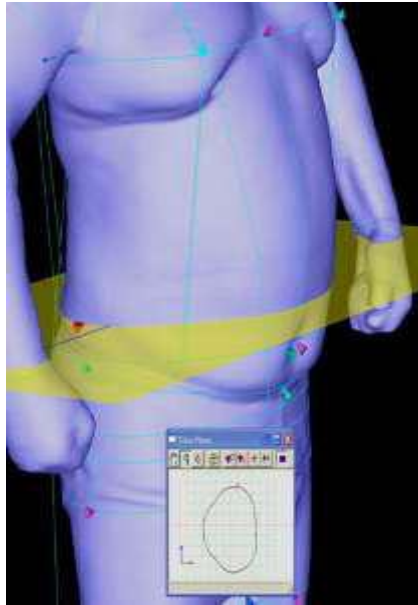


Image of Miraco flexible printed circuits prior to de-panelization.



Technology is Revolutionizing Talent Identification for Sports Training



The Neuroscience of Learning is the cooperation between muscle and brain and create strengthen motor pathways faster – it is related with the question:

Whether you need to be concerned exposure to excessive bluetooth or wifi radiation from self-quantification devices...?

Your task is to find and develop new technique and methods of talent identification, selection and development!



As short conclusion let us look at growth modelling in kinesiology and exercising as an important topic of research and scientific questions.

And:

„Motus optima medicina corporis“

(Movement is the best medicine for the body)

Friedrich Hofmann (1660-1742)

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Address of the Author: IBS Institut für Bewegung und Sportanthropologie D-32549 Bad Oeynhausen Kortenweg 7

Fon+49+ 172 1933059 e-Mail: ibs.herm@t-online.de PD Dr. habil. Dr. h.c. Retd. Professor KLAUS-PETER HERM – GERMANY

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MAJOR ROLES OF CORE STRENGTH EXERCISE

Dr. Lim Boon Hooi

Associate Professor

Centre for Sport and Exercise Sciences

University of Malaya,

50603 Kuala Lumpur, MALAYSIA

Abstract: Core strength exercise is not known well public even though it is an essential and the most important part for our physical movement. This article described what are core muscles and the location of core muscles in human body. It was followed by illustrated the core muscles with the figures to make the readers have a clearer picture. An efficient core allows for optimal acceleration, deceleration and stabilization of the entire kinetic chain during functional exercise. The core needs to be trained appropriately in order to efficiently distribute weight, absorb force, and transfer ground reaction forces during functional movements. The core muscles also stabilize the spine and trunk during movements of lower and upper extremities such as jumping, running, and throwing were explained in the following section. Two published article utilized the new invented core strength exercise - 360° TitaniUM Core Strength Exercise®) were presented in this article. The first article presented entitled A New Isometric Exercise Training Induced Reductions of Resting Blood Pressure in Hypertensive Patients - An Exploratory Study. Second article entitled The 360° TitaniUM Core Strength Exercise® Improve Balance in Teenager. Details related to these two articles were presented here from the introduction to the outcome of the study and ended with conclusion. This article also included another important role of core strength exercise which is affected almost 80% of the population in the world, the Low Back Pain. The final part of this article presented a future potential research with the new invented core strength exercise - 360° TitaniUM Core Strength Exercise®. Hopefully more research will be carried out related to this core strength exercise to verify the functional effect of this exercise the public and athletes.

Key Words: Major Roles, Core Strength Exercise, 360° TitaniUM Core Strength Exercise®

1. CORE Muscles & CORE Strength Exercise

The core was described as an anatomical box consisting of 29 pairs of muscles (Figure 1) forming anterior muscles (abdominals & adductors), posterior muscles (paraspinals and gluteals), (Richardson, Jull, Hodges, & Hides, 1999). Exercises involving the full body linkage such as Core Strength Exercise, have been advocated to enhance the capacity of transmitting force through the body linkage (Schoenfeld, Aragon, Wilborn, Krieger, & Sonmez, 2014). An efficient core allows for optimal acceleration, deceleration and stabilization of the entire kinetic chain during functional exercise. The core needs to be trained appropriately in order to efficiently distribute weight, absorb force, and transfer ground reaction forces during functional movements. The core muscles also stabilize the spine and trunk during movements of lower and upper extremities such as jumping, running, and throwing.

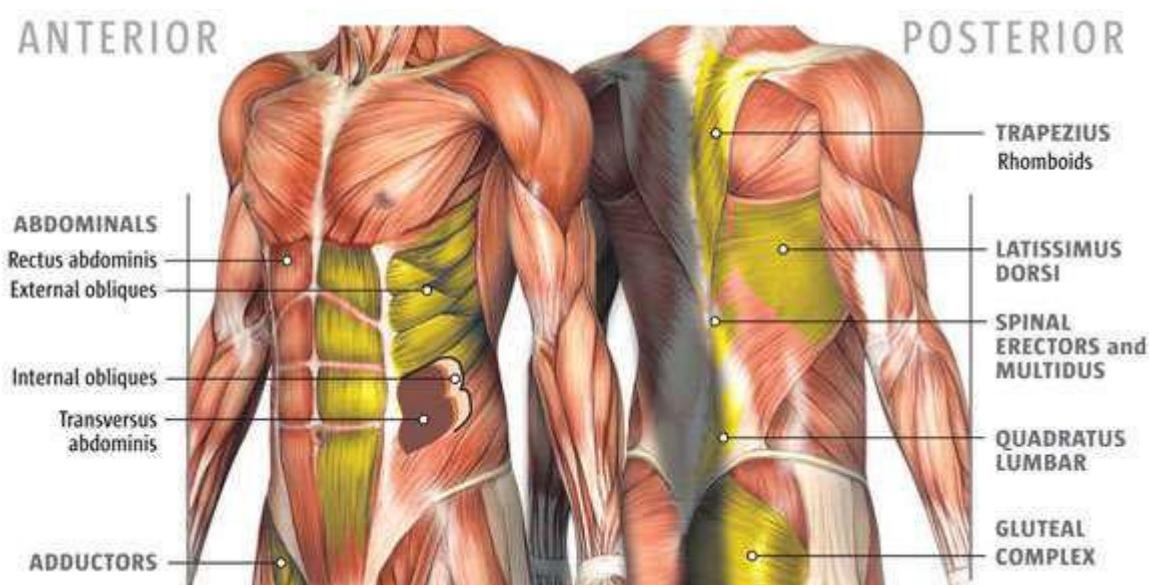


Figure 1: Core Muscles (Anterior and Posterior)

The CORE is comprised of several groups of muscles including the transversus abdominis, multifidus, diaphragm and pelvic floor muscles. These muscles work together to produce maximum stability in the abdominal and lumbar (lower) back region, as well as coordinate the movement of the arms, legs, and spine. Engaging these muscles is not something that most people do consciously, therefore it is important to learn how to effectively co-contract these muscles while performing these rehabilitation exercises (Konrad, 2005). Figure 2 label the area of CORE Region.

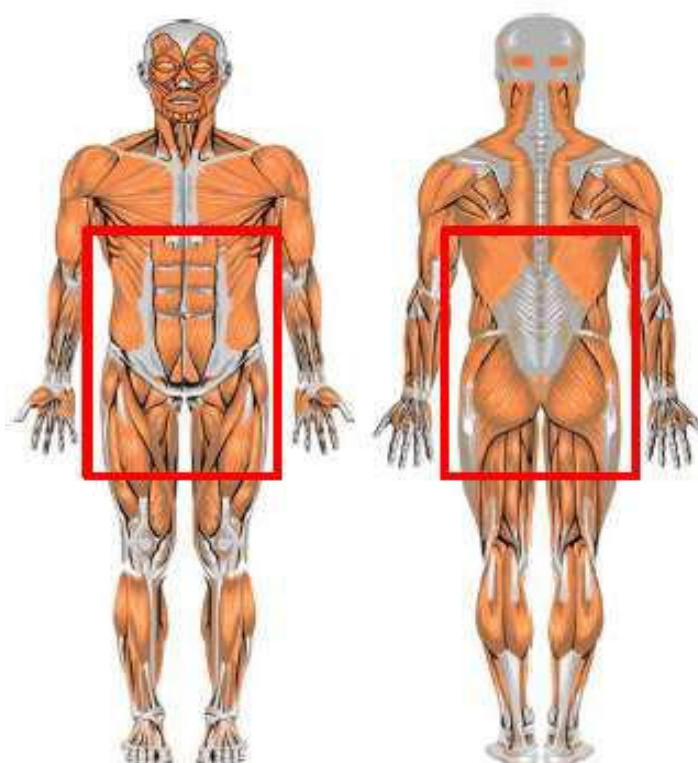


Figure 2: Core Region

1. Major Roles of CORE Strength Exercise (360° TitaniUM Core Strength Exercise®)

A New Isometric Exercise Training Induced Reductions of Resting Blood Pressure in Hypertensive Patients - An Exploratory Study

Exercise training programmes represent a widely recommended component in the treatment and prevention to lower resting blood pressure (BP) could have important implications for management of hypertension (Pescatello et al., 2019). A large and emerging body of evidence supports isometric exercise training (IET) as an effective exercise modality to lower resting BP in both normotensive and hypertensive populations (Badrov, Freeman, Zokvic, Millar, & McGowan, 2016; Bigliassi, Karageorghis, Bishop, Nowicky, & Wright, 2018; Devereux, Wiles, & Howden, 2015; Gill et al., 2015; Millar & Goodman, 2014; Wiles, Goldring, & Coleman, 2017).

Furthermore, the results of two meta-analyses suggest that IET may be capable of eliciting greater BP reductions than traditional aerobic and resistance exercise training (Carlson, Dieberg, Hess, Millar, & Smart, 2014; Cornelissen, Fagard, Coeckelberghs, & Vanhees, 2011). As detailed in another meta-analyses (Owen, Wiles, & Swaine, 2010) isometric handgrip (IHG) and leg training are intriguing exercise alternatives which require substantially less time (~30–75 total min/week) while documenting significant reductions in resting BP in normotensive and medicated hypertensive populations (Carlson et al., 2014; Millar, Levy, McGowan, McCartney, & MacDonald, 2013; Wiles et al., 2017).

Based on this accumulating evidence, the American Heart Association suggests that IET and in particular, isometric handgrip (IHG) training, may be used as a potential alternative strategy to lower resting BP (Class IIB, Level of Evidence C)(Brook, Jackson, Giorgini, & McGowan, 2015). The emergence of this modality as a potential treatment strategy for individuals with hypertension and the need for additional investigation.

The IHG is easily applicable (i.e. easy to use and can be performed anytime and anywhere), inexpensive, hence accessible to the global population, and may be preferred by individuals who find physical activity non pleasant and could offer a valuable new therapeutic adjunct in the overall approach for treating hypertension. At such, this method has been implemented using a programmable digital handgrip dynamometer (Badrov et al., 2016; Millar et al., 2013), which guides an individual through a complete IET session and can, therefore, be used without supervision (Millar & Goodman, 2014) in the home.

Also, it is suggested that the majority of previous IET studies are likely to have imposed exercise barriers, such as cost and time, which could reduce the effectiveness of IET as a potential physical therapy for altering BP (Millar, McGowan, Cornelissen, Araujo, & Swaine, 2014). It is proposed that an inexpensive, home-based IET programme would help to promote the use of IET as a valuable tool in the fight against high blood pressure. An alternative exercise mode that may be more suitable for home-based training is the isometric wall squat which utilises a constant position isometric contraction style (Hunter, 2014), with participants required to keep their knee joint at a prescribed angle while supporting an inertial load (body mass) using the quadriceps.

From the literature search, the most widely IET studies utilized alternative exercise mode with isometric handgrip (IHG), leg training and isometric wall squat. These exercise modes only concentrate on either arm and leg muscles documenting significant reductions in resting BP in normotensive and medicated hypertensive populations.

The new IET (360° TitaniUM Core Strength Exercise®) consists of 12 isometric exercises, performing in sequence and targeting on strengthened the core muscles, where by core in the human body was described as an anatomical box consisting of 29 pairs of muscles forming a front (abdominals), back (paraspinals and gluteals) and bottom (pelvic floor and hip girdle) (Richardson et al., 1999). This new IET defined as an IET because it sustained muscle contraction (i.e. increase in tension) with no change in length of the involved muscle group. The new IET activated 29 pairs of core muscle when performed this exercise, theoretically it should be better mode of IET in significant reductions of resting BP if compared to hand or leg muscle group mode of isometric exercises.

Additionally, the new IET can be another an alternative mode because it is an inexpensive and home-based IET which may remove the barriers of hypertensive patients enable them to carry out their exercise at home.

2. Findings:

In current study, 12 weeks of laboratory plus home-based of new IET induced a significant reduction of resting BP (SBP, DBP & MAP) in medicated hypertensive patients. The resting BP reductions are similar in magnitude to those previously reported following IET that was partly laboratory based with participants performing constant force contractions (Millar et al., 2013; Millar et al., 2014) with bilateral-leg IET using the same acute programme variables and exercise intensity in a laboratory setting. Therefore, the novel of new IET protocol utilised within this study appears to provide a viable alternative laboratory plus homebased method for the reduction of resting BP.

Important to point out that the hemodynamic results of this study confirm previous findings in medicated hypertensive participants (Taylor, McCartney, Kamath, & Wiley, 2003), which reported significant reductions in SBP and/or DBP following Isometric Handgrip (IHG) training. At such, another novel feature of the current study demonstrates that even in medicated hypertensive participants, the new IET has significant resting BP effects. The finding in this study showed that the reductions of resting BP was ≥ 2 mmHg, it supported several studies used IET to induce reductions in resting BP in both healthy participants and medication hypertensive patients (Millar et al., 2013; Taylor, McCartney, Kamath, & Wiley, 2003; Wiley, Dunn, Cox, Hueppchen, & Scott, 1992). Greater insight into the effects of IET on minimal clinically important difference (MCID) (Page, 2014), the meta-analyses of IET studies reported average reductions in resting BP that were substantial -6.77 to -10.9 mmHg SBP and -3.9 to -6.7 mmHg DBP (Carlson et al., 2014; Cornelissen et al., 2011; Owen et al., 2010). The reduction in BPS and BPD ≥ 2 mmHg is considered clinically meaningful, since it is associated with significant risk reduction in the incidence of heart failure among normo- and hypertensive individuals. Clinically meaningful blood pressure reductions with low intensity isometric handgrip exercise. Reduction in BPS decreases stroke and coronary heart disease deaths rate by 6% and 4%, respectively; reduction of 5 mmHg will further cause reductions of 14% and 9%, respectively (Piikmann & Reisberg, 2018).

In current study, the intervention period was set for 12 weeks and the intervention was on medicated hypertensive patients because no study has been carried out to verify the effectiveness of this new IET with this group of patients before. Previous study reported that following 4 weeks home-based isometric wall squat training can elicit clinically relevant reductions in resting SBP, DBP and MAP in healthy normotensive males. Also, a few IET studies using larger muscles mass lower body exercise that have been able to produce reductions in all three BP components (SBP, DBP, and MAP) following ≤ 8 weeks of isometric leg training (Devereux et al. 2010; Wiles et al. 2010; Gill et al. 2015). But, other finding reported no significant differences in any resting BP parameters at 4 weeks when bilateral-leg extension was performed at an intensity of 85% HRpeak, but significant reductions in SBP and MAP at the end of 8 weeks, whereas the other study showed that all parameters of resting BP were significantly reduced after only 3 weeks of bilateral-leg IET, but only when IET occurred at a higher intensity ($\sim 100\%$ HRpeak or 34% MVC) (Gill et al., 2015).

However, all these previous studies used bilateral-leg extension that required specialised equipment only available in a small number of sport and exercise science laboratories. Thus, the accessible and potentially cost effective training of this new IET protocol in current study may help to improve isometric exercise's efficacy as a physical therapy for altering resting BP, the major differences between current study with previous studies were the type of subjects, gender, location of intervention and intervention duration. The new IET utilized consisted 12 isometric exercises, performing in sequence and targeting on 29 pairs of core strength muscles. At such, theoretically, it could be argued that the new IET might result in both a greater magnitude (and possibly a greater rate) of resting blood pressure reduction compared to other IET (isometric hand grip, bilateral-leg extension exercise and isometric wall squat). This is based primarily on the fact that isometric hand grip isolate on arm muscles (Pescatello et al., 2019), leg extensions isolate the quadriceps and wall squat exercise use a smaller muscle mass in comparison with the new IET, which utilises additional muscle groups. It has been hypothesised that isometric contractions of a greater muscle mass require an increased central and peripheral drive (Mitchell, 1991; Soares et al., 2019).

Following more muscles recruited to perform the new IET, therefore, the cardiovascular control centres will be stimulated in parallel fashion with the motor cortex (Franke, Boettger, & McLean, 2000), thus producing a larger increase in cardiovascular response (a likely stimulus for Resting BP adaptation) through greater central command (Soares et al., 2019). Additionally, evidence suggests that increased motor unit recruitment also enhances the exercise pressor response (Seals et al., 1985) due to either greater physical deformation that stimulates the mechanoreceptors (Soares et al., 2019) and/or increased metabolite production activating the metaboreceptors (Iellamo, Massaro, Raimondi, Peruzzi, & Legramante, 1999). To find out how fast is the recovery after performing the new IET, we first measured BP 5 min after training, we noticed that 5 minutes after performing the new IET, the resting BP increases, the current results similar to the findings by (Piikmann & Reisberg, 2018) demonstrated that 1 min after handgrip exercise, BP was still statistically significantly increased compared to baseline. But current results were contradicting to the findings reported (Souza et al., 2019) by that 5 min after training BP had returned to pre-training values. Interestingly, in current study, the BP in 10 minutes after training revealed that statistically significant reductions if compared to the baseline. The results were similar to the findings reported by (Souza et al., 2018) which measured 1 hour after IET revealed significant reductions of BP. Another study revealed that 3 hours after isometric training BPS and BPD were statistically significantly reduced (5.1 mmHg and 1.6 mmHg, respectively) and the decrease in BPS was also clinically meaningful. Also, the other study revealed that BPS increases almost linearly with age, with

90% probability developing hypertension (Goessler, Buys, VanderTrappen, Vanhumbeeck, & Cornelissen, 2018). On the other hand, previous study reported that isometric handgrip does not elicit cardiovascular overload or post-exercise hypotension in hypertensive older women because did not notice any significant changes in BP (Souza et al., 2019), but in other studies statistically significant reduction in BP was detected. It is difficult to explain the differences in the results between the studies because results could have been influenced by the age, since the subjects in the study were elderly (71 years) with hypertension, and in the other studies the subjects were significantly younger (Souza et al., 2019).

In conclusion, the current study demonstrates that 12 weeks of laboratory plus home-based of new IET can elicit clinically relevant reductions in resting SBP, DBP, and MAP in medicated hypertensive patients. Such an accessible and cost-effective IET programme may help reduce some of the key barriers known to reduce exercise adherence and may provide a more effective lifestyle modification for the prevention of hypertension. Hypothetically, if this new IET could help to lower BP, the patient could exercise several times a day, and regularly to get more pronounced and longer lasting effect on BP, because training takes only couple of minutes and can be performed literally everywhere. This could potentially prevent and decrease the risk problems related to high blood pressure (Piikmann & Reisberg, 2018).

2. The 360° TitaniUM Core Strength Exercise® Improve Balance in Teenager

Maintaining upright body posture is fundamental for humans. Therefore, research concerning balance control and postural stability are very diverse. Several clinical and laboratory methods have been developed which enable researchers to assess different dimensions of the postural control system (Rzepka, 2007). Experimental protocols are usually designed to assess postural steadiness or postural balance. Postural balance refers to the ability to stay upright within the base of support, or to recover equilibrium after external dynamic perturbation. Balance is ability to maintain a stable posture with body mass centre in the domain of base of support while counteracting external or internal conflicts (Hosseinimehr & Norasteh, 2010). Instability of balance can demonstrate main health problems in human beings, therefore knowledge of centre of gravity within the human body and support base is crucial for constant adjustments to the muscular activity and joint positioning, which simulate a motor function that ensures a connection among sight, deep sensory organs that support antigravity muscles to maintain the standing posture. Balance depends on coordinated integration of somato-sensory, vestibular and visual input (Park, Oh, & Kim, 2014). Core strength training targets the muscles deep within the abdomen which connect to the spine, pelvis and shoulders, to assist in the maintenance of good posture and provide the foundation for all arm and leg movements (Akuthota, Ferreiro, Moore, & Fredericson, 2008). Core strength training differs from many traditional weight training routines by working both the lower back and abdominals in unison. The structured sequence of exercises would enable the practitioners to experience greater efficiency of movement; improved body control and balance; increased power output from both the core musculature and peripheral muscles such as the shoulders, arms and legs; reduced risk of injury. At such, well-developed core strength may contribute to stabilizing the core by stiffening the torso and transferring the energy of the legs to the upper extremities (Roth, Donath, Kurz, Zahner, & Faude, 2017). The main objective of this study was to find out the effectiveness of the 360° TitaniUM Core Strength Exercise® on balance stability between pre and post intervention. Results indicated that 12 weeks of the 360° TitaniUM Core Strength Exercise®, 3 sessions/week, with 10 seconds to 20 seconds/exercise progressively is able to induce significant improvements of the balance stability in teenager. Therefore, the novel of this new core strength protocol utilised within this study appears to provide a viable alternative method for the strengthen the core strength muscles and directly improved the balance in teenagers. The 360° TitaniUM Core Strength Exercise® consisted 12 isometric exercises, performing in sequence and targeting on 29 pairs of core strength muscles. At such, theoretically, it could be argued that this new core strength exercise might result in both a greater magnitude (and possibly a greater rate) of with other core exercises. It has been hypothesised that isometric contractions of a greater muscle mass require an increased central and peripheral drive (Mitchell, 1991; Soares et al., 2019).

3. Findings

Results of this study indicated that the balance ability of the participants improved significantly between pre-test and post-test [$t(39) = -8.29, p < .001$] after intervention. The results obtained is supported a few previous studies from the literature sources, balance stability is determined by the ability of the human body to keep the vertical position at rest, while walking, running or during other physical activities. The balance stability is the ability to maintain static or dynamic position of the body. Previous study reported that the sensitive period of the balance stability between 11 and 14 years of age for girls and one year later for boys

(Ricotti, 2012). Several authors (Balter, Stokroos, Akkermans, & Kingma, 2004) suggest that the high level of balance stability development is a direct result of the numerous repetitions which affects the motor response. Also, the age of participants for this study are between the range of sensitive period for balance stability. Also, current results supported previous studies which repetitions will affected the motor response where by the intervention was carried out with repetitions throughout 12 weeks. Researchers proposed that improved balance could decrease the amount of musculature involved in stabilization, allowing more muscles to contribute to force production in a given movement (Murphy, Santo, Alkanani, & Behm, 2010). The process of balancing is complex and requires specific coordination of the core and limbs. Balance is defined as an ability to maintain the centre of gravity within the base of support (Yaggie & McGregor, 2002). To maintain balance, the brain receives feedback from various systems including visual, vestibular, and somatosensory (Hrysomallis, 2011). Also, balance training may lead to neural adaptations at the spinal and supraspinal level that suppress reflex activity. This suppression may improve muscle contraction properties and result in more stable joints, allowing for better balance (Beinert & Taube, 2013).

Static Stabilometry is a set of balance tests carried out after standing on the platform by using resources for reducing the stability, tests performed with extended arms and closed eyes. Results of this study is similar to the previous study which used an untrained female population to compare curl-up and back extensor exercises performed on a physioball to the same done on the floor (Cosio-Lima, Reynolds, Winter, Paolone, & Jones, 2003) (Cosio-Lima et al., 2003). The physioball trained group showed significant improvements in abdominal EMG activity and balance times compared to the floor exercise group. Current results also supported previous study which showed that core strength and endurance training program two times per week for six weeks led to significant enhancements in 3 different core endurance tests (back extensor endurance, flexor endurance, and lateral musculature endurance) in ten untrained college students (Schilling et al., 2012). Previous studies revealed that trunk muscle fatigue led to decreased dynamic stability of the trunk and loss of balance control (Davidson & Kabat-Zinn, 2004). At such, strengthen the core muscles will reduce muscle fatigue and able to improved balance stability in longer duration. In conclusion, the 360° TitaniUM Core Strength Exercise® is suitable and effective training method to improve balance stability in teenager after 12 weeks of intervention. Future study may be implementing the TitaniUM Core Strength Exercise® on the senior adults to improve their balance and ultimately to prevent falls among senior citizen.

4. Core Strength Exercise and Low Back Pain (LBP)

Low back pain (LBP) is a common medical problem (Panjabi, 2003) and it has been frequently related to lumbar instability when lumbar bone architecture defects are not found (O'Sullivan, 2000). This represents a growing problem in modern society with prevalence ranging from 15% to 20% in the United States, and from 25% to 40% in European countries, with a lifetime prevalence as high as 60–90%. There is also evidence that LBP is more frequently observed in young adult women (Andersen, Lahav, Ellegaard, & Manniche, 2017). Chronic low back pain (CLBP) is defined as low back pain that persists for more than 12 weeks, and it is the most frequently reported clinical symptom of orthopaedic diseases (Salem, 2019). Previous research indicated that the epidemiology of LBP in developing countries is comparable to reports of research in developed nations. LBP is one of the most common and challenging musculoskeletal conditions encountered by health care professionals and is the leading cause of absenteeism in developed societies (Lopez, Ezzati, Jamison, & Murray, 2006), accounting for almost 120 million days of certified absence from work each year and about 50% of individuals who are off work for more than 6 months and thus may never return to employment (Maniadakis & Gray, 2000). The most frequently reported risk factors for LBP are heavy physical work; frequent bending, twisting, lifting, pulling, and pushing; and repetitive work, static postures, and vibrations (Walker, Muller, & Grant, 2004). Other risk factors are psychological and include stress, distress, anxiety, depression, cognitive dysfunction, and job dissatisfaction (Walker, 2000). The most common presentation of LBP is impaired spinal movements (Giles, 2001). Even though the prevalence of LBP has been reported worldwide, there is no consensus as to the specific causes (Pool-Goudzwaard, Vleeming, Stoeckart, Snijders, & Mens, 1998). Factors such as negative social interaction and the problem of a mechanical origin (such as inappropriate loading due to posture) have been suggested (Panjabi, 2003). Clinical spinal instability is related to a reduced capacity of response to physiological loading when a neurological deficit, deformity or pain does not exist (Panjabi, 2003). Low Back Pain Scale (LBPS) (Longo, Loppini, Denaro, Maffulli, & Denaro, 2010) is a valid and reliable questionnaire to measure the rate of low back pain. The LBPS was rated on a 0–5 scale, where 0 represented 'without pain' and 5 represented 'unbearable pain' (Nusbaum, Natour, Ferraz, & Goldenberg, 2001). Considerable disability and significant costs have been linked to LBP of which the peak occurrence normally occurs between ages 35 and 55 years (Walker et al., 2004). The prevalence of LBP is due in part to an aging

population and higher obesity rates, and likely to affect almost everyone at some point (Deyo, Mirza, & Martin, 2002). Strength training regimens that increase spinal stabilization have been effectively employed to reduce LBP through the specific recruitment of muscles of the lumbo–pelvic complex. Training of the abdominal and lumbo–pelvic region is frequently described as “core training”. Previous researchers have suggested that the stability of this region is dependent on a combination of global—superficial muscles around the abdominal and lumbar region and local stability—intrinsic muscles of the abdominal wall (Behm & Colado, 2012). The focus of such a training regimen should also include muscular stabilization of the abdominal, paraspinal, and gluteal muscles, to provide better stability and control (Hibbs, Thompson, French, Wrigley, & Spears, 2008).

In this study, “core” strengthening was described as an exercise program for trunk strength. This sort of exercise has been promoted as a preventive regimen, as a strategy to avoid various lumbar spine and musculoskeletal injuries (Akuthota & Nadler, 2004). Dynamic neuromuscular training regimens have also been demonstrated to reduce gender-related differences in force absorption, active joint stabilization, muscle imbalances, and functional biomechanics, while increasing strength of structural tissues (Myer, Ford, Palumbo, & Hewett, 2005). Traditional exercises work to increase the strength of the larger muscles responsible for movement, the core strengthening approaches (i.e. lumbar stabilization, dynamic stabilization and motor control training) aim to improve the dynamic stability role of the “local” muscles (Yu & Park, 2013). Some randomized controlled trials have comprehensively reported the effects of core stability exercises versus conventional physiotherapy treatments on pain and disability in chronic low back pain patients (Schembri, Fenech, & Sacco, 2014). These studies have addressed the need of homogenous chronic low back pain group for better clinical outcomes. The trunk strength and stability training was performed over 20 individual sessions during 7 weeks (Barkham, Mellor-Clark, Connell, & Cahill, 2006) on Mondays, Wednesdays and Fridays. The training sessions lasted 50min and were always conducted by the same physiotherapist. In the beginning, the difficulty level was adjusted, based on the initial conditioning level (determined from the pre-test strength training) of each subject. Subjects progressed until their capacity to perform the exercises, with the correct technique, declined.

5. Other Roles of CORE Strength Exercises for Further Research

- a. 360° TitaniUM Core Strength Exercise® and Core Strength and Endurance (public and athletes)
- b. 360° TitaniUM Core Strength Exercise® and Sport Performance (Sprinting, swimming, gymnastic, hockey, lawn bowl, bowling and etc.)
- c. 360° TitaniUM Core Strength Exercise® and Respiratory Muscles (public and athletes)
- d. 360° TitaniUM Core Strength Exercise® and Academic Performance (different age groups)
- e. 360° TitaniUM Core Strength Exercise® and Balance to Prevent Falls in Older Adults (Gender and etc)
- f. 360° TitaniUM Core Strength Exercise® and Sex Performance (Male, Senior and etc.)

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GENERAL VERSUS SPORT-SPECIFIC TESTING OF POSTURAL AND CORE STABILITY

Erika Zemková^{1,2}

¹Department of Biological and Medical Sciences, Faculty of Physical Education and Sport, Comenius
University in Bratislava, Slovakia

²Sports Technology Institute, Faculty of Electrical Engineering and Information Technology, Slovak University
of Technology in Bratislava, Slovakia

Abstract: *Postural and core stability tests have become an integral part of functional physical fitness assessment in recreational and professional athletes. Usually, static and dynamic balance tests, perturbation-based balance tests or task-oriented balance tests completed with torsional core stability tests have been used for this purpose. However, most of these tests are not specific to one's sport. Therefore, further research is needed to develop tests that would allow for sport-specific assessment of postural and core stability. This would provide necessary feedback on the efficiency of training methods used and valuable insight on how to train to maximize the results of training.*

1. INTRODUCTION:

Contrary to widespread use of general tests for the assessment of postural and core stability, less attention has been paid to testing of these abilities under sport-specific conditions (Zemková, 2011). This study deals with our approach to the assessment of postural and core stability using modified versions of general tests in order to be specific to a particular sport.

2. General tests of postural and core stability:

Usually, static posturography has been used for the assessment of postural stability in athletes of different age and performance level. However, this method in most cases is not sensitive enough to differentiate balance performance in highly skilled athletes. Lower sensitivity of static posturography is a consequence of multiple sensory inputs (visual, vestibular, and proprioceptive) involved in postural control. Such a system can compensate for a smaller impairment of balance in such a way that under normal conditions (stance on a stable surface) no deficits in postural stability may be apparent. Under dynamic conditions (stance on an unstable surface), the control mechanisms are taxed to a substantially higher extent so that individual differences can be revealed.

Therefore, combinations of various testing conditions have been used in order to increase the demands on postural control system. These include different surfaces (firm, foam), stances (bipedal, unipedal), feet position (semi-tandem, tandem), knee and hip angles (weight-bearing-leg: knee fully extended, knee flexed 10-20°; non-weight-bearing leg: knee flexed 90°, hip flexed 0° or 45°), arms position (at the side, crossed over the chest, fixed on the hips), visual inputs (eyes open, eyes fixed on a stationary target, eyes closed), and so forth.

Another alternative to a foam cushion represents a stance on a spring-supported platform. A recent study showed that unstable conditions improve the discriminatory accuracy of balance tests with both eyes open and eyes closed (Zemková et al., 2018). Experience indicates that standing on an unstable foam surface or a spring-supported platform while testing body balance is more efficient in discriminating within-group and between-group differences when compared to static balance tests. Assessment of balance under unstable conditions, coupled with or without visual references, is also able to reveal slight changes in the postural control throughout the lifespan and/or after exercise programs focused on improvement of sensorimotor functions (Zemková, 2009; Zemková, 2010b). Therefore, testing of postural stability while standing on some kind of unstable platforms should be preferred over static balance tests in highly skilled athletes too.

Particularly in sports, where the ability to maintain balance on various unstable surfaces is one of the limiting factors of performance, the dynamic posturography represents more specific and hence more appropriate alternative for the assessment of balance than systems allowing for monitoring of the CoP variables in static conditions (Zemková et al., 2005). Usually, external perturbations from a platform either shifting in antero-posterior and medio-lateral direction or tilting the toes up and down, and applying them directly to the body by pushing/pulling the trunk, the shoulders or pelvis are used. Various protocols, based on varied determinants of plate translation (i.e., the direction, displacement, and velocity) can be designed. We have found that postural and trunk responses to unexpected perturbations depend on the velocity and direction of platform motion (Zemková et al., 2016a).

However, regardless of the variety of currently available dynamic posturography systems, most of them have shortcomings. First, some of the platforms, although capable of producing a great range of motion at rapid speeds, are insufficient to destabilize the subject beyond the stability limit. Whilst very suitable for the elderly and patients with deteriorated coordination, in highly skilled athletes they do not cause serious balance impairments. Second, many of them produce only unidirectional movements, usually in the antero-posterior plane. Furthermore, in some cases the learning effect has been observed when using tilted platforms due to the subjects' relatively high predictability as to upcoming perturbations. Moreover, most posturography systems have been employed mainly for clinical examination of patients with balance disorders. However, these mostly laboratory tests cannot fulfill the needs for assessment of balance under sport-specific conditions. The practice implies that computerized portable devices that are more applicable to routine testing in the sporting field are preferred over laboratory techniques. Instrumented tests based on trunk repositioning and load release tasks, which are a quick-to-administer, could serve as a possible alternative to overcome above mentioned limitations. The trunk repositioning tasks require a subject to actively or passively return to a neutral spine position following a predefined displacement. Load release tasks require the subject to perform an isometric trunk contraction at a predefined intensity against an external load, which is subsequently released, and the displacement of the trunk is quantified. The voluntary surface electromyography can be recorded from the core musculature to examine the on-off activation of muscles following release. A recent study identified good to excellent test-retest reliability of such a perturbation-based balance test, as well as good discriminatory accuracy in differentiating between groups of physically active and sedentary adults as early as from 19 years of age (Zemková et al., 2016b). Another alternatives are task-oriented balance tests based on visual feedback control of body position (Zemková, 2017b). Subjects can perform a visually-guided CoM tracking task or a visually-guided CoM target-matching task. In such cases, voluntary feedback control of body position is performed under different conditions, i.e. the subject is focused either on the goal of the task (i.e. hitting the target) or on movement themselves (i.e. the positioning of the CoM). These test differences allow assessment of accuracy of regulation of body movement that requires less or more feedback processing. The reliability of task-oriented balance tests is comparable to static balance tests (Zemková, Hamar, 2010), however with better potential for the differentiation between groups with different levels of postural control. Providing visual feedback in more demanding conditions (i.e. the stance on a spring-supported platform) enhances discriminatory accuracy of a visually-guided CoM tracking task.

Utilizing techniques based on motion analysis or accelerometry recordings while evaluating head, limb and trunk movements could provide additional data for functional assessment of balance in athletes. With the advent of fast wireless technology and low-cost accelerometers, their use in the field-testing of various aspects of balance is now feasible. Measurement of core stability is more challenging to measure as it requires incorporating parameters of coordination and balance. Selecting a single appropriate test to fully evaluate core stability is difficult, given the complex interaction of the lumbopelvic-hip structures and musculature. Typical core stability tests require the subject to maintain a neutral spinal posture while under load in a quadrupedal or supine position and assess the endurance of global core muscles. However, most of these non-dynamometric tests have been developed for use in clinical and research settings. A suitable alternative represents torsional core stability tests performed under stable or unstable conditions. During these tests, basic stabilographic parameters can be registered using posturography systems based on dynamometric platform.

3. Sport-specific tests of postural and core stability:

In a book entitled „Postural sway response to exercise“ (Zemková, 2010a and 2019), some examples are provided to show what role balance play (or does not play) in sport performance. There are several sports where static and/or dynamic balance is one of the limiting factors of performance (Figures 1 and 2). Static balance is essential in shooting and archery. In contrast, in free style sports, snowboarding, skateboarding,

windsurfing or cycle acrobacy, the dynamic balance plays an important role in performance. The goal is to control balance in sport-specific positions, which vary from less to more difficult in dependence on specialization such as karate-kata, tai-chi, joga, ballet or gymnastics. In particular, accuracy of CoM control is important in climbing, mountaineering, figure-skating and ice-hockey where biomechanical stability for maintenance of balance is limited by a narrow area of support. A specific balance in sitting position is required in rowing, canoeing and equestrian sports. Regulation of CoM movement is also important in ballet and dancing based on rotational exercises, among others. Less precise control of CoM may also influence the performance in sports such as weightlifting, powerlifting, golf and throwing events. Among others are injury-risky activities, such as combat sports including fencing, boxing, karate, tae-kwon-do, judo, wrestling, in which balance may be affected due to trauma induced by such exercises. More difficult acrobatic skills are essential factors of performance in sports like gymnastics, rock & roll dancing or figure-skating. In most of them postural stability may be impaired by intensive bouncing exercises. Such high vertical forces during jumping might also cause injuries, namely ankle sprains. Similarly, loss of balance during fast side-to-side movements in sports games like badminton, basketball, handball, field-hockey, soccer, softball, squash, table tennis, tennis or volleyball may contribute to knee injuries. A greater postural sway may also be observed after long-term events such as biathlon, running, cycling, track and field, and cross-country skiing due to fatigue, or after those requiring specific technical skills like hurdling and skiing.



Figure 1 Assessment of postural stability in sport-specific positions



Figure 2 Assessment of postural stability after sport-specific exercises

A review by Zemková (2014) includes findings based on experimental studies addressing specific balance in sports where this ability is one of the limiting factors of performance. This review revealed no significant differences in postural stability between athletes of different specializations and physically active individuals during standing in a standard upright position (e.g., bipedal stance), however they have a better ability to maintain balance in specific conditions (e.g., while standing on a narrow area of support). Differences in magnitude of balance impairment after specific exercises (rebound jumps, repeated rotations, etc.) and mainly in speed of its readjustment to baseline were also observed. Besides some evidence on an association of greater postural sway with the increasing risk of injuries, there are many myths related to the negative influence of impaired balance on sport performance. Though this may be true for shooting or archery, findings have shown that in many other sports, highly skilled athletes are able to perform successfully in spite of increased postural sway.

Further review was focused on investigations dealing with postural sway response to different forms of exercise, and interpreting physiological mechanisms of post-exercise balance impairment (Zemková, Hamar, 2014). The findings of relevant studies combined with our research results show that postural sway response to exercise depends on its type, intensity, duration and intensity of proprioceptive stimulation. Differences in postural sway were also observed after exercise with different forms of muscle contraction and those with different activation of muscle fibres. In general, fatigue is associated with post-exercise balance impairment. Such an effect is usually a consequence of prolonged exercise. However, findings proved that after short-term intensive exercises, hyperventilation, rather than fatigue, is responsible for increased postural sway. Significant differences in balance impairment were also found after exercises that induced the same ventilation but with a different intensity of muscle contractions eliciting a different level of proprioceptive stimulation, such as calf rises versus jumps and cycling versus running. Thus, in addition to fatigue and hyperventilation, impairment of somatosensory inputs also very likely plays a role in increased post-exercise postural sway. In sum, possible physiological mechanisms of post-exercise balance impairment identified so far may be fatigue, hyperventilation, deterioration of functions of mechanoreceptors, proprioceptors, vestibular apparatus and visual cues, muscle damage, dehydration, hyperthermia and dizziness. On the contrary, core stability testing under sport-specific conditions has been less investigated (Zemková, 2017a; Zemková, 2018). Given the importance of core stability in athletic performance, its assessment should also be considered an integral part of athlete's functional diagnostics. Above all, such testing should differentiate between athletes with different demands on stability and strength of core muscles and provide relevant information on the efficiency of sport-specific training. Therefore, the torso position or its movement during testing should be as close as possible to the ones used during training or competition. In particular, tests utilizing portable diagnostic systems should be implemented in functional diagnostics for athletes and so complementing existing testing methods.

4. CONCLUSION:

This study identified strengths and weaknesses of testing methods used for the assessment of postural and core stability in sport. While most general tests are appropriate for recreationally active individuals, for highly skilled athletes do not provide sufficient level of sensitivity in discriminating among athletes of different age and performance level, and specificity in revealing changes during training programs (Zemková, Hamar, 2018). Therefore, additional research is needed to develop tests that would allow assessment of postural and core stability under sport-specific conditions, which can be then successfully implemented into practice.

5. ACKNOWLEDGMENTS

This work was supported by the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences (No. 1/0089/20) and the Slovak Research and Development Agency under the contract No. APVV-15-0704.

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**MODERN VIEW ON QUALITY ASSURANCE FOR
PROFESSIONAL TRAINING OF MASTERS IN PHYSICAL
CULTURE AS PHYSICAL EDUCATION TEACHERS**

Yurii Dutchak

Candidate of science in physical education and sport, associate professor
Khmelnitskyi National University

1. INTRODUCTION:

National strategy of education development in Ukraine up to 2021 describes issues of assurance of a systematic education quality improvement as the ones requiring urgent resolution. It is also well understood that improvement of quality of education guarantees steady economic growth of the state and solution to social issues in the nearest future.

The system of quality assurance in higher education, as stated in the Law of Ukraine “On Higher Education” (2020) article 16, includes the system of quality assurance by higher educational institutions towards educational activity and higher education (the system of internal quality assurance); the system of external quality assurance of educational activity of higher educational institutions and quality of higher education; the system of quality assurance for National Agency for Higher Education Quality Assurance and also for independent establishments of higher education quality evaluation and assurance.

Researchers (Z. Kafi, K. Motallebzadeh, H. Khodabakhshzadeh and M. Zeraatpisheh, 2020) assume that quality assurance for professional training of future specialists correlates with professional experience and qualification of higher educational institution’s academic staff [2].

S.A. Druzhylov (2013) distinguishes the following basic factors influencing the professional training quality assurance of future specialists: social expectations; subjective mood of consumers; market segment of college graduates focus upon graduation; quality of the “project” i.e. standard of a college graduate, which corresponds to the standard of higher education; quality of “input material” (preparedness and constructiveness of college applicants and graduates); quality of training in higher educational institutions (including thoroughness of graduates at workplaces; quality of further qualification improvement; level of competitiveness of educational services market) [3].

2. METHODOLOGY:

Processes of quality assurance, as noted in Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) (2015) envisage two related purposes – accountability and quality improvement. Together, they form trust to work of higher educational establishments [4].

Given the topic of the research, we adhere to the idea by H. A. Shandrygos (2016) who distinguishes the following features of quality of professional training in the field of physical culture:

- students (consumers of educational services) are active participants (along with lecturers) of educational activity, therefore teaching outcomes depend on their activity, position, motivation, and efforts;
- students’ satisfaction with quality of education is subjective and cannot be used as a single criterion for quality of education assessment;
- objective assessment of quality of specialists’ training is done outside educational system, by indices and criteria adopted in further sphere of professional activity. This situation sets strict requirements to the system of knowledge and skills control at all stages of education, stipulates high value of self-assessment;
- a complex non-material, individually unique product in the form of erudition, which is formed and

influenced not only by the educational institution, but also by mass media, family, and other social institutions, is in fact a contributory aspect of educational process;

- requirements to humanization, individualization of education, aspiration for a more complete manifestation of students' intellectual and creative potential prevent pedagogical process from getting completely technical, thus formation of quality of education will always remain not fully controlled and will depend on some non-predictable factors;
- quality assurance in educational services greatly depends on the personality factor: undoubtedly, two lecturers teaching by the same program, can possibly achieve absolutely different outcomes, hence students with different possibilities, needs, and abilities, may attain different levels of education [1].

It is quite certain that the standard of higher education by given specialty and level of higher education might considerably influence the formation of professional training quality assurance system, which has to meet the demands of National Framework of Qualifications for a respective educational level. Such standard is currently under development.

Analysis of special references and normative documents revealed that the system of quality assurance for professional training of future secondary education PE teachers through master's program in physical culture must consider the opinions of various categories of stakeholders.

With an objective of analyzing the opinions of secondary schools' Physical Education (PE) teachers on quality assurance for professional training of Masters in physical culture for future jobs in secondary schools PE, the polling (59 respondents) was administered. As respondents, teachers of physical culture from the city of Kyiv (23), Khmelnytskyi oblast (17), Ternopil oblast (19) were recruited.

Respondents were offered a questionnaire to respond containing 11 questions.

Analyzing respondents' answers to the question "Does the level of professional competence of future PE teachers (currently in masters' program in physical culture) who have (had) their pedagogical practical placement in your secondary education establishment, meet your demands?" 45.55% responded yes, 38.55% - partially, 5.67% - does not meet, 10.23% found it difficult to answer.

3. FINDING:

It appears that overall level of professional competence of future secondary education PE teachers from masters' in physical culture program meets the demands of practicing teachers of physical education from secondary education institutions. Analysis of respondents' answers regarding factors that influence quality of professional training of future secondary education PE teachers from masters' in physical culture program (Table 1), reveals that teachers of physical culture from secondary educational establishments consider communicative (71.79%) and creative (64.36%) personal qualities (defined as soft skills in modern pedagogical science), important. It is a complex of non-specialized, intra-professional skills set that affects job culture and efficiency, high effectiveness, and, unlike specialized skills, are not related to a specific activity.

Table 1

Respondents' answers on factors influencing quality of professional training of future secondary education PE teachers from masters' in physical culture program

Question	Answers			
	Yes, meets the demands	Partially meets the demands	No, does not meet the demands	Difficult to answer.
To your mind, does the available field standard promote quality assurance for professional training of secondary education PE teachers from masters' in physical culture program?	36,34%	51,25%	6,10%	6,31%
To your mind, does students' ability to study promote quality assurance for professional training of secondary education PE teachers from masters' in physical culture program?	50,89%	40,11%	6,10%	2,90%
To your mind, does students' creativity promote quality assurance for professional training of secondary education PE teachers from masters' in physical culture program?	64,36%	23,02%	4,86%	7,76%

Question	Answers			
	Yes, meets the demands	Partially meets the demands	No, does not meet the demands	Difficult to answer.
To your mind, does students' communicability promote quality assurance for professional training of secondary education PE teachers from masters' in physical culture program?	71,79%	17,56%	6,31%	4,34%
To your mind, do available educational and methodological complexes promote quality assurance for professional training of secondary education PE teachers from masters' in physical culture program?	69,83%	19,01%	4,86%	6,30%

4. CONCLUSION:

Physical Education teachers (69.83%) consider that educational and methodological complexes of educational components significantly influence the quality assurance for professional training of future secondary education teachers from masters in physical education program. Thus, with an objective to assure quality of professional training for teaching PE in secondary schools, educational and methodological complexes of educational components need to be improved, and future specialists need to be engaged in sports movement in its every form and shape.

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FOOTBALL PSYCHOLOGY

Dr. Maibam Chourjit Singh

Assistant Professor

Department of Physical Education and Sports Science

Manipur University

Abstract:

Sports psychology is defined as the scientific study of human behavior in sports and the practical application of this knowledge. Sports psychology as a field is devoted not only to expanding the scientific understanding of human behavior in sports, but also to the application of what has been studied. The mind is the final frontier of sports science; all other systems have been widely used to improve athletic performance. As a result, athletes and coaches felt that sports psychology was important for successful performance, but they did it from a holistic and rounded perspective. In particular, they consciously and intentionally addressed attitudes, team cohesion, fitness, mental preparation, nutrition, strength training, habituation or acclimatization, and enjoyment of the experience. As such, sports psychology is applied to football as part of a total sports science-based high performance training program. In football, there are many factors that are opposed to players such as physical, technical and social demands. Therefore, football psychology is the study of human behavior in soccer games or activities related to football. Seeking an understanding of the various psychological and psychological factors that influence sports performance, especially soccer, physical activity, and exercise, it is purely professional. It is therefore concluded that the application of sports psychology and participation in scientific training are required for football or soccer players to improve their performance. Therefore, psychological preparation is an integral part of the athlete's overall training process and is carried out in combination with training elements.

Key Words: Psychology, Stress, Anxiety, Simulation, Concentration and confidence.

1. INTRODUCTION:

Sports psychology has been defined as the scientific study of human behavior in the sports and the practical application of that knowledge (Weinberg and Gould, 2007). With this general objective in mind, sports psychology researchers strive to understand why athletes, coaches, officials and spectators behave the way they do. The mind is sports science last frontier; all other systems have been used extensively to improve the athletics' performances. Kinesiology, the science of human movement; have been used extensively to improve the players' movements. Even the athlete's blood has been sampled and their biorhythms chartered (Straub, 1980). Straub also defined sports psychology as the science of psychology applied to athletes and the athletic situation. It is the science that explains why we do what we do in the sports area. Singer (1980) asserted that psychology is, and always has been an integral part of sports. In this part of the world, this realization is very recent and not even involved in the training of the athletes most times. According to Ikulayo (1990) sports psychology is said to be a branch of sports science involving the science of psychology applied to sportsmen and women in athletic situations. Sports psychology attempts to study individuals in sports situations in order to analyze, explain, describe, modify, alter or predict behavior through various psychological means. Similarly, Vipene (2005) defined sport psychology as a science that deals with the emotional aspects of physical performance. In the context of competitive sports it is an attempt to explain and predict behavior of an athlete in the environment of competitive sports. The science of sports psychology does not end with the athlete on the field of play only. It spill to other aspects of the competitor ranging from the field of play to his or her domestic activities which in turn will affect sports performance. The concern sports psychology has been to make the athlete better. Further, athletes who develop self-esteem can get more motivated and become more productive (Core, 1990). Sports

Psychology is said to teach the individual to be positive, supportive and sensitive. These skills are described by Lyons (2004) as self-worth building skills.

Sport is no longer a pastime, run and organised by amateurs. Now with the growth of commercialisation it is a multi billion pound business that competes for scarce resources and uses, amongst other things, professional management techniques (Atkinson, 2015). Because of the increase and push towards efficiency, success and value for money, it has become of greater interest to players, coaches, administrators, spectators and owners to identify psychological attributes and mental skills associated with superior sport performance, as a primary stage of facilitating their development (Golby & Sheard, 2003). In football there can be many factors opposing players such as, physical, technical and social demands (Coutts, Reaburn & Abt, 2003). However there has been little research into the psychological factors affecting footballers at different levels (Hanin, Y.L., 2000), in particular, the mental toughness and hardiness of footballers. This is surprising given that an athlete's psychological response to competition is thought to depend largely on the characteristics and requirements of the sport (Krane & Williams, 1987).

Therefore, football psychology is the study of human behavior in football games or football-related activities. It is purely professional to seek an understanding of the various psychological and psychological factors that influence sports performance, especially soccer, physical activity, and exercise. Applying knowledge of psychology and its information to improve the performance of individual players and the team as a whole is very important. In particular, it deals with increasing performance by managing emotions and minimizing the psychological effects of injuries and poor performance. Some of the most important psychological skills learned are goal setting, relaxation, visualization, self-talk, concentration, self-confidence, ritual use, attribution training, awareness, and control.

2. REVIEW ON THE PSYCHOLOGY OF FOOTBALL

The following literature review aims to provide the reader with a contextual understanding and background on relevant materials in relation to the aims of this study. A significant breadth and perspective of the identified literature sources that are specifically relevant to the purpose of the paper are presented.

Historically, the use of sports psychologists within English professional football has been limited (Larsen, 2013). For example, during the 2002-2003 seasons only 5 English Premier League clubs employed a sports psychology consultant on a contractual basis. In contrast, Pain et al. (2002) found that 65% of the professional football academies surveyed in their study used sports psychologists. However, the degree of involvement of sports psychologists is unknown. The general reluctance and skepticism towards the inclusion of sports psychology in professional football (Johnson et al., 2010; Nesti, 2010) is surprising when we consider the importance that coaches attach to the psychological characteristics of youth footballers. For example, Gilbourne & Richardson (2006) suggested that youth football coaches often discuss psychological factors, such as discriminating who will do or do something in the game.

However, in the last decade applied sports psychology has expanded to include more humanistic, person-led approaches based on counseling psychology (Hack, 2005). Corlett (1996) used the term Socrates to refer to this alternative perspective on the provision of sports psychology services (Corlett, 1996). Although mental skills training has dominated much research in sports psychology, Carlette (1996) and others have highlighted the use of counseling techniques to further enhance an athlete's self-knowledge. Contrary to the suggestions of cognitive behavioral psychologists, Corlet (1996) suggests that a lack of self-knowledge may be the starting point for a number of problems athlete experiences, which is different from their skills. For example, in professional football, an athlete may face concerns of anxiety about terminating a contract at the end of the season, and therefore need more (Nesti, 2004). Counseling does not focus on providing athletes with immediate means to increase productivity. On the other hand, they can cause short-term inconvenience to clients. Vealey (1988) supported it and found that multi-faceted ideas focused on self-development provided an important new approach for sports psychologists. Although not specific to professional football, McDougall and colleagues (2015) identified the following potential barriers; a) the need to build and establish respect, b) ethical challenges and confidentiality, c) interdepartmental conflict, d) cultural demands, e) role clarity, and f) demonstrating effectiveness. In relation to constraint (a), Nesti (2010) emphasized the importance of developing a strong working relationship with the manager/head coach if the sports psychologist wants to be accepted and taken seriously.

Hence, there is considerable evidence in the sports psychology literature that desirable psychological characteristics contribute significantly to better sports performance. Furthermore, it has been suggested that as athletes rise to elite levels, only those with adaptive personality characteristics advance (Deaner and Silva, 2002). Sport is as much about revealing inner character and spirit as it is about technical brilliance (Cleary,

2005). For example, there are many recreational or intermediate level footballers with vast technical and physical attributes or have the potential to be professional footballers but lack psychological attributes or their personalities do not facilitate adjustment, which means they do not fulfill their potential. In continuation, Ryan and Laki (1965) also concluded that those who were in dire need of success and anxiety performed best in a competitive environment. Success is an important part of the mental structure of the athletic group (Kaveri, 2018). Thus, it appears that the review of this study covers a wide range of psychological factors such as motivation, personality, stress, emotions, anxiety and exhaustion, aggression and moral development, team cohesion, trauma and injuries, goal setting, self-talk, imagery, psychological effectiveness of interventions, and general perceptions of the psychological characteristics of the best athletes. Therefore, among the above areas, some of the selected factors of sports psychology are discussed in this study.

3. APPROACHES TO PSYCHOLOGY:

In general, the British Psychological Society recognizes five aspects or approaches to the study of psychology. These are individual differences, social psychology, cognitive psychology, physiological psychology and developmental psychology. Examples of how each of these methods can be applied to sports psychology are shown in the table below.

Table 1
Psychological approaches to understanding sport (Matt Jarvis, 2006).

Approach	Main focus of approach	Examples in sport psychology
Individual differences	Variation in the characteristics of individuals	Personality, attitudes to sport, motivation, anxiety
Social psychology	Ways in which people interact with one another	Attitudes to sport, aggression, team cohesion, team leadership
Cognitive psychology	Ways in which the mind processes information	Skill acquisition, motivation, imagery
Physiological psychology	The relationship between biological and psychological functioning	Arousal and performance, biological basis of personality traits
Developmental psychology	The processes of development of psychological functions and characteristics across the lifespan	Social learning, gender development, personality development

2.1. PREPARING FOR COMPETITION

Simple psychological skills to help the athlete manage a competitive performance environment include (Rohit B. Adling, 2017):

- Learning relaxation skills (e.g. Progressive relaxation, slow, controlled, deep abdominal breathing or autogenic training).
- Mastering all styles of attention (types of concentration)
- Imagery (both visualization and kinaesthetic)
- Self talk
- Developing a pre-computation mental mode for use just prior to a match day.

2.2. SPORTS PSYCHOLOGY IN PERFORMANCE ENHANCEMENT:

Sport psychology has many roles in achieving national sport objectives, so here are some of the roles that sports psychology can play in improving efficiency sports performance.

- The field of controlling the athlete's behaviour is one of the main roles of the sports psychologist since the entire personality of the athlete is involved in the playing field.
- The sports psychologist works on each individual's emotional conflict and the needs of the individual athlete, which makes him or her make decision that, are crucial to success or failure during the game.
- Sports psychologists address the emotional conflicts of individual athletes and the needs of individual athletes, and make essential decisions for success or failure during play.

- Sports psychologists are also involved in crisis interventions because they are considered an acute situation with emotional reactions that interfere with the athlete's excellent performance (Ikulayo, 1990 & 2003).
- Mental preparation is also addressed as a factor that has a great impact on athletes. Viz. Social status, family, economic background, their religious background, physical tolerance, moral background, social status and value system in society (Adedeji 1987).
- Sports psychologists are also involved to facilitate the learning process for example fixed error while learning skills.
- Teaching athletes how to deal with the pain associated with improving sports should develop a positive mental attitude to pain.
- Stress management is another important area that helps sports psychologists to improve their sports performance.
- The discipline of men and women in sports allows individuals to develop performance, build confidence, and develop a very high self-esteem that makes them feel and engaged in sports (Weinbeing and Gould 1995).

Therefore, these and many others are relevant areas in which sports psychologists help to develop sports and thereby improve peak performance.

4. ATTENTION AND CONCENTRATION:

Concentration, or the ability to focus on the task at hand, while ignoring distractions, is a vital factor in successful sports performance. Modern cognitive psychologists view the mind as a system for processing information with disabilities. One reason for this limitation is that working memory or people's current awareness is very short and fragile. To explain, psychologists distinguish between "long-term memory" (an unconscious system designed to store vast amounts of information for indefinite periods of time) and "working memory" (a conscious system that people use whenever they store and manipulate information., someone's name was presented at a party or a phone number called verbally) for a short period of time. If the information that gets into the working memory is not deliberately rehearsed, it will be lost forever within 15-30 seconds. Given this limitation, the most important task facing the mind is how to cope with the abundance of information available to it not only from the outside world, but also from the inner world of people's memories and imaginations. This task is made easier by a cognitive process called attention, a mental process that prevents information overload by making it easier to select one stimulus for further processing and suppress another.

In psychology, attention is a paradoxical concept because it is familiar but mysterious. On the one hand, it is a familiar term because it is ubiquitous in people's everyday language. For example, a football coach may ask his athletes to pay attention to something important that he is talking about. On the other hand, attention is also a rather cryptic concept, as it is multidimensional with at least three different constituent processes. To begin with, on an empirical level, the process of concentration of attention refers to the deliberate investment of conscious mental effort by people in processing information that is important to them at a given moment. For example, a footballer shows concentration when he goes to great lengths to listen carefully to every word of his coach's instructions before a big game. The second dimension of attention involves selective perception or the ability to magnify important information while ignoring potential distractions. For example, in football, penalty takers must learn to focus only on the ball when they put it on a penalty kick, ignoring the distracting movements of the goalkeeper or other players. The third attention process is "split attention" and refers to the fact that with enough practice, athletes can learn to perform two or more simultaneous actions equally well. For example, a football player might dribble and scan the field for possible passing opportunities while running fast. Thus, attention includes at least three different dimensions - deliberate investment of mental effort, selective perception, and a form of mental time-sharing in which people can perform two or more skills equally well (Aiden P. Moran, 2009).

5. STRESS AND ANXIETY:

One of the most studied and frequently cited areas of applied sports psychology is stress and anxiety during competition. This fame is undoubtedly due to the stressful nature of elite sports and the demands of the competitive environment surrounding the modern athlete. Modern thinking views stress as a dynamic relationship between athletes and their training and competition environment. Specifically, performers assess the requirements of the situation and then try to cope with those requirements. Inherent in this approach is the prospect that performers will face many different demands that are costly on their resources, and the athletes' perceived coping ability will shape the stress process. If athletes feel they cannot handle the demands, then they

are likely to experience different levels of anxiety before competition. The role of assessment in the stress process is central in the context of determining the most appropriate stress management intervention. In particular, the stress reduction method assumes that performers respond to demands with negative consequences for performance. Here in the literature, it is assumed that aspects of competition (for example, reflections on performance, goals, and anticipated level of physical and psychological fitness), interpersonal relationships (for example, expectations of teammates, coaches, family members), financial issues (for example, funding, sponsors), traumatic experiences (for example, the risk and consequences of injury), and weather and environmental conditions can cause athletes to have different responses to anxiety. An important distinction to make at this stage is the separation of anxiety into cognitive and somatic symptoms. So far, the term anxiety has been used in a global way to describe how performers respond to the demands within stressful situations. It is important to realize, however, that coaches and practitioners should distinguish between athletes' mental and perceived physical responses to the stressors they encounter. Specifically, cognitive anxiety responses are the thoughts athletes experience in stressful situations such as worries, negative expectations, and apprehensions about performance (i.e., athletes' mental response to stressors). However somatic responses are the athletes' perceptions of their physiological arousal state in stressful environments (i.e., athletes' perceived physical response to stressors). Symptoms categorized as somatic include muscular tension, butterflies in their stomach, increased heart rate, and perspiration (Sheldon H. et al., 2009). In addition, increased in pre-competition anxiety and especially cognitive symptoms are always detrimental to performance. This is a basic prerequisite for reducing stress levels. It is also suggested that the relationship with performance be determined at a more individual level and that athletes have optimal levels or zones of concern within which their performance will be maximized. These statements resulted in the interventions being individually tailored, with contractions required at certain points in time if the performer was overly agitated, but in other cases, the practitioner might consider raising the level of anxiety to perform energetic function. The above view is based on the principle that high level of anxiety can be interpreted positively and actually benefits the athletic performance.

5.1. SELF- CONFIDENCE:

Athletes have identified several important types of confidence including the need to believe in their abilities to execute physical skills, attain high levels of physical fitness, make correct decisions, execute mental skills such as focusing attention and managing nervousness, bounce back from mistakes, overcome obstacles and setbacks, achieve mastery and personal performance standards, and win and demonstrate superiority over opponents. Figure 1 offers a categorization of these various types of confidence identified by athletes as important in sport. Athletes should develop and maintain beliefs about their abilities to (a) win (outcome self-confidence), (b) perform successfully in relation to certain standards (performance self-confidence), (c) self-regulate to manage their thoughts and emotions as well as bounce back in demonstrating resilience (self-regulatory self-confidence), and (d) execute the physical skills, achieve fitness/ training levels, and learn new skills needed to be successful in their sports (physical self-confidence) (Robin S. Vealey, 2009).

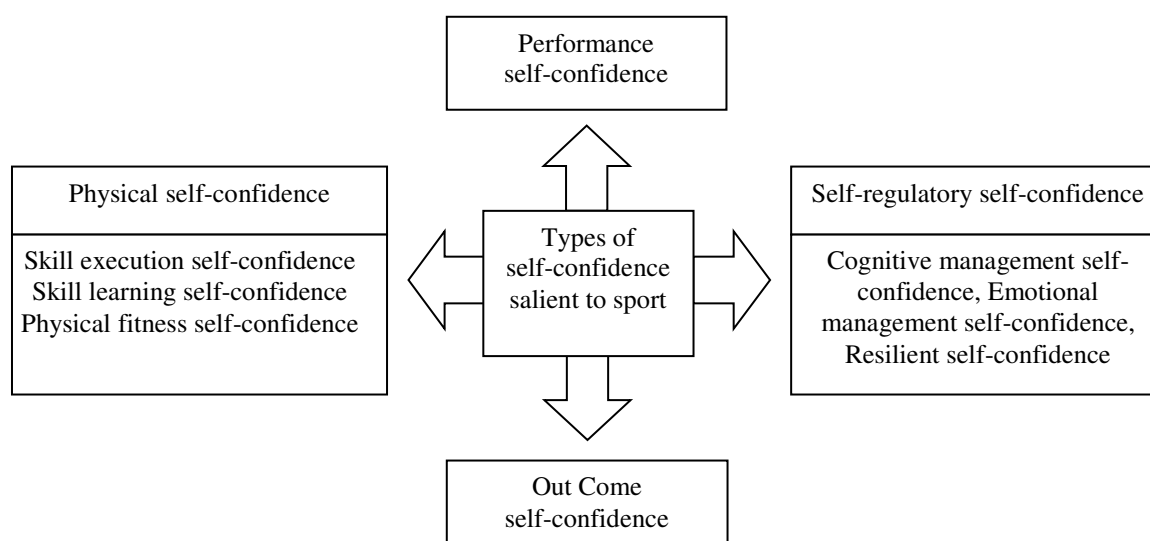


Figure 1 Types of self-confidence needed by athletes in sport

5.2. SIMULATION TRAINING:

Simulation training is based on the assumption that athletes will learn to concentrate more effectively in real-life pressure situations if they can recreate these situations in practice and train under them. Simulation techniques are also widely used by soccer coaches. To illustrate, Jose Mourinho, the manager who guided FC Porto to European Champions' league victory in 2004 and who subsequently won several Premier league titles with Chelsea in England, devised training drills for his players that simulated the decision-making situations (e.g., passing under pressure from opponents) that they would face in competitive matches. More generally, a list of possible simulation techniques for counteracting distractions in soccer is provided in Table 2 (Aiden P. Moran, 2009).

Table 2
Simulation techniques used in soccer coaching (Aiden P. Moran, 2009).

Distraction	Possible simulation technique
Crowd noise	Play specially recorded CDs with crowd noise during training to educate players on anticipated distractions during off-site matches.
Gamesmanship	Arranging for teammates to simulate opponents' possible gamesmanship (e.g., verbal insults) during training sessions or practice matches.
Fatigue	Alternating normal training sessions with short bouts of high-intensity exercise in order to induce the type of fatigue that may be expected in competitive matches.
Heat/humidity	Arranging for players to train and play while wearing layers of extra clothing in order to simulate hot weather conditions.
Unfavourable refereeing decisions	Designing modified game situations containing deliberately unfair umpiring decisions
One player missing	Creating pressure situations in training (e.g., practicing the retention of possession of the ball with only 10 players) in order to simulate a situation in which one player has been sent off

6. DISCUSSION:

The review clearly shows that the scientific evidence is accumulating and that it is developing the psychology of football. Researchers are focusing on better understanding both performance improvement and personal growth through the aspects of participating in various football codes. Sport psychology has been around for a century, gaining widespread acceptance in the 1960s and its influence grew rapidly at the time of writing. Sport psychologists conduct research, educate stakeholders such as coaches, and work directly with athletes to improve their performance. Some psychologists distinguish between academic and applied sport psychology, but this is controversial. Also controversial is the issue of accreditation of sport psychologists. Currently, there is a move towards certification in all professions. However, there is some resistance to sports psychology. In other words, some experienced practitioners do not seek certification. For a person who is new to psychology, it is important to understand some basics about how a subject works. In particular, clarifying the difference between theory and research and become familiar with the five approaches to studying psychology and the theoretical directions psychologists may adopt (Matt Jarives, 2006). In order to progress, researchers must focus on high impact studies as part of systematic research, combining theory or testing, combining previous football literature with psychology and sports psychology in general. In addition, it is found that the mental skills of players can be developed through systematic training, and this training affects the efficiency and personal well being.

Success or failure on the field often depends on mental factors as well as physical factors. Sports psychologists recognize the dramatic impact of an athlete's mood, and focus on preparing the mind to overcome obstacles on the field while increasing confidence in optimal performance. Boosting motivation is mainly about changing attitudes, developing positive "can do" thinking, and engaging in systematic behavior — short-term process goals — that drive improvement. If a person is playing a leading role in a sport, he or she will have a significant impact on how motivated the athletes or team can be. They can convey good work ethics, recognize individual efforts and create transparent reward structures that strengthen people's sense of competence. To work best, the specific techniques mentioned in sports psychology need to be adapted to specific circumstances and the needs of individual athletes. Always strive to be original and innovative in using psychological techniques.

Finally, coaches and the motivational and moral climates they create have a major impact on the psychological development of the player. Therefore, it is important that they receive training on football psychology.

7. CONCLUSION:

Based on the current review (Holt & Dunn, 2004; Mills et al., 2012; Mitchell, 2015), sport psychologists may be better informed to identify those psychological traits that lead to the successful development of professional football players. In addition, with a thorough understanding of the main psychological challenges faced by players throughout the developmental stages, sport psychologists could design and implement a psychological development program tailored to the needs of players. Further, research that investigates staff perceptions of what constitutes effective sports psychology practice in a sports match will be helpful in sports play. Thus, because of the immeasurable contributions of psychology to sports, therefore, it is concluded that application of sports psychology and participation in the scientific training is necessary to a football or soccer player for improving their performance. Therefore, psychological preparation should be an integral part of the athlete's holistic training process, carried out in combination with those training element.

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EFFECTS OF AEROBIC TRAINING ON CARDIO-RESPIRATORY ENDURANCE

¹Dr. Laishram Santosh Singh, ²Dr. Kangabam Romeo Meetei, ³R. K. Raju Singh

Department of Physical Education and Sports Science
Manipur University, Canchipur, Imphal, Manipur - India
Dept. of Teacher Education, Manipur University.
ADPES, Tezpur University, Assam

Abstract:

The main purpose of this study is to find out the effects of aerobic training on Cardio respiratory endurance. Health is the most important thing that a person should take care of. A healthy person is capable of living his life to the fullest, without any major medical or physical issues. Being healthy is not only related to the physical well-being of a person, it also involves the mental stability or the internal peace of a person. Therefore we should do regular exercise in order to keep our overall body healthy and fit. Therefore, researcher decided to prepare a legalized training course consistent with the sample of the study. The main purpose of the study is to find out the effects of Aerobic Training on Cardio-respiratory Endurance of the athletes. For this study 10 Athletes who have participated in the national level competition were selected as the subjects and their age ranged between 20-25 years. The researcher used the empirical method as it helps to solve the problem of the study. To find out the effects of aerobic training on cardio-respiratory endurance of the athletes, the Cooper's Test was administered. To find out of cardio-respiratory endurance of the athletes the researcher collected data through administered of 'cooper's test' before and after the aerobic training. The duration of the training period was 6 weeks (42 days). The researcher concluded that the aerobic training has an effect on the research variables in post- tests more than pre-tests with different proportions. In addition, cardio-respiratory endurance is important to reduce fatigue through body adaptation after physical effort.

Key Words: Aerobic Training, Cardio-respiratory Endurance.

1. INTRODUCTION:

A person who is physically and mentally fit is strong enough to face the ups and downs of life, and is not affected by drastic changes in the circumstances. Aerobic training requires the perfect matching of the respiratory and cardiovascular systems, in order to provide the muscles with the necessary supply of energy to be transformed into mechanical work. On the part of the cardiovascular system, increased supply of arterial blood (and oxygen) to the involved skeletal muscles and constant removal of metabolic waste (such as carbon dioxide or lactate) released by the exercising muscles require an increase in cardiac output. The left ventricle undergoes hypertrophy and dilatation, and sympathetic stimulation during exercise increases myocardial contractility, contributing to the increase in stroke volume to match demand. Similar changes occur in the right ventricle. At the micro vascular level, increased production of nitric oxide is associated with enhanced endothelium-dependent vasodilation and decreased arterial stiffness. In the elite athlete, cardiac output can increase up to 40 L·min⁻¹, while in healthy subjects the response to exercise training is lower but still considerable (cardiac output from 5 up to 20 L·min⁻¹). Endurance training forms the basis of exercise-based - rehabilitation programme in patients with cardiovascular disease, and exerts positive effects on autonomic balance and cardiovascular outcomes.

Cardio respiratory endurance is the ability of the body to perform prolonged, large- muscle, dynamic exercise at moderate to high levels of intensity. This includes long walks, jogging, swimming, cycling, aerobic, and dancing. A healthy cardio respiratory system is essential to high levels of fitness and wellness.

The cardio respiratory system consists of heart, blood vessels, and the respiratory system. It picks up and transport oxygen, nutrients and other key substances to the organs and tissues that need them. It also picks up waste products and carries them to where they can be used or expelled.

1.1. Problem of the study

Health is the most important thing that a person should take care of. Leading a healthy lifestyle leads to happiness, success and achievements. Regular physical activity can help reduces the risk of several diseases such as Heart disease and Stroke, High blood Pressure, Obesity, Diabetes, Osteoporosis, Back Pain, and many health conditions and improve overall quality of life. Therefore, the researcher decided to prepare a legalized training course consistent with the sample of the study and stated the problem as **Effects of Aerobic Training on Cardio-respiratory Endurance**.

2. OBJECTIVES OF THE STUDY:

The main objective of this study is to find out the effects of aerobic training on Cardio respiratory endurance.

3. METHODOLOGY:

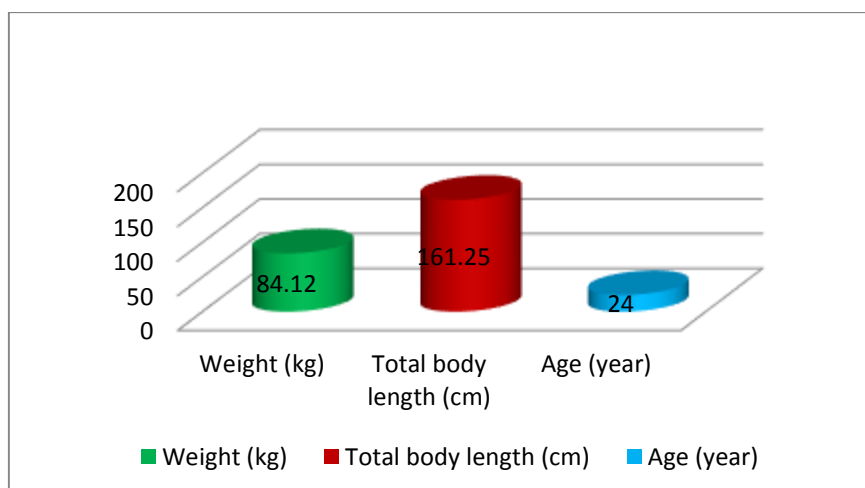
The researcher used the empirical method as it helps to solve problem of the study “attempting to adjust the main factors affecting the change of dependent variables in the trial except for one factor controlled by the researcher and changed in a certain manner to determine its effect and measurement in dependent variables (s)”. To achieve the purpose of the study 10 athletes who are participated in the national level completions were selected as subjects in an age group of 20-25 years. The selected subjects were given aerobic training in a schedule of weekly five days (Monday, Tuesday, Wednesday, Thursday, and Friday) and two days (Saturday and Sunday) are rest for the period of six weeks (42 days).

3.1. Sample of the study:

For the purpose of the study 10 Athletes who have participated in the national level competition were selected as the sample and their age ranged between 20-25 years. To determine sample homogeneity, the researcher extracted skewness coefficient for the selected sample to make the main trial in high accuracy. The researcher extracted skewness coefficient for length, weight, and age after extracting arithmetic mean, median, and standard deviation for each item. Results showed sample homogeneity because it was between ± 3 as shown in Table 1.

Sample properties, statistical features, and sample homogeneity values

Tests	Mean \pm SD	Median	Skewness value
Weight (kg)	84.12 \pm 10.09	82.5	1.023
Total body length (cm)	161.25 \pm 3.59	160	0.119
Age (year)	24 \pm 8.82	24	2.867



Determining tests of the study: Through reference research and consulting the supervisor, the cooper's test was adopted to find out the cardio-respiratory endurance of the athletes.

Pre-tests: Pre-tests were conducted on the sample of the study (10 males athletes) at 10 am on Saturday, 20/10/2018. The researcher applied cooper's test to find out the effect on cardio respiratory endurance with the same consistent variables in the test (time, place, device tool and assistant teams) in the post.

The Training Program: The empirical group was subject to items of the aerobic training programme prepared by the researcher in a period of 6-weeks (42 days) starting from 23/10/2018 to 06/12/2018. The rate of the aerobic training in a single week was five days training units (Monday, Tuesday, Wednesday, Thursday, and Friday) and 2 days are given the rest (Saturday and Sunday) for the period of 6 weeks aerobic training.

Sl.No.	Day	Aerobic Exercise	Intensity	Repetition	Duration
1	Mon	Low, Slow Distance (LSD)	70% of VO2 max	1	60 minutes
2	Tue	Fartlek Run	50%	1	45 minutes
3	Wed	Interval Run	50%	1	45 minutes
4	Thu	Race Pace over hills and flats	60%	1	60 minutes
5	Fri	Repetition Run	50%	1	45 minutes
6	Sat	Rest			
7	Sun	Rest			

Weekly Aerobic Training Program

Post-tests: Post-tests were conducted on the sample of the study on December 08, 2018 (Saturday), with the same sequence as pre-tests. The researcher committed to follow the same method in pre-tests and provided the same conditions and requirements including time, place, work team, assistant team, and the applied method in tests.

4. DISCUSSING AND ANALYZING RESULTS:

Presenting and Analyzing Results of Pre- and Post-tests for the Sample as showing in the table 2.

Table - 2
Results of pre- and post-tests for the sample of the cardio-respiratory endurance

Features	Variables	Measure unit	Mean±SD		Counted T	Error level	Sig.
Cardio respiratory system	Cooper's test	Meter	Pre-tests	13.00±2.256	4.387	0.00	Sig.
			Post-tests	14.58±2.20			

Significance level (0.05) and freedom degree (19)

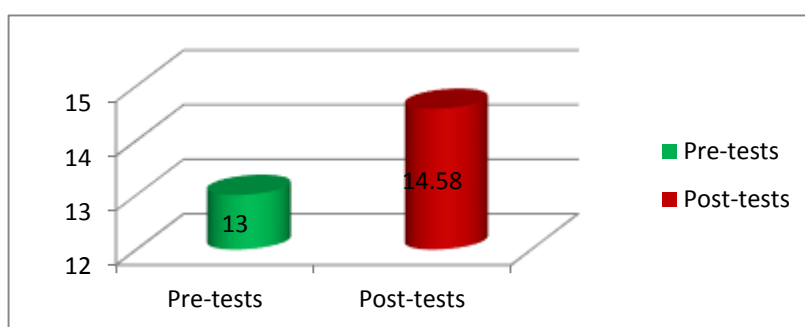


Figure: Pre- and Post-tests for the sample of the cardio-respiratory endurance at significance level (0.05) and freedom degree (19)

Table 2 shows results of pre- and post-tests for the sample of the cardio-respiratory endurance tests using the *t*-test for symmetric samples.

From results of Table 2, reveals that there is a notable development showing the effectiveness of aerobic training in developing cardio-respiratory endurance for the sample. References show that the cardio-respiratory endurance training works in big muscles which lead to consume amounts of oxygen more than speed training. This agrees who refers that “functional effect through continuous load method is working on raising functional work of the heart, circulatory system, and respiratory system, organizing oxygenic exchange process, increasing the ability of blood on carrying the biggest amount of oxygen and necessary fuel to continue exerting effort, and then increasing cardio-respiratory loads as happened with the sample of the study.” The researcher noticed that there were statistically significant differences in terms of results of cardio respiratory endurance test results between pre- and post-tests in favor of post-test. The researcher attributes this to continuous aerobic training that develops general endurance, especially, increase cardio respiratory function and allows for improved oxygenated blood delivery to the working muscles. This was approved in the researcher’s course. Through enhancing the function of the cardio-respiratory endurance and increasing blood’s ability to carry bigger amount of oxygen and necessary fuel to continue exerting effort at aerobics, continuous training develops oxygenic ability which works on “enhancing muscular work that depends mainly on oxygen in producing aerobic energy for a long period before feeling fatigue”.

5. CONCLUSIONS:

- An aerobic exercise has an effect on cardio respiratory endurance of the study more in post-tests and pre-tests.
- Cardio respiratory endurance is important to reduce fatigue through body adaptation after physical effort.

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**COMPARISON PERSONALITY TRAITS BETWEEN THE
PHYSICALLY CHALLENGED SPORTSMAN AND NON-
SPORTSMAN**

¹L. Pugnding, ²Salam Shantikumar Singh, ³Laishram Thambal Singh

¹Department of Physical Education & Sports Science, Manipur University

²Department of Statistics, Manipur University

³Department of Physical Education and Sports Science, Manipur University

Abstract:

The personality traits are varied among the physically challenged persons. It may be due to many factors such as social, education, physical exercise, diet etc. The purpose of the study is to compare the personality trait between the physically challenged sportsman and non-sportsman of Manipur. R.B. Cattle's 16PF questionnaire was selected as criterion measures to compare the personality traits among physically challenged sportsman and non – sportsman. It is an objective test, which gives the most extensive coverage of individuals. A total of 80 physically challenged male, 40 from physically challenged sportsman and 40 from physically challenged non- sportsman were selected as the subjects. The level of personality traits for both physically challenged sportsman and non-sportsman are neither low nor higher. They have average level of 16 personality factors however sportsman are significantly higher level of venturesome and self-sufficient than non-sportsman but less intelligent.

Key Words: Physically challenged, Sportsman, Non-sportsman, Personality traits.

1. INTRODUCTION:

Everyone is born with innate capacities, capabilities and a sort at genetic blue print. The goal of life is to fulfil this genetic blue print to become whatever we are inherently capable of becoming and thus resulting into “fully functioning person”. Physically challenged people are deprived from the opportunity of fulfilling their inborn potential. They become constricted, rigid and defensive. They feel themselves threatened, anxious and experience a considerable discomfort and uneasiness. Some people realize that they do not know what they are and what they want but life itself is a continuous process of facing challenges. These challenges are different each time become the situation as well as the individual himself keeps changing well-adjusted people enjoy the difficulties of life. They do not step aside and rather accept the challenge and are willing to experience the pain and confusion (Charles, 1990, 624-463).

Whether it is concerned with physically challenged people or normal population for both personality assessments is one form to help that sports psychology can offer. Personality assessment aims to identify individual traits and personality profiles. Personality assessment has been used now in the selection of athletes and also serves as a tool to evaluate sports gifted individual and to orient the child to specific sports activities. In recent year psychologist and physical educators have become increasingly interested in assessing the personality of athlete. There has been a general premise that athlete possess unique personality characteristic. He indicated the personality rating or trait of personality; dominance, persistence, drive and confidence have been found to go most often with success in the field of athletes (Kane 1965).

Personality involved from a number of influence. They may be divided into three broad categories, physical personal, social and cultural, and physical influence are the inherited biological characteristic that cause people to differ from each other. Personal influence is the unique events experienced by the individual that cause long effects on him. Social – cultural influences are internationalization from the environment that surrounds the individual. These influences are absorbed from parents, educators, social institutions and various Medias and are the product of the society in which the person lives. Thus when a child performs well in the

socially sanctioned activity such as sports, he will usually receive reinforcement in the form of support from parents and other. The carriers of most of the athletes reveal that they were strongly reinforced early in life and are encouraged to devote their energies to sports (Dorcan, 1976).

Today with the changes in time and value the exceptional or disabled child needs psychological trait such as self-confidence, self-regard, self-consistency and self-respects in society, in fact disabled one ordinary people with special needs or who have very extra ordinary needs, but most of the time. It has been observed that the people with special needs under estimate their capabilities themselves because of psychological depression (Damiel et.al., 1969). It is believed that human being are meant for some purpose, they are responsible for some specific task like enhance the status of their nation, contribute something for human beings etc. To perform these duties one must be physically, mentally, socially and spiritually sound. But at the same time handicapped person are not to be neglected. They are also coming under the categories of human being, lacking of any system are not proved that they keep isolated. They can also contribute their best for the nation and for the human being. In older days, up to the time of Second World War most of the people and children who were physically disabled spend their lives at home or in hospitals; their capabilities were considered incapable members of society (Wheeler & Hooley, 1976). Actually, the needs of disables in a democratic society are not different from those of normal children; such a child wants an acceptance for recognition from his fellow students in the school. He wants the security that grows out of acceptance in the process of growing up and living with the social groups.

2. STATEMENT OF THE PROBLEM:

Someone who is physically challenged has a problem with their body that makes it difficult for them to do things that other people can do easily. Thus, the physically challenged persons are comparatively weaker than normal persons are. If physically challenged persons are involved in sports then they are relatively active as normal persons in terms of body fit as well as personality traits. In other words, sports may increase the personality traits of individuals. However, the personality traits are varied among the physically challenged persons. It may be due to many factors such as social, education, physical exercise, diet etc. Therefore, it is the issue to compare the personality traits between the physically challenged sportsman and non-sportsman.

3. OBJECTIVE OF THE STUDY:

The main objective of the study is to compare the personality traits between physically challenged sportsman and non-sportsman.

4. HYPOTHESIS OF THE STUDY:

There is no significant difference of personality traits between physically challenged sportsman and non-sportsman.

5. SIGNIFICANCE OF THE STUDY:

The finding of the study will indicate the personality traits of physically challenged sportsman and non-sportsman. The study would be worthy for the sports psychologists to construct for physically challenged sportsman and non-sportsman. The study may motivate other researchers who are interested in this area to take up a similar study and help to bring physically challenged person to the mainstream. The study may help the physical education teacher and coach to understand the difference between the personality traits of physically challenged sportsman and non-sportsman. The study may provide adequate knowledge for the teacher in institute for physically challenged persons in planning and administrating a specific physical education programmed.

6. REVIEW OF RELATED LITERATURE:

Lashley (1972) suggests that there is some significant relationship between the socio economic status and levels of physical fitness of Negro Junior High School boys and Caucasian Junior High School Boys. Mendell (1974) studies to determine whether there are personality difference between male college freshman swimmers and non – swimmer and to determine the non – starter, the subject were taken from Western Illinois university. Number of significantly difference on any of the 16 characteristics factor was found between offensive and defensive players. Newman (1978) studies the personality trait of faster and slower competitive swimmers and indicating a tendency for rank of swimming performance to correspond with rank of personality variable. Bellomy (1971) administered the cattails 16 PF questionnaire from A to 151 subjects from religious organization to determine a correlation analysis of the personality characteristics of subjects from a selected

religion organization. The subjects were stratified on 12 demographic variables through the use of a questionnaire designed for that purpose. The result indicated that all 12 demographic variable correlations significantly with one or more of the personality variables the statistical analysis corrected the demographic variable with the personality variable. Van Schoack (1980) conducted a study to compare selected personality trait of colligate male soccer players. The results indicated that the non – starter were significantly more shrewd that starter – number of significant differences found on any of the 16 factor were found between offensive and defensive players. Marina Shariati & Sabah Bakhtiari (2011) studied to compare the personality characteristics (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) non-athlete students and student athletes, Islamic Azad University of Ahvaz deals. Results showed that participation in sports has a positive effect on the personality characteristics of people. Also athletes are more positive personality characteristics than non-athletes. Saeed & Pandey (2015) studied to compare the self-efficacy of sportsman and non- sportsman players. The results of the study showed that there was a significant difference in self efficacy sportsman and Non- sportsman Players at 0.05 level of confidence. It was concluded that Non- sportsman players showed significantly more self-efficacy than the sportsman Players.

Singh (1986) has suggested that most of the coaches agree that the physical characteristics, skill and training of the players are extremely important but they also indicate that good mental preparation for competition is a necessary component for success in western countries, especially in East European countries like Russia, GDR, Bulgaria, and Czechoslovakia much stress is being given on the psychological conditioning of their players and sportsmen. Carter and Sharma (1941) compare the adjustment and personality of athletes and non athletes. It was found that the athletes were superior to the non- athletes. Nair (1972) studied the effects of N.C.C Training on physical growth, adjustment, academic achievement and certain personality traits of high school pupils in Kerala state. The Significant gain in physical development, adjustment, achievement in English, General science and social studies and personality traits were found.

7. METHODOLOGY:

The subject was selected after through search of all the district of Manipur who was of physically challenged sportsman and non-sportsman. 40 male of physically challenged sportsman and 40 male of physically challenged non – sportsmen were selected for the study. To compare the personality traits among physically challenged sportsmen and non – sportsmen 16 PF, questionnaire developed by Raymond. B. Cattell and Herber w. Eber (1962) supplied by Psycho Centre, New Delhi was selected as criterion measure. It is an objective test, which gives the most extensive coverage of individuals. The scores were recorded by using the scoring stencils and the raw scores were converted into “Sten” with the help of norms (16PF manual). The Sten scores (standard ten) are distributed over 10 equal-interval standard score points from 1 to 10 by taking population mean is fixed at 5.5 and standard deviation is 2.0 sten scores. The Sten scores from 4 to 7 are considered as average, Sten scores from 1 to 3 are considered as low and the Sten scores from 8 to 10 are considered as high.

8. STATISTICAL ANALYSES:

The mean, standard deviation were calculated with the help of raw scores and converted into standardized scores to compare the selected personality traits among physically challenged sportsman and non-sportsman. The statistical analyses of data in respect of the 16PF questionnaires were administered to two groups comprising of physically challenges sportsmen and non-sportsmen. The mean, standard deviation and t-test and ANOVA (F-test) were employed to find out the significant differences and the level of significance was chosen at 0.05.

9. FINDING:

A comparison between physically challenged sportsman and non-sportsman is made on and absolute scores of 16PF as well as the standard ten scores (Sten). The following table 1 shows the mean and standard deviation of each factor for physically challenged sportsman and non-sportsman.

Table 1: Absolute (Raw) Scores Sportsman vs Non-sportsman

Factor	Sports man (Mean± SD)	Non-Sports man (Mean ± SD)
A*	6.98± 1.368	6.30 ± 1.572
B	4.13± 2.255	4.48 ± 1.569

C	9.53± 1.601	9.20 ± 1.471
E	9.63± 1.659	9.10 ± 1.692
F	9.88± 2.028	9.55 ± 1.679
G	7.15± 1.847	7.13 ± 1.488
H*	10.18± 1.999	9.23 ± 2.032
I	8.08± 1.940	7.43 ± 1.466
L	7.63± 1.835	6.90 ± 1.429
M*	9.48± 2.000	8.43 ± 1.738
N	6.93± 1.575	6.45 ± 1.584
O	12.40± 7.702	8.78 ± 1.915
Q1	7.05± 1.768	6.53 ± 1.261
Q2**	7.78± 1.790	6.28 ± 1.569
Q3	7.75± 1.335	7.10 ± 1.692
Q4	9.55± 1.811	8.90 ± 1.959

*significant at 5% level of significance,

** significant at 1% level of significance

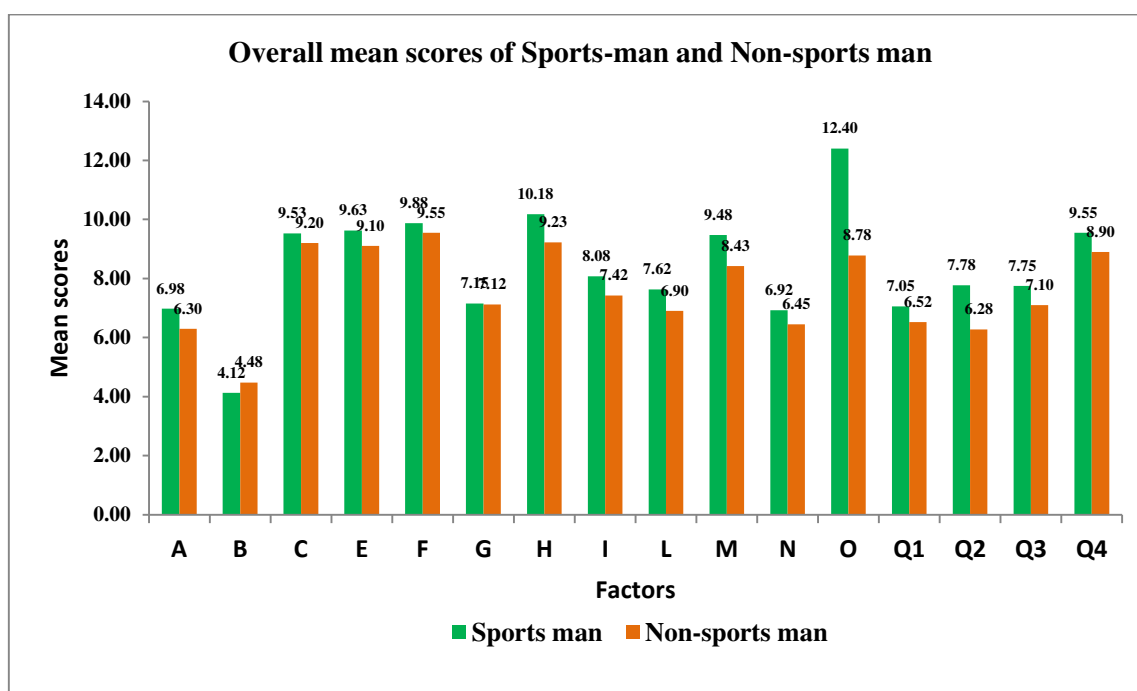


Figure-1

A comparison between sportsman and non-sportsman based on raw scores of 16 PF is made. In this analysis, it has been observed that there is significant difference between sportsman and non-sportsman in the factors A (Warmth), H (Social Boldness), M (Abstractedness) and Q2 (Self-Reliance). In these four factors, mean scores of sportsman are significantly greater than non-sportsman suggesting that physically challenge sportsman are more warm-hearted, socially bold, abstracted and Self-reliant than non-sportsman. But there is no significant difference between sportsman and non-sportsman on other factors-B, C, E, F, G, I, L, N, O, Q1, Q3 and Q4. In this case, the research hypothesis was accepted and null hypothesis was rejected for the factors A, H, M and Q2, for remaining factors the null hypothesis was accepted.

Further, the raw scores are converted into standard ten score ranging from 1 to 10 with population mean score 5.5 and standard deviation 2.0.

Table 2: Ten Scores of Sportsman VS Non-sportsman

Factors	Sportsman (mean± SD)	Non-sportsman (mean± SD)
A	5.68±1.33	5.56±0.73
B*	5.24±2.09	6.22±1.58

C	5.72±1.38	5.62±0.78
E	5.67±1.28	5.40±1.18
F	5.66±1.30	5.72±0.97
G	5.45±1.36	5.51±1.27
H*	5.86±1.35	5.26±1.14
I	5.66±1.37	5.53±1.05
L	5.71±1.36	5.43±1.05
M	5.78±1.31	5.52±0.86
N	5.87±1.14	5.48±0.95
O	5.93±2.75	4.90±4.11
Q1	5.73±1.26	5.40±0.99
Q2*	5.86±1.43	5.29±0.76
Q3	5.75±1.17	5.59±1.12
Q4	5.83±1.32	5.63±0.90

*significant at 5% level of significance

Using t-test the significant difference between physically challenged sportsman and non-sportsman in 16 factors of personality traits is tested. It has been revealed that there is significant difference in factors B (less intelligent v/s more intelligent), H (Shy v/s venturesome) and Q2 (Group dependent v/s self sufficient) but no significant differences in other factors. It suggests that physically challenged sportsman are comparatively less intelligent than physically challenged non-sportsman, but they are more venturesome and self sufficient than non-sportsman.

However, scores of factor B for both sportsman and non-sportsman are falling in the average range of 4 to 7. Thus, they are neither lower scholastic mental capacity nor higher scholastic mental capacity. Similarly mean scores of factors H and Q2 for sportsman and non-sportsman are also in the average range of 4 to 7.

9.1. Global Scales of Personality Traits:

In addition to the analysis and interpretation of each factor of the 16 primary traits separately, composite scores of several factors can be computed as second order factors known as global scales of personality traits. According to Krug & Johns (1986), the second-order factor equations for the 16 PF primaries are given in table 3.

Table 3: Factor Equations

Second order factor	Equation
Extraversion	$0.28A + 0.35F + 0.36H - 0.38Q_2 + 2.15$
Anxiety	$-0.29C - 0.12H + 0.13L + 0.34O - 0.12Q_3 + 0.34Q_4 + 3.96$
Tough Poise	$-0.20A + 0.19F - 0.64I - 0.42M - 0.19Q_1 + 12.43$
Independence	$0.53E - 0.14G + 0.34H + 0.23L - 0.14N - 0.17O + 0.24Q_1 + 0.11Q_2$
Superego/Control	$0.68G + 0.49Q_2 - 0.94$

By using above equations for extraversion, anxiety, tough poise, independence and superego/control, the total score of every respondent is computed. Further, the level of these global factors is categorized into low, average and high according to total scores and comparison between sports man and non-sports man on these factors is made in the following table 4.

Table 4: Second order factors (Global Scales) of Sportsman and Non-sportsman

Second order factors (Global Scales)	Level	Sports		Total	Chi-square	P-value
		Sportsman	Non-Sportsman			
Extraversion	Low	0 (0.0)	1 (2.5)	1 (1.3)	3.013	0.222

	Average	38 (95.0)	39 (97.5)	77 (96.3)		
	High	2 (5.0)	0 (0.0)	2 (2.5)		
Anxiety	Low	3 (7.5)	1 (2.5)	4 (5.0)	3.216	0.200
	Average	35 (87.5)	39 (97.5)	74 (92.5)		
	High	2 (5.0)	0 (0.0)	2 (2.5)		
Tough Poise	Low	6 (15.0)	4 (10.0)	10 (12.5)	1.642	0.440
	Average	31 (77.5)	35 (87.5)	66 (82.5)		
	High	3 (7.5)	1 (2.5)	4 (5.0)		
Independence	Low	3 (7.5)	3 (7.5)	6 (7.5)	1.138	0.566
	Average	31 (77.5)	34 (85.0)	65 (81.3)		
	High	6 (15.0)	3 (7.5)	9 (11.3)		
Superego/ Control	Low	4 (10.0)	2 (5.0)	6 (7.5)	2.051	0.359
	Average	30 (75.0)	35 (87.5)	65 (81.3)		
	High	6 (15.0)	3 (7.5)	9 (11.3)		

The majority of both sportsman and non-sportsman are average level of extraversion i.e. 95 percent of sportsman and 97.5 percent of non-sportsman. The chi-square test confirms that the factor extraversion are not associated with the physically challenged person is either sportsman or non-sportsman. They have possessed average level of extraversion that is extraverted and socially participating. Likewise, majority of sportsman and non-sports is at average level of Anxiety, Tough Poise, Independence and Superego and these factors are not associated with the person is either sportsman or not. Finally, it may be concluded that personality traits of physically challenged sportsman and non-sportsman are average level of global factor.

10. CONCLUSION:

The purpose of the study was to compare the selected personality traits among physically challenged sportsmen and physically challenged non-sportsmen. The level of personality traits for both physically challenged sportsman and non-sportsman are neither low nor higher. They have average level of 16 personality factors. However sportsman are significantly higher level of venturesome and self-sufficient than non-sportsman but less intelligent.

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IMPACT OF YOGA ON MENTAL HEALTH AND QUALITY OF LIFE FOR INDIVIDUALS LIVING WITH HIV: A PRELIMINARY RANDOMIZED CONTROLLED TRIAL

¹Phurailatpam Annie, ²Nongmaithem Jyoti Devi ³Kuntal Ghosh

Abstract:

Considerable numbers of people living with HIV suffer from psychological problems such as anxiety, depression and stress due to their own problem and social stigma. Presence of psychological problems in HIV individuals' leads to poor sleep and poor quality of life. Yoga is well-known for its beneficial effect on psychological function besides improving the quality of life. Thus the aim of the study was to assess the impact of yoga at improving well-being among individuals living with HIV/AIDS. Thirty participants were recruited from health centre in Manipur for the HIV/AIDS positive people Rural Service Academy (RUSA), run by the non-governmental organisation (NGO). Participants were randomly divided into two groups (15 in yoga group and 15 control group) using computer generating number. Standardized measures used were Depression, anxiety and stress scale (DASS 21), Pittsburgh sleep quality index (PSQI) and WHOQOL-HIV BREF questionnaire, along with blood pressure and weight were monitored before and after one month in both groups. The yoga group gave an Integrated Approach of Yoga Therapy based intervention of one month for 60 minutes six days a week and the control group continued their daily activities. The results of within group and between group comparisons highlight the positive impact of Yoga on decreasing in depression, anxiety, stress, improvement in sleep quality and improvement in six domains of QOL (Physical, psychological, level of independence, social relation, environment and personal beliefs. The p values were highly significant (<0.05 to 0.000) with higher effect size. But in the control group there was a negative impact on the same variables. This study shows a meaningful association between practicing Yoga and its positive effect on mental wellbeing, quality of life at physical, psychological, social and spiritual domains of people living with HIV.

Key Words: Quality of life, people living with HIV, depression, anxiety and stress scale, the pittsburgh sleep quality index, WHOQOL-HIV BREF – world health organization quality of life brief.

1. INTRODUCTION:

Human immune deficiency virus (HIV) infection is a communicable disease leading to significant morbidity, mortality, and poor quality of life. Approximately, 2.5 million individuals were found to be infected with HIV-1 infection in the 2009 survey (Aranda-Naranjo, 2004). HIV infection destroys or decreases production of CD4⁺ T cells. HIV-specific memory CD4⁺ T cells in infected individuals contain more HIV viral DNA than other memory CD4⁺ T cells, at all stages of HIV disease (Douek et al., 2002). Stress and psychological disorders have been inconsistently associated with more rapid CD4 cell count decline, progression to AIDS, and mortality. These conditions predict a higher likelihood of engaging in unsafe needle-sharing and sexual behaviours that put others at risk for HIV infection (Pence, Miller, Whetten, Eron, & Gaynes, 2006). The diseases which come along with HIV infection are many. The significant are tuberculosis meningitis and CNS lymphoma. Clinical features of primary CNS lymphoma are nonspecific, and may include lethargy, cognitive changes, headache, and focal neurological symptoms from an intracranial mass lesion. (Tan, Smith, von Geldern, Mateen, & McArthur, 2012). HIV infected people have Neurological disorders such as distal symmetric polyneuropathy, inflammatory demyelinating polyneuropathy, mono-neuropathy, autonomic neuropathy, progressive poly-radiculopathy due to cytomegalovirus, herpes zoster, myopathy, and other rarer disorders (Robinson-Papp & Simpson, 2009). In spite of antiretroviral treatments (ART) that helping to increases the life span of people living with HIV, still HIV people suffers with psychological challenges such as alternating feelings of shock, disbelief, panic, fear, guilt,

shame, anger, despair, hopelessness. Supportive counselling and social supports may be sufficient to help individuals cope with these feelings (Remien & Mellins, 2007). Mental disorders such as major depressive disorder, generalized anxiety, and agoraphobia are commonly found in patients with HIV. Agoraphobia was the only disorder associated with unsuppressed viral load (Shacham, Önen, Donovan, Rosenberg, & Overton, 2016). Unemployment, lack of health insurance, low CD4+ cell counts, not having a partner, and poor quality of social support are significant contributors for mental problem like stress anxiety, depression in HIV-infected patients (Bogart et al., 2000). Other hand, Quality of life (QOL) is looked at as a product of physical, social, emotional and environmental harmony of an individual. A person with a good quality of life is found to cope more effectively with his illness. In this regard, people with HIV sometime don't get enough support to cope with their problem (Chandra, Deepthivarma, Jairam, & Thomas, 2003).

Reports have shown HIV patients face various psychological problems, such as anxiety depression, substance abuse, and also stated in society they are having social disrespect that can affect their QOL not only from the view of physical health but also from the mental and social health (Aranda-Naranjo, 2004). QOL refers the overall feelings of well-being, satisfaction and happiness of the person. It is multifaceted, incorporating physical, mental, emotional, social, and spiritual well-being. Patients with worse QOL at baseline could have higher proportions of anxiety and depression symptoms as well as worse clinical condition for AIDS, and this could negatively affect QOL in spite of at supplement of standard antiretroviral therapy (Oguntibeju, 2012).

Globally, in 2014, there were 36.9 million people living with HIV, 2 million newly diagnosed infections, and 1.2 million deaths due to AIDS-related illnesses. Even though the trend newly diagnosed HIV is declining in many countries and life span of people living with HIV increasing largely due to improved access to Standard antiretroviral therapy (UNAIDS 2015). Considering of prevalence, in India the first HIV infection were detected in 1986 among female sex workers in Chennai. In the beginning of the epidemic, four southern states of India, Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, and north eastern states of Manipur and Nagaland were classified as high-prevalence states (Armstrong, Medhi, Mahanta, Paranjape, & Kermode, 2015). The majority of infections were in the age group of 15–49 years and overall 39% of the total were women. As per latest estimates of the National AIDS Control Organisation, there are 2.12 million persons infected with HIV in India (NACO 2012). In India there is a steady decline in the number of people living with HIV. Currently, children for 6.54% and women for 40.5% infected with HIV. The adult HIV prevalence at national level is decreasing from 0.38% in 2001–2003 through 0.34% in 2007 and 0.28% in 2012 to 0.26% in 2015. (Paranjape & Challacombe, 2016). In spite of the presence of new ART, living with HIV infection having many adverse effects as emotional and physical challenges (Brazier et al., 2006). Therefore, to relieve adverse effects of ART and physical and psychological trauma, some people living with HIV turning to other means, including complementary and alternative medicine (CAM). Yoga is one of the popular CAM modality (Agarwal et al., 2015).

Yoga is the most commonly used mind body intervention (Cramer et al., 2013). It is cost-effective and easy to implement. Yoga helps to promote physical and mental health through asana, pranayama, breathing exercises and meditation. Regular practice of yoga reduces perceive stress and negative thoughts and feelings and improves psychological symptoms by lowering the levels of anxiety and anger (Yoshihara, Hiramoto, Oka, Kubo, & Sudo, 2014; Shapiro et al., 2007). Many studies demonstrated the broad positive impact of yoga in health and many disease conditions (Cheema, Marshall, Chang, Colagiuri, & MacHliss, 2011). Studies have found various mode of Yoga generates a more relaxed, calmer mental state and allows individuals to cope with symptoms of anxiety, depression, and stressful situations, common problems faced by People living with HIV (Naoroibam et al., 2016; Wimberly et al., 2018; Brazier, Mulkins & Verhoef, 2015 David et al., 2017). Furthermore, it helps in many psychological conditions such as anxiety, depression, and stress and improves sleep and quality of life. (Gandhi, Mondal, & Bhattacharjee, 2011). Research has shown positive impact of yoga on reduction of blood pressure in pre-hypertensive HIV-1 infection (Cade et al., 2010). Therefore it can be considered as supplement current treatment modalities for HIV infection (LA et al., 2010). According to the recent review (Dunne et al., 2019) a few studies have done on yoga and its implication in stress management and improvement of quality of life for people living with HIV. Hence, objectives of the present study were to measure the efficacy of a Yoga module based on promotion of positive health (PPH) in improving physical, emotional, psychological, social and inner well-being among individuals living with HIV.

2. MATERIALS AND METHODS:

2.1 Participants:

30 HIV infected participants from a health centre in Manipur for the HIV/AIDS positive people Rural Service Academy (RUSA), run by the non-governmental organisation (NGO) were selected for the study. Inclusion criteria were those who willing to participate in the study HIV/AIDS positive, both the genders, having

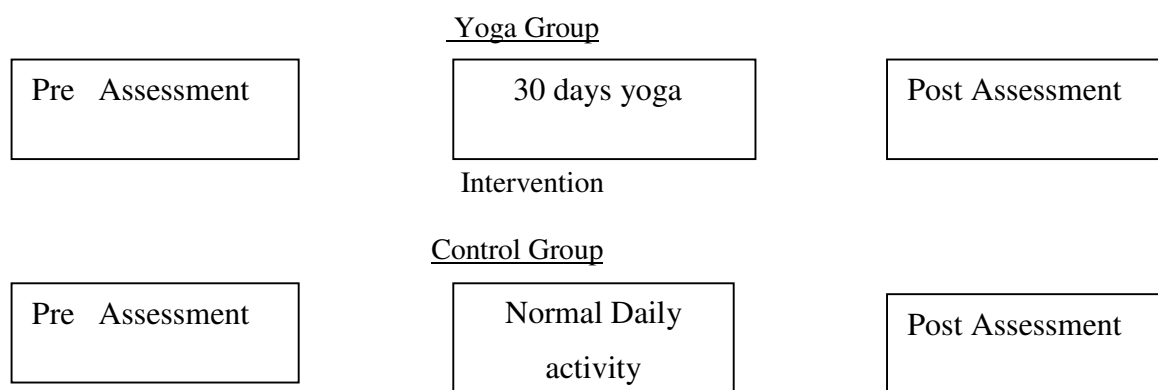
no previous exposure to yoga. Exclusion criteria were those who have physical disable, under psychiatric medication and not willing to participate in the study. The participants were randomly divided in to two groups, Yoga (n=15) and control (n=15) using computer generating number. Yoga group took Integrated Approach of Yoga Therapy based intervention of one month for 60 minutes six days a week and Control group continued their daily activities. Regularity of yoga classes was monitored and it was found out of 15 yoga participants 4 participants were less than average attendance. In this study Depression, anxiety and stress scale (DASS 21), Pittsburgh sleep quality index (PSQI) and WHOQOL-HIV BREF questionnaire were used as primary variables and secondary variables physiological readings like blood pressure and weight were taken before and after the one month in both groups.

Table 1: Demographic Data of subjects

Gender	Yoga (n=10)	Control (n=15)
Male	9	15
Female	1	0
Age (Mean±SD)	37.4±9.75	36.86±10.08
Severity of depression (DASS 21)	Moderate-2 Severe -5 extremely severe-3	Moderate-1 Severe-12 extremely severe-3
Severity of anxiety (DASS 21)	Moderate-1 Severe-7 extremely severe-2	Moderate-1 Severe -10 extremely severe-4
Severity of stress (DASS 21)	Moderate-3 Severe-7 extremely severe-0	Moderate-4 Severe 6 extremely severe-5

2.2 Design of the study:

It was two groups pre-post design.



2.3 Measures:

The primary out comes were

1. Depression, Anxiety and Stress Scale (DASS 21)

The DASS21 is a self-report questionnaire designed to assess the severity of the core symptoms of depression, anxiety and stress. It contain 21 items depression, anxiety and stress contain 7 items each. To complete the DASS, the individual is required to indicate how his symptom was over the previous week. Each item is scored from 0 to 3. (Norton, 2007)

2. The Pittsburgh Sleep Quality Index (PSQI):

It is a reliable questionnaire used to measure the quality and patterns of sleep. There are seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction over the last month of this tool that helps to differentiates “poor” from “good” sleep. The individual self-rates each of these seven areas of sleep. Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflect the negative extreme on the likert scale. A universal sum of ‘5’ or greater indicates a poor sleeper. Total possible scores range from 0 to 21, with higher scores indicating more severe complaints and worse sleep quality. A score of 5 and above on the PSQI total scale, computed as a sum of the seven subscales, was

associated with clinically significant sleep disruptions, including insomnia and major mood disorders (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989)

3. WHOQOL-HIV Brief:

It is a self-rating questionnaire. It is contained with 31 questions, related group of questions made a domain. It has six domains including physical, psychological, level of independence, social relationships, environment and spiritual/religion/personal beliefs. Each item is scored from 1 to 5. The Question 3, 4, 5, 8, 9, 10 and 31 are scored reversely. The score of domains are calculated by the sum of the scores of “n” questions that compound each area divided by the number of the domain questions. The result is multiplied by four, being represented in a scale of 4 to 20. (Canavarro, Pereira, Simões, & Pintassilgo, 2011)

Secondary variables Blood pressure and weight were monitored with reliable tools.

2.4 Intervention: All the participants in Yoga group underwent yoga practice daily for one hour, six days a week for one month. Yoga Practices were given as a part of Integrated Approach of Yoga therapy (IAYT) for PPH developed by S-VYASA, Bangalore with an average time like Breathing practices 10 min, Loosening practices as warm up 10 minutes, Sun salutation 10 min, Yogic postures 15 min, Relaxation techniques 5 min, Pranayama (yogic breathing) 10 min (Nagarathna & Nagendra, 2010).

2.5 Ethical consideration: Clearance was obtained by Institutional committee of SVYASA University.

2.6 Consent of the study: Informed consent of the respondents was collected. The participants in the study were explained in detail about the nature of the study and the voluntary nature of the participant. Confidentiality of each participant was assured as part of the research process.

2.7 Data analysis: In yoga group 4 participants attendance was less than average and one participants dropped out in middle due to personal issue so total 10 participants' data of yoga group was considered for analysis. Thus analysis was done on yoga (n=10) and control (n=15). Data analysis was done using excel and statistical analysis was done using software called “JASP version 0.13”. Reverse scoring was done for the positive items of respective variables. The quantitative data was analyzed by using statistical test, descriptive statistics (Mean, SD). The data are presented as the mean \pm SD. The entire variables were checked for normality. Both parametric and non-parametric test were used for within group and between group analyses based on normality.

3. RESULTS:

Participants in yoga and control group shared similar demographic characteristics (Table 1)

Within the group comparisons

Yoga group

Within-group comparison showed significant improvement in maximum primary variables and secondary variables. Though there was improvement but the anxiety scores in primary and Blood pressure in secondary variable did not show significant change.

Table 2: Within-group comparisons on primary variable 1 at the end of study (Yoga)

	PRE Mean \pm SD	POST Mean \pm SD	w	p	t/ w	df	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen's d/ es
*DASS -Dep	25.00 \pm 4.13	22.80 \pm 2.53	0.79 6	0.013	15.5 0	--	0.054	3.000	6.000	1.00
*DASS -Anx	18.00 \pm 3.27	16.20 \pm 1.75	0.65 2	<.00 0	10.0 00	-	0.098	2.000	6.000	1.00
*DASS -Stress	28.40 \pm 4.30	28.40 \pm 3.37	0.79 7	0.014	15.0 0	--	0.054	3.000	5.000	1.00

* Nonparametric- Wilcoxon signed rank test; DASS-Dep, Anx and Stress- Three domains of Depression Anxiety Stress Scale; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Table 3: Within-group comparisons on primary variables 2 and 3 at the end of study (Yoga)

	PRE Mean±SD	POST Mean±SD	w	p	t/ w	df	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen’s d/ es
PSQI										
PSQI	16.20±1.31	12.00±1.41	0.93 3	0.479	11.6 9	9	< .001	3.388	5.012	3.699
Qol										
QOL _physi cal	7.10±1.72	8.50±0.97	0.90 4	0.245	4.58 3	9	0.001	- 2.091	- 0.709	1.449
QOL _psych o	6.72±1.08	8.16±1.05	0.89 5	0.191	5.51 1	9	< .001	- 2.031	- 0.849	1.743
* QOL _level of Inde	7.50±1.27	8.40±1.43	0.75 2	0.004	0.00 0	--	0.008	- 1.000	- 1.000	1.000
* QOL _social relation	8.30±1.14	8.75±1.14	0.65 5	< .00 1	0.00 0	--	0.037	NaN	NaN	1.000
* QOL _enviro nmentt			0.83 3	0.036	0.00 0	--	0.018	- 0.750	- 0.500	1.000
* QOL _spiritu al	7.00±1.63	8.20±1.13	0.75 6	0.004	0.00 0	--	0.018	- 2.000	- 1.500	1.000

* Nonparametric- Wilcoxon signed rank test and others are parametric –Student; PSQI- Pittsburgh Sleep Quality Index; QOL- WHO Quality of Life-HIV brief questionnaire and its six domains physical, psychological, level of independence, social relationships, environment and spiritual/religion/personal beliefs; NaN-Not a Number; es- Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Table 4: Within-group comparisons on secondary variables at the end of study (Yoga)

	PRE Mean±SD	POST Mean±SD	w	p	t/ w	d f	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen's d/ es
*SYS	126.00±17.76	122.00±16 .19	0.717	0.001	27.0 00	-	0.182	5.501 e -5	10.000	0.500
*DYS	86.00±10.75	83.20±7.8 9	0.673	< .001	9.00 0	-	0.186	10.00 0	10.000	0.800

*Weight	54.22±7.59	53.67±7.28	0.847	0.054	36.000	-	0.014	0.200	1.350	1.000
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* Nonparametric- Wilcoxon signed rank test SYS- Systolic Blood Pressure, DYS- Diastolic; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Control group: Within-group comparison in control group showed significant improvement only in the QOL Physical and QOL Level of independence and in all the others variables showed negative impact.

Table 5: Within-group comparisons on primary variable 1 at the end of study (Control)

	PRE Mean±SD	POST Mean±SD	w	p	t/ w	df	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen's d/ es
*DASS- -DEP	24.53±2.56	25.07±2.12	0.525	<.000	.000	--	0.174	-2.00	-2.00	1.00
DASS- -ANX	19.20±3.68	20.00±3.38	0.634	<.000	4.00	--	0.410	-6.00	2.00	0.467
DASS- -STRES S	29.46±5.73	30.00±5.01	0.413	<.000	.000	--	0.346	NaN	NaN	1.00

* Nonparametric- Wilcoxon signed rank test and others are parametric –Student; DASS-Dep, Anx and Stress-Three domains of Depression Anxiety Stress Scale; NaN-Not a Number; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Table 6: Within-group comparisons on primary variables 2 and 3 at the end of study (Control)

	PRE Mean±SD	POST Mean±SD	w	p	t/ w	df	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen's d/ es
PSQI										
PSQI	14.46±2.85	15.26±2.19	0.915	0.164	1.977	14	0.068	-1.688	0.068	0.510
QOL										
* QOL _physi cal	7.80±1.52	7.40±1.29	0.630	<.001	21.000	--	0.020	NaN	NaN	1.000
* QOL _psych o	7.46±2.34	7.25±1.78	0.688	<.001	21.000	--	0.271	-1.600	1.600	0.500
* QOL _level of Inde	7.40±1.98	6.80±1.89	0.761	.001	36.000	--	0.008	1.000	1.000	1.000

* QOL _social relation	6.80±2.19	7.33±2.02	0.63 1	<.00 1	4.00 0	--	0.773	1.000	1.000	0.333
* QOL _enviro nment	8.06±1.28	8.00±1.22	0.79 1	.003	9.00 0	--	0.784	- 1.000	1.000	0.200
* QOL _spiritu al	7.60±2.92	7.26±2.76	0.60 6	<.00 1	10.0 00	--	0.089	1.000	1.000	1.000

* Nonparametric- Wilcoxon signed rank test and others are parametric –Student; PSQI- Pittsburgh Sleep Quality Index; QOL- WHO Quality of Life-HIV brief questionnaire and its six domains- physical, psychological, level of independence, social relationships, environment and spiritual/religion/personal beliefs; NaN-Not a Number; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Table 7: Within-group comparisons on secondary variables at the end of study (Control)

	PRE Mean±SD	POST Mean±SD	w	p	t/ w	df	Sig. (2- tailed	95% Confidence interval of the Differences		Cohen's d/ es
SYS	122.00±19.71	122.26±19.41	0.817	0.006	9.00	--	0.82	-10.00	8.00	0.143
DYS	82.66±8.83	87.33±7.54	0.803	0.004	7.500	--	0.02	-10.000	-4.000	0.773
Weight	54.61±9.65	54.47±9.62	0.922	0.208	0.837	14	0.417	-0.219	0.499	0.216

Student t-test, SYS- Systolic Blood Pressure, DYS- Diastolic Blood Pressure; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Between the group comparisons: There was significant positive changes in the Yoga group than the Control group in almost all variables. Out of all only the QOL Social relation, Systolic blood pressure and weight did not showed significant positive change.

Table 8: Between-group comparisons on primary variables 1, 2 and 3 (Yoga=10, Control=15)

	Levene's Test for equality of variance		T test for Equality of Means							
	F	Sig.	t/W	df	Sig. (2- tailed)	Mean Differenc e	Std. Error Differenc e	95% Confidence interval of the Differences		Cohen's d/ es
*DASS-Dep	10.115	0.005	30.00	--	0.003	-2.00	-	-4.00	.000	0.600
DASS-Anx	01.45	0.706	2.108	23	0.046	2.600	1.234	0.048	5.152	0.860
*DASS-Stress	6.967	0.015	117.500	-	0.003	2.000	-	0.000	4.000	0.567
PSQI	1.859	0.186	8.660	23	<.001	5.000	0.577	3.806	6.194	3.536

*QOL_ Physical	6.591	0.017	9.00	-	<.001	-2.000	-	-2.000	-1.000	0.880
QOL_ Psycho	0.110	0.743	-3.485	23	0.002	-1.653	0.474	-2.635	-0.672	1.423
QOL_ Level of inde	2.208	0.151	-6.044	23	<.001	-1.500	0.248	-2.013	-0.987	2.467
QOL_ Social relation	0.822	0.374	0.713	23	0.483	0.600	0.841	-1.140	2.340	0.291
QOL_ Environment	0.384	0.542	-2.362	23	0.028	-0.517	0.220	-0.971	-0.062	0.960
*QOL Spiritual	4.531	0.044	16.500	--	<.001	-2.000	-	-2.000	-1.000	0.780

*Nonparametric test Mann-Whitney, others are Parametric test Student t-test; DASS-Dep, Anx and Stress-Depression Anxiety Stress Scale; PSQI- Pittsburgh Sleep Quality Index; QOL- WHO Quality of Life-HIV brief questionnaire and its six domains physical, psychological, level of independence, social relationships, environment and spiritual/religion/personal beliefs; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

Table 9: Between-group comparisons on secondary variables (Yoga=10, Control=15)

	Levene's Test for equality of variance		T test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)/p	Mean Difference	Std. Error Difference	95% Confidence interval of the Differences		Cohen's d/es
SYS	0.065	0.801	1.185	23	0.248	8.133	6.865	-6.067	22.334	0.484
DYS	0.611	0.422	3.218	23	0.004	7.467	2.320	2.667	12.266	1.314
Weight	0.156	0.696	1.597	23	0.124	0.410	0.257	-0.212	0.941	0.652

Student t-test, SYS- Systolic Blood Pressure, DYS- Diastolic Blood Pressure; es-Effect size or Cohen's d is consider small effect: 0.2 to 0.3, medium effect: 0.5, and large effect: 0.8.

4. DISCUSSIONS:

The aim of this study was to see the effect of one month PPH of IAYT intervention on mental health and quality of life in patients living with HIV. The results of this study highlight the positive impact of IAYT on the primary variables DASS, PQSI, and QOL. The pre post reading of Yoga group showed significant reduction in the domains of DASS depression ($p<.054$, $es=1$), stress ($p<.054$, $es=1$) even in the anxiety there was not significant reduction but reduced with higher effect ($p<.098$, $es=1$). The second primary variable PQSI showed significant reduction ($p<.001$, $es=3.66$) and same way the seven domains of QOL showed improvement at physical ($p<.001$, $es=1.44$), psychological ($p<.001$, $es=1.74$), level of independence ($p<.008$, $es=1$), social relationships ($p<.037$, $es=1$), environment ($p<.018$, $es=1$) and spiritual/religion/personal beliefs ($p<.018$, $es=1$). The secondary variable in SYS ($p<0.18$, $es=.50$) and DYS ($p<.18$, $es=.80$) there was no significant reduction but reduced with higher effect size and weight reduced significantly ($p<.014$, $es=1$). In the control group, as part of primary variables only the two domains of QOL showed significant improvement: physical ($p<.02$, $es=1$) and level of independence ($p<.008$, $es=1$) and the secondary variable the DYS showed negative significant

improvement ($p < .02$, $es = .73$). The between group comparison confirmed the effect of yoga. The results showed significant difference in the first primary variable domains of DASS depression ($p < .003$, $es = .6$), anxiety ($p < .046$, $es = .86$) and stress ($p < .003$, $es = .56$); in the second primary variable PSQI ($p < .001$, $es = 3.53$); in the seven domains of QOL: physical ($p < .001$, $es = .88$), psychological ($p < .002$, $es = 1.42$), level of independence ($p < .001$, $es = 2.46$), social relationships ($p < .483$, $es = .29$), environment ($p < .028$, $es = .96$) and spiritual/religion/personal beliefs ($p < .001$, $es = .78$). The secondary variable DYS showed significant difference ($p < .004$, $es = 1.31$). Overall we observed the improvement of mental health and quality of life in the yoga group was better compared to the control group.

It is possible that these findings are causal because they are consistent with previous studies like the effect of integrated yoga on psychological states and CD₄ counts of HIV infected patients. In this study result found after 1 month yoga intervention there was an improvement in depression and anxiety (Naoroibam et al., 2016) and the study on yoga for stress and substance use among people living with HIV reported after three-months yoga intervention there was less stress in yoga group than participants in treatment as usual (Wimberly et al., 2018). Another study on Yogic Breathing and Meditation among people living with HIV showed a 15-day in-residence program improved mental wellbeing (Brazier, Mulkins & Verhoef, 2015). In considering the quality of sleep another study title as Yoga practice improves sleep quality of people living with HIV reported 30 min 3 times a week in a period of 8 weeks reduced sleep disturbance (David et al., 2017). Furthermore, in account of QOL, one of the study on Sudarshan Kriya yoga showed 24 hour SKY training along with the standard of care improve overall quality of life among people living with HIV (Mawar et al., 2015) and another study on Ashtanga Vinyasa yoga showed two or three times per week for 60 min per session for period of 20 weeks practice improve QOL and reduce blood pressure for people with HIV (Cade et al., 2009).

When we compare the impact of practicing IAYT yoga module for a period of one month on mental wellbeing, Sleep and QOL among people living with HIV with previous study the present results showed higher level of improvement in the aspect of p values and effect size though the sample size was less compared to other studies. The findings of Yoga group suggest that the impact is mediated through reducing the stress that effects in improvement of sleep. As quality of sleep improves it reverses the severity of anxiety and depression and as vice versa that brings changes in six domains QOL. It is interesting in the results of six domains of QOL, the first domain QOL Physical improves to a greater extent than the control group that is supported by reduction of blood pressure and reduction of weight that might bring physical wellbeing. The psychological issues as stress, anxiety and depression reduce, it enhances positively the wellbeing of psychological QOL. By way of an individual's physical and psychological wellbeing improved his level of QOL Level of independence increases. All these three domains bring the positive changes in self-esteem, for the reason their social relation and environmental mingling improve a lot. These results give the insight of total health when a person physically mentally and socially improves his wellbeing he will be inclined to improve his spiritual wellbeing and that reflects in the last domain of QOL as improvement of QOL Spirituality. This progressive improvement was not noticed in the control group probably for that result showed negative impact in all domains in the control group. Another way it can be looked at, the reduction in depression, anxiety and improvement in sleep quality that we observed in this study is because of reduction in stress level through yoga. Reduction in stress leads to improvement in quality of life in HIV infected person. Mechanism behind this is Chronic stress → HPA axis over stimulation → excess cortisol, inflammation, oxidative stress, lipid peroxidation → low serotonin, GABA and dopamine, changes in brain structure and function → decreased appetite, weight loss, fatigue, sleep disturbances, impaired cognitive abilities and depressed mood. The main components of the stress system are the corticotropin-releasing hormone (CRH) and locus ceruleus–norepinephrine (LC/NE)-autonomic systems and their peripheral effectors, the pituitary–adrenal axis, and the limbs of the autonomic system. Activation of the stress system leads to behavioural and peripheral changes that improve the ability of the organism to adjust homeostasis and increase its chances for survival. (Tsigos & Chrousos, 2002). Yoga decreases the activity or intensity of the HPA axis as vagal nerves (a kind of parasympathetic nerves) get activated, heart rate, blood pressure, respiratory rate decrease leading to decrease of stress, anxiety and depression which results in improvement in sleep quality. And finally quality of life is improved the people living with HIV.

5. CONCLUSION:

One month promotion of positive health IAYT practice of yoga for one hour daily improved mental health by reducing depression, anxiety, stress and disturbance of quality of sleep; further improved the quality of life people living with HIV. These findings propose that people living with HIV should practice yoga for their better life. While more studies are needed to understand the mechanism behind the effects and to replicate the results of these findings are promising.

Strength of the study was two groups and random controlled trial; participants expressed positive response after end of the practice which showed with higher effect and no side and negative effects were reported. Limitations of the study was small sample size and in yoga group participation was not cent percentage.

Conflicts of interest: There was no conflict of interest of any of the authors:

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LITERATURE REVIEW ON LOAD BALANCING THE SERVER

¹Irengbam Tilokchan Singh, ²Dr. Th. Rupachandra Singh, ³Tejmani Sinam

Manipur University

Email: tilokchan [AT] gmail .com

Abstract - This paper presents a brief literature review on server side load balancer. Load balancer forwards the client requests to one of the back-end servers and replies back to the clients by preventing the direct contact with the back-end servers. The load balancer determines which back-end servers will serve the client request based on load balancing algorithms. Various load balancing algorithms used in scheduling methods are explained and compared in this paper.

Key Words: Load Balancer, Load Balancing, Software Defined Network.

1. INTRODUCTION:

The main point of implementing load balancing is to utilize the resources effectively and efficiently. Some servers might have over utilized their resources and some might have under-utilized the resources. The load balancing mechanisms help these servers to optimize their resources. Load balancing is defined as the mechanism/algorithm/methodology for efficient distribution of application/network traffic among the different servers in a server farm. Whereas load balancer is the server that runs the load balancing algorithms and load balancer distributes the client request traffic or network flows across the multiple back-end servers at the server farm. Traditionally servers load balancing were done through a DNS mechanism, Network and Application Layer.[1] In Software Defined Networks (SDN) the controller acts as load balancer. The load balancing was performed at the incoming client traffic or network flow. A network flow is defined as the collection of tuples (protocol, source IP & port, destination IP & port) [2-6]. The server side load balancer listens to the client request, forwards the request to one of the back-end servers and replies back to the client without contacting the back-end server directly by the client. Back-end servers can possess private IP address [7]. This method of preventing direct contact with the back-end server has security benefits in preventing attacks and hiding the internal structure of server farm. If one of the servers goes down, the load balancer forwards the request to the remaining online back-end servers. And if a new back-end server is installed to the server farm, load balancer begins forwarding the request to it. Thus load balancer has the flexibility to add or remove the back-end server based on various demands and is reliable to forward the requests only to the online back-end servers. Load balancing is widely deployed in data-center and server farms. Figure-1 shows the server-side load balancing in a server farm. Based on traffic pattern load balancing can be classified in two types as *static* or *dynamic*. [8-9] In static load balancing the incoming traffic or client requests are assigned to the existing path or servers as the traffic is classified based on network flow having the same hash value. The hash values of the network flow were calculated from the source IP address, source port, destination IP address, destination port and protocol. Whereas dynamic load balancing doesn't fall to the existing path as dynamic load balancing assigns the back-end server based on bandwidth utilization or least resource utilization.

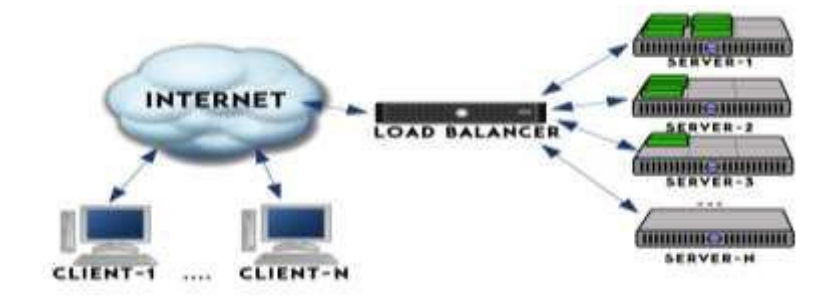


FIGURE 1: SERVER-SIDE LOAD BALANCING AT A SERVER FARM

LOAD BALANCING IN SDN

The main function of load balancing is to distribute traffic among the cluster of back-end servers. The load balancing in SDN is mainly done by the controller. Controller is the brain of Software Defined Networks. The architecture of SDN is explained in the following section.

SDN ARCHITECTURE

The architecture of SDN is designed to separate the forwarding functions and network control. The abstraction of control planes from forwarding data planes helps the network directly be programmable and easy to manage the network centrally. Figure-2 shows the SDN architecture. The SDN architecture has three main basic components i. Application Layer, ii. Control Layer and iii. Infrastructure Layer.

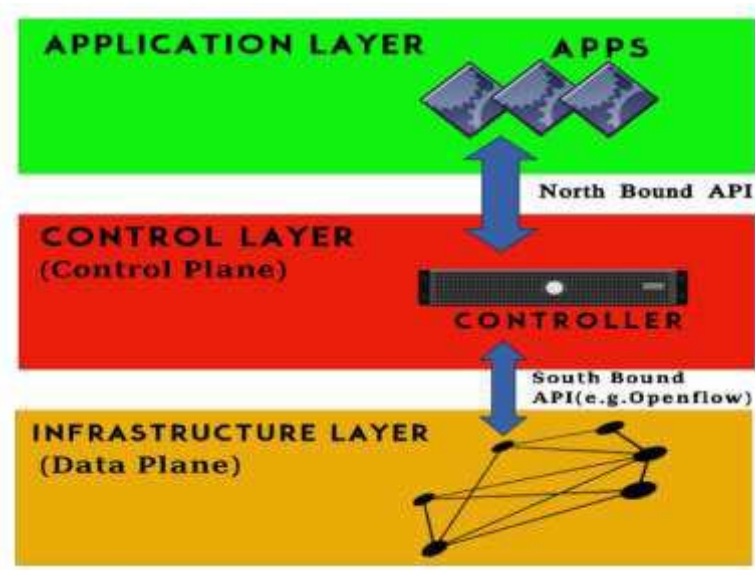


FIGURE 2 SDN ARCHITECTURE

SDN applications reside at the application layer/plane. The SDN controller is at the control layer/plane. Infrastructure layer consists of SDN enabled devices called the network elements. The SDN controller communicates the applications' needs over the network elements via two interfaces i. SDN southbound interface(SBI) called Data-Controller plane interface (D-CPI) & ii. SDN northbound interface(NBI) or Application-controller plane interface (A-CPI). SDN applications communicate with controllers via A-CPI & D-CPI communicate between the Data plane and the controller plane. [10-11]

LOAD BALANCING ALGORITHMS

The list of common popular algorithms used in load balancing the SDN are given below:

- **Round Robin:** Client requests are distributed rotationally among the back-end servers in a sequential manner. Round-Robin is the simplest scheduling algorithm. In weighted round robin a preset static weight is added so as to get more connection in more weight. The weight of the back-end server is calculated based on resources and bandwidth.[12-13]
- **Least Connection:** Client requests are sent to the back-end server with least connection. Gathering information from the servers with least load, link or connections lead an overhead.[14-15]
- **Hashing:** Client requests are distributed based on hashing key, which is usually derived from the tuple of network flow or from request URL. IP based hashing distribution tends to serve the same client by the same back-end server.[16-17]
- **Random Selection:** Picking a back-end server at random from online servers to respond to the replay. And applying the least connection algorithm from picking two or more servers leads to weighted random selection. [18-21]

Table-1 gives the server-side SDN load balancing algorithms with their simulated environment.

TABLE I SDN LOAD BALANCING

Author (Year)	Algorithms	Environment & Controller
Youn, Dong. [12] 2016	Round Robin Algorithm	VM stack balancer
Pan Zhu et al. [15] 2017	Weighted Minimum Connection Number Algorithm (WLC) & Weighted Round-Robin algorithm (WRR)	OPNET Modeler 14.5
Alexandru Curcă et al. [20] 2020	Genetic Algorithm	Mininet, POX controller
Ahmadreza [22] 2019	Random, Round Robin, Least request	Mininet, floodlight
Ankit Rao et al.[23] 2016	High Available, IP load balancer	OpenFlow, Openvswitch
Alex et al. [24] 2016	uLoBal: Round-Robin(RR), IP Hashing(IPH), Network & Server Load (NSL)	Mininet, python Openflow Controller
Rinki Sharma et al. [25] 2019	Round-Robin job scheduling	OpenStack, OpenDaylight (ODL)
Xiaojun Shi et al. [26] 2020	ECMP (Equal-Cost Multi-Path) for elephant flow in predefined idle path while mice flow at minimal weighted path	Mininet, POX controller
Yang Liu et al. [27] 2019	Dynamic Adaptive and Fast algorithm (DAF)	Mininet, Floodlight, Cbench
S. Ejaz et al. [28] 2019	Fat-Tree topology Beryllium distribution Dijkstra	Mininet, OpenDaylight controller

CONCLUSION

This paper give a brief review of load balancing mechanisms in Software Define Networks. The benefits of deploying the load balancing algorithms is to reduced server downtime, scalability, efficiency and flexibility. And it is mandatory to deploy load balancing in server farms or data-centers.

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**EFFECT OF TRATAKA, A YOGIC VISUAL EXERCISE, AND EYE
COMPRESS, A HYDRIATIC TREATMENT. ON COGNITION,
ANXIETY AND DEPRESSION**

¹Dr. R K Roshni Raj Lakshmi, ²Dr. Achyuthan Eswar

BNYS, M Sc (Yoga), Guest faculty at the department of Yoga, Manipur Central University, Canchipur.

BNYS, consultant, Poonarpusam Health Centre, Bengaluru.

Email - pepe.sana1@gmail.com

Abstract:

Anxiety and depression are on the rise in today's world of competition and pressure. It is in turn found to have a detrimental effect on cognition. It is claimed to reduce anxiety and hyperactivity. It is also found to improve cognitive abilities. Eye compress is found to be beneficial for early repair post phlebitis and surgery for eyelid construction. Numerous websites sell eye compresses claiming reduction in stress and anxiety as benefits, with no scientific evidence. The objective of this study was to assess the effect of trataka, compared to eye compress and breath awareness on the cognitive performance, anxiety and depression in 19-22 years old students. 90 students after baseline assessment of cognitive functioning and anxiety levels are randomly allocated to either a trataka or eye compress or a breath awareness group. Cognitive functions (attention and attention), anxiety and depression were assessed using the Six Letter Cancellation test, State Trait and Anxiety Inventory and Hospital Anxiety and Depression Questionnaires at baseline, and after 10 days of intervention. While both eye compress and trataka were found to significantly reduce anxiety. Eye Compress was found to be more effective in reducing anxiety ($p \leq 0.000$ and $p \leq 0.002$ respectively) when compared to Trataka ($p \leq 0.044$ and $p \leq 0.011$ respectively). Trataka was found to significantly reduce depression symptoms, ($p \leq 0.006$). Eye Pack and Breath Awareness were not found to have any significant effect on depression symptoms ($p \leq 0.176$ and $p \leq 0.589$ respectively). Trataka, Eye Compress as well as Breath Awareness were found to significantly enhance attention, ($p \leq 0.000$, $p \leq 0.000$ and $p \leq 0.000$ respectively), although Trataka group showed a greater improvement in attention as compared to Breath awareness group, which showed a greater improvement than Eye Compress group.

1. INTRODUCTION:

Naturopathy is a drugless system of medicine which comprises of treatment modalities which are drawn from natural elements and is non-invasive namely-earth, water, fire, air and space. These elements form the basis for all naturopathic treatments. Among the important branches of naturopathy, hydrotherapy is one of the most crucial and effective treatment modalities. It simply means treatment by using water in different forms, internal or external, at different temperatures. Hydrotherapy treatment modalities are divided as packs, baths, compresses and irrigations. When water is applied with the use of several folds of cloth, it is designated as compress. If a linen sheet dipped in water is wrapped around a region and further covered with a flannel, it is called pack. If the part is immersed in water, then it is referred to as bath. And if water is made to continually flow over the region, it is called as irrigation. Certain properties of water make it a universal remedial agent, viz. its physical properties and chemical properties like specific gravity, specific heat, latent heat, density, odour, taste, transparency, solvent property, hydrostatic pressure, buoyancy, molecular structure.

1.1. Eye compress:

Cold water and its rejuvenating property are universally recognized. There are numerous instances being given of eye pack being a good relaxant and inducing calmness. Studies are available which show that cold application to eye enhances the healing effect post surgery of the eye (*Clinical Observation of Ice-bag Cold Compress Promoting the Healing of Eye Cosmesis Wound--* 《Journal of Nursing Science》 2002 年07 期, n.d.). Eye compress is found to be beneficial for early repair post phlebitis (*An experimental study on wet compress with compound Dihuang tincture to treat chemotherapeutic phlebitis--* 《Chinese Nursing Research》 2007 年31

期, n.d.) and surgery for esthetic blepharoplasty (*Observation on effect of preoperative local cold compress for patients undergoing esthetic blepharoplasty-- 《Chinese Nursing Research》 2008年08期, n.d.*)

Also, there are numerous claims being made by commercial eye pack manufacturers worldwide that eye packs in many forms and styles reduce stress, induce relaxation, and helps relieve insomnia and many more claims. There are no studies being undertaken so far to prove or disprove the same.

1.2. Trataka:

Yoga on the other hand is one of the important branches of complementary and alternative medicine. *Yoga* as such is a holistic science which works on different levels of the individual, those being physical, mental, and spiritual. It is widely acclaimed for its therapeutic benefits even by the scientific community. It comprises of various practices for the different levels, to name a few, *kriyas* (cleansing techniques), *asanas* (postures), *pranayamas* (breath regulation), *mudras* (gestures), *bandhas* (body locks), meditation techniques. Yogic techniques have impact on various aspects of the individual, influencing the whole mind-body complex. As mentioned above even apparently physical practices have effects on the deeper levels. *Trataka*, constant gazing is one of the yogic practices which come under the *kriyas* or cleansing techniques. According to the text *Hatha Yoga Pradipika*, *trataka* is explained thus: *Nirikshed nischala drisha sukshma lakshya samahitah ashru sampata paryantam acharyaistratakam smritam*. Muktibodhananda, S. (2002). *Hatha yoga pradipika: Light on hatha yoga. Bihar School of Yoga, India.*

This means *trataka* is explained by the teachers as constant gazing at a subtle object till tears flow from the eyes. It is also explained that:

Mochanam netraroganam tandradinam kapatakam

Yatnatastratakam gopyam yatha hatakapetakam.

This means that *trataka* eradicates all eye diseases, fatigue, and sloth and closes the doorway creating these problems. It should be carefully kept secret like a golden casket. These techniques (*shat kriyas*) are employed to cleanse the internal organs. Apart from cleansing the internal organ specific to *trataka* i.e., eye, it also helps to improve cognitive functions of the brain like memory, attention, alertness, hand eye co-ordination. Studies have proven that *trataka* practice helps to improve weakness of eye muscles and relieves eye strain. Most importantly, practice of *trataka* helps to induce a state of mental relaxation and calmness. The practice of *trataka* is observed to be beneficial in reducing visual fatigue (Telles et al, 2007) and optical illusion (Mallick & Kulkarni, 2010). It is claimed to reduce anxiety and hyperactivity in ADHD patients (Jensen & Kenny, 2004), (Krisanaprakornkit et al., 2010). It is also found to improve cognitive abilities (Chaya et al., 2012). It is called “the breakthrough eye movement therapy for overcoming anxiety and stress”. Among the cognitive functions, attention is one of the important components necessary for the process of learning and also for efficient functioning on daily basis. It can be defined as the faculty of the brain to stay focussed at a particular topic of learning.

1.3. Attention:

According to the Merriam Webster Dictionary, attention is “act or state of applying the mind to something. As William James (1890) wrote, “[Attention] is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, attention, of consciousness are of its essence.” It is also defined as “the perceptual processes that select certain inputs for inclusion in our conscious experience, or awareness, at any given time’ (Morgan, C. T., King, R. A., Weisz, J. R., & Schopler, J. (2006). Introduction to Psychology, 7th eds). By the 1990's, psychologists began using positron emission tomography (PET) and later functional magnetic resonance imaging (fMRI) to image the brain while monitoring tasks involving attention. Neuroscientific evidence has identified a frontoparietal brain network which appears to be responsible for many attentional processes. In the twentieth century, the pioneering research of Lev Vygotsky and Alexander Luria led to the three-part model of neuropsychology defining the working brain as being represented by three co-active processes listed as Attention, Memory, and Activation. Attention is identified as one of the three major co-active processes of the working brain. A.R. Luria published his well-known book *The Working Brain* in 1973 as a concise adjunct volume to his previous 1962 book *Higher Cortical Functions in Man*. In this volume, Luria summarized his three-part global theory of the working brain as being composed of three constantly co-active processes which he described as the; (1) Attention system, (2) Mnestic (memory) system, and (3) Cortical activation system. Attention can be classified into active and passive, top-down and bottom-up, visual and auditory, focused, sustained, selective, alternating and divided attention. Active attention refers to the voluntary process the brain engages in to focus on a stimulus from the environment. It is also known as overt attention. Passive attention is the involuntary process that occurs in the brain when attention is paid to an outside stimulus which stands out in the environment. It is also known as covert attention. Overt orienting is that the act of selectively getting to an item or location over others by moving the eyes to point in that direction. Covert orienting is that the act of mentally shifting one's focus without moving one's eyes. Top-down attention is based on top-down information processing. This type of attention

processing is predicated on contextual information. Thus, when using top-down attention, what you attend to starts with the context a stimulus has in your internal perceptions, or cognition. Top-down attention starts in the brain. This type of attention processing is predicated on sensory input and is claimed to be data-driven. It is not hard to ascertain from this distinction, that bottom-up attention is, therefore, a more external process than top-down attention. Rather than attention being guided by your internal thoughts and cognitions, bottom-up attention is guided by the input your brain receives. Bottom-up attention starts with your environment. Visual attention is that the process of getting to what you see. On the other hand, auditory attention is that the process of getting to what you hear. Focused attention refers to your ability to specialize in a stimulus. Sustained attention refers to your ability to actively specialize in a selected stimulus over an elongated period of time. Selective attention refers to your ability to specialize in a selected stimulus. Alternating attention refers to your ability to shift focus from one stimulus to a different stimulus. Multitasking are often defined as the plan to perform two or more tasks simultaneously; however, research shows that when multitasking, people make more mistakes or perform their tasks more slowly. Attention must be divided among all of the component tasks to perform them. In divided attention, individuals attend or give attention to multiple sources of data directly or perform quite one task at an equivalent time. Simultaneous attention may be a sort of attention, classified by getting to multiple events at an equivalent time. Simultaneous attention is demonstrated by children in Indigenous communities, who learn through this sort of attention to their surroundings. With growing field of psychology and its collaboration by neuroscience, research has been taken up to measure the various functions of the brain, the normal working as delivered in the form of behaviour, the structural correlations with the help of sophisticated and convenient tools. Also, several psychological tests came to be designed to assess psychological well-being (Neuropsychological Assessment - Professor of Neurology Psychiatry and Neurosurgery Muriel D Lezak, Muriel Deutsch Lezak, Associate Professor of Neurology and Psychiatry Diane B Howieson, Diane B. Howieson, Professor of Neurology David W Loring, David W. Loring, Jill S. Fischer - Google Books, n.d.). Six Letter Cancellation Task SLCT is one such task designed to assess attention in the subject.

1.4. Anxiety and depression;

Anxiety is feeling unrealistic fear, worry, and uneasiness, usually generalized and unfocused. It is often accompanied by restlessness, fatigue, problems in attention, and muscular tension. The physical effects of anxiety may include tachycardia, muscle weakness and tension, fatigue, nausea, chest pain, shortness of breath, headache, stomach aches, or tension headaches. As the body prepares to affect a threat, vital sign, pulse, perspiration, blood flow to the main muscle groups are increased, while immune and digestive functions are inhibited (the fight or flight response). This is due to activation of the HPA (Hypothalamus- Pituitary-Adrenal) axis. The sympathetic nervous system gets activated hence the symptoms. It is proven that early adversity exposure could be a pointer to future psychopathology like depression (Feijó de Mello et al., 2003). External signs of hysteria may include pallor, sweating, trembling, and pupillary dilation. For someone who suffers anxiety this will cause a scare. According to Yerkes-Dodson law, an optimal level of arousal is important to best complete a task like an exam, performance, or competitive event. However, when the anxiety or level of arousal exceeds that optimum, the result is a decline in performance (Teigen, 1994). Anxiety neurosis is classified as a psychiatric disorder under the DSM-II (American Psychiatric Association, 1968), characterised by chronic tension, excessive worries, frequent headaches or recurrent anxiety attacks (The American Psychiatric Publishing Textbook of Psychiatry-Robert E. Hales - Google Books, n.d.). Test anxiety is that the uneasiness, apprehension, or nervousness felt by students who had a fear of failing an exam. Students who have test anxiety may experience any of the following: the association of grades with personal worth; fear of embarrassment by a teacher; fear of alienation from parents or friends; time pressures; or feeling a loss of control. Sweating, dizziness, headaches, racing heartbeats, nausea, fidgeting, and drumming on a desk are all common. Because test anxiety hinges on fear of negative evaluation. And anxiety in students is a problem which is cause for several serious ramifications like repeated failure, decreased efficiency, and suicides. Mixed anxiety-depressive disorder may be a diagnostic category defining patients that suffer from both anxiety and depressive symptoms of limited and equal intensity amid a minimum of some autonomic features. The World Health Organization's ICD-10 describes Mixed anxiety and clinical depression: "...when symptoms of hysteria and depression are both present, but neither is clearly predominant, and neither type of symptom is present to the extent that justifies a diagnosis if considered separately. People with this disorder may miss school or work frequently, withdraw from social activities, start to abuse drugs or alcohol, have frequent health problems, or stop taking care of their appearance, amongst others. Symptoms vary counting on the sort of hysteria disorder, but general symptoms include:

- Feelings of panic, fear, and uneasiness

- Uncontrollable, obsessive thoughts
- Repeated thoughts or flashbacks of traumatic experiences
- Nightmares
- Ritualistic behaviours, such as repeated hand washing
- Problems sleeping
- Cold or sweaty hands and/or feet
- Shortness of breath
- Palpitations
- An inability to be still and calm
- Dry mouth
- Numbness or tingling in the hands or feet
- Nausea
- Muscle tension
- Dizziness

1.5. Depression:

It belongs to the category of affective disorders. To be diagnosed as suffering from major depression, a person must have had one or more major depressive episodes- periods that involved more than just sadness. In a major depressive episode, 'sad' feelings are accompanied by persistent problems in other areas of life- problems like appetite change; altered sleep patterns; loss of interest or pleasure in usual activities; loss of energy; diminished ability to think or concentrate; feelings of worthlessness or self- reproach; suicidal thoughts or acts. During a depressive episode, the person's mood and thought patterns may be extremely negative. The person seems to be on the verge of tears. It has been classified as a psychiatric disorder characterised by melancholy according to the diagnostic manual of APA (*Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)* - American Psychiatric Association - Google Books, n.d.). Both anxiety and depression are debilitating ailments which totally incapacitates the patient in all aspects; physical, mental, social, financial. The most notable treatment for anxiety is cognitive behavioral therapy (CBT) a psychological intervention based on stoic principles. Cognitive behavioral therapy involves the changing of one's thought by the therapist. Patients are asked to explain their feelings towards certain things or incidents that cause their anxious behavior. It is widely accepted that yogic practices help to enhance attention and induces a relaxed and calm state of mind conducive for learning. Studies are available which demonstrate that yogic practices like pranayama, mindfulness techniques, relaxation techniques induce a relaxed state of mind and improve both structure and function of brain including cognitive functions as well. Thus, it is imperative to do a study to assess and compare the effects of the yogic practice of *trataka* and eye compress on attention and anxiety- depression scale.

2. METHOD:

2.1. Sampling:

A sample size of 90 subjects within the age range of 19-22 years is selected. The students are randomly allotted to the three groups namely *trataka* group, eye compress group and breath awareness group.

Source:

Students of II BNYS and III BNYS of SDM College of Naturopathy and Yogic Sciences, Ujire are taken as subjects. They have an experience of practice of yoga for 2 and 3 years respectively.

Inclusion criteria:

Students of both sexes, who fall within the age limit of 19-22 years and have a minimal exposure to yoga practice for 2-3 years.

Exclusion criteria:

Students who have had a history of anxiety or depression or any other psychiatric problem or are under any psychiatric or psychedelic drugs or who have indulged in substance abuse are excluded from the study.

Ethical consent:

Permission is asked for the conduct of the study from the Ethical committee of SDMCNYS, and respective departments of Yoga and Hydrotherapy. Also, written consent forms from each subject is taken after duly informing them that they are not promised any benefits from the study and they have a right to withdraw from the study as per their wish. It was taken up as a student project during the UG degree of Naturopathy and Yogic Science.

Design of the study:

It is a pre-post study, with three groups. Assessment is done before and after 10 days. Intervention is given for 10 days. Subjects are divided randomly into 3 groups of 30 subjects each, the groups being; *trataka* group, eye compress group and breath awareness group.

Assessment/ parameters:

Six Letter Cancellation Task

Attention is measured by using the psychological tool SLCT (six letter cancellation task). It is a pen paper instrument where six letters are given in the sheet and a working area consisting of a grid of alphabets arranged in 22 rows and 14 columns is given. The six letters given at the top is to be cancelled out within a time period of 90 seconds working row- wise and not letter- wise or column-wise. The numbers of cancelled letters are counted and the wrong entries deducted. This gives the final score. The maximum score is 83. State Trait Anxiety Inventory, Hospital Anxiety and Depression Questionnaire Anxiety and depression levels are assessed by using Spielberger's STAI (State Trait Anxiety Inventory) and HAD (Hospital anxiety depression) Questionnaire. STAI has 20 questions to which answers are arranged in 1-4 Likert scale with varying grades of the mental state. It has positive and negative questions interspersed to prevent unreal or dishonest answers. Scores are made by adding up positive and negative scores and deducting one from the other.

Items on STAI are:

- I feel calm.
- I feel secure.
- I am tensed.
- I am strained.
- I feel at ease.
- I feel upset.
- I am presently worrying about misfortunes.
- I feel satisfied.
- I feel frightened.
- I feel comfortable.
- I feel self confident.
- I feel nervous
- I am jittery.
- I feel indecisive.
- I am relaxed.
- I feel content.
- I am worried.
- I feel confused.
- I feel steady.
- I feel pleasant.

The STAI should be considered a measure of general negative affect, including specific aspects of cognitive anxiety and depression together (Balsamo et al., 2013).

HAD Questionnaire has 14 questions with 4 options each. There are 7 anxiety and 7 depression questions interspersed among each other and scores for each are in a likert scale of 0-3. Here, again scoring is done by adding up the scores of anxiety questions and depression questions. Maximum scores for each will be 21.

Items on HAD relating to anxiety are:

- I feel tense or wound up
- I get sort of frightened feeling as if something awful is about to happen.
- Worrying thought goes through my mind.
- I can sit at ease and feel relaxed.
- I get a sort of frightened feeling like butterflies in the stomach.
- I feel restless, as if I had to be on the move.
- I get sudden feeling of panic.

Items on HAD relating to depression are:

- I still enjoy the things I used to enjoy.
- I can laugh and see the funny side of things.
- I feel cheerful.
- I feel as I am slowed down.
- I have lost interest in my appearance.
- I look forward with enjoyment to things.
- I can enjoy a good TV or radio program or book.

HAD is found to be a valid tool for assessing anxiety and depression (Bjelland et al., 2002)

2.2. Intervention:

Trataka

Trataka group are made to practice the technique of *trataka* or constant gazing. It is a yogic practice which comes in the category of kriyas or cleansing techniques of Hatha yoga. It can be classified as *bahiranga* (external) where the object of focus is external to the practitioner or *antaranga* (internal) where the object of focus is internal like an image in the mind eg, picture of Om. *Bahiranga trataka* can be again done with the help of objects like sun, moon, an image, finger (jatra), or a candle flame (jyoti). For our practice, we have chosen the practice of jyoti *trataka*, i.e. focussing on the candle flame.

Eye exercises comprising of vertical, horizontal, diagonal and rotational movement of eyeball for a period of 10 minutes is given. After this the practice of *trataka* is given along with instructions. It is divided into 3 stages; focussing, intense focussing and defocusing stages.

Participants are instructed to sit in any meditative posture around a candle stand. After the practice of eye exercises, lights are switched off and participants remain with eyes closed. They are instructed to gently direct their gaze towards the flame going along the floor in front to the shadow of candle stand, base of candle stand, middle and top of candle stand. Then, the gaze is moved to the base, middle and top of candle finally reaching the candle flame. In focussing stage gaze is maintained at the candle flame. Then it is instructed to close eyes and practice palming by rubbing palms to each other and place them around the eyes by making a cup with the palms. Next is the practice of intense focusing. Here the same procedure as in focusing is performed and then intense focusing at the wick of the candle is done till tears start flowing from the eyes. Then eyes are closed and constant palming is done for few minutes.

The last stage is that of defocusing. Here, the same procedure as in focusing is followed after which it is instructed to defocus from the candle flame and be aware of the space near and far and keeping the gaze at the flame awareness is widened. Then it is followed by press and release palming where pressure around the eyes is applied with inhalation and released with exhalation.

The whole practice is given in duration of 20 minutes.

Eye compress:

Individual eye compress comprising of 3 folds of non-starched cotton cloth dipped in cold water (65-75°F) of dimensions, 30 inches long and 2 inches wide was provided to all participants in the eye compress group. They are made to sit in any meditative pose and eye compress applied. The duration for the application was fixed at 20 minutes.

Breath awareness

The participants of this group were made to sit in a meditative pose and instructed to observe the breath for a period of 20 minutes.

Analysis:

Analysis of data was done by using SPSS Version 20 to perform Paired t-test of pre-post data to compare the effects of *trataka*, eye compress and breath awareness on the parameters.

Results:

The alpha level of statistical significance was set at $p \leq 0.05$.

While both eye compress and *trataka* were found to significantly reduce anxiety using HAD Questionnaire and STAI, Eye Compress was found to be more effective in reducing anxiety ($p \leq 0.000$ and $p \leq 0.002$ respectively) when compared to *Trataka* ($p \leq 0.044$ and $p \leq 0.011$ respectively). Breath awareness was found to significantly increase anxiety level ($p \leq 0.021$) using HAD Questionnaire and found to have no significant effect on anxiety using STAI ($p \leq 0.204$), as shown in Tables 1 and 3, and Figures 1 and 3. *Trataka* was found to significantly reduce depression symptoms, using HAD Questionnaire, depression subsection ($p \leq 0.006$). Eye Pack and Breath Awareness were not found to have any significant effect on depression symptoms, using HAD Questionnaire, depression subsection ($p \leq 0.176$ and $p \leq 0.589$ respectively), as shown in Table 2 and Figure 2. *Trataka*, Eye Compress as well as Breath Awareness were found to significantly enhance attention, ($p \leq 0.000$, $p \leq 0.000$ and $p \leq 0.000$ respectively), although *Trataka* group showed a greater improvement in attention as compared to Breath awareness group, which showed a greater improvement than Eye Compress group, as shown in Table 4 and Figure 4. The mean & standard deviation for HAD Questionnaire (Anxiety and Depression subsections), STAI and SLCT are presented in Tables 1 to 4 and illustrated as Figures 1 to 4.

Table 1: Paired t test for HAD Questionnaire, Anxiety subsection:

Group	Mean	N	Std. Deviation	P Value
Trataka	1.03704	27	2.54923	.044
Eye Compress	2.56250	16	2.25000	.000
Breath Awareness	-1.46154	13	1.98391	.021

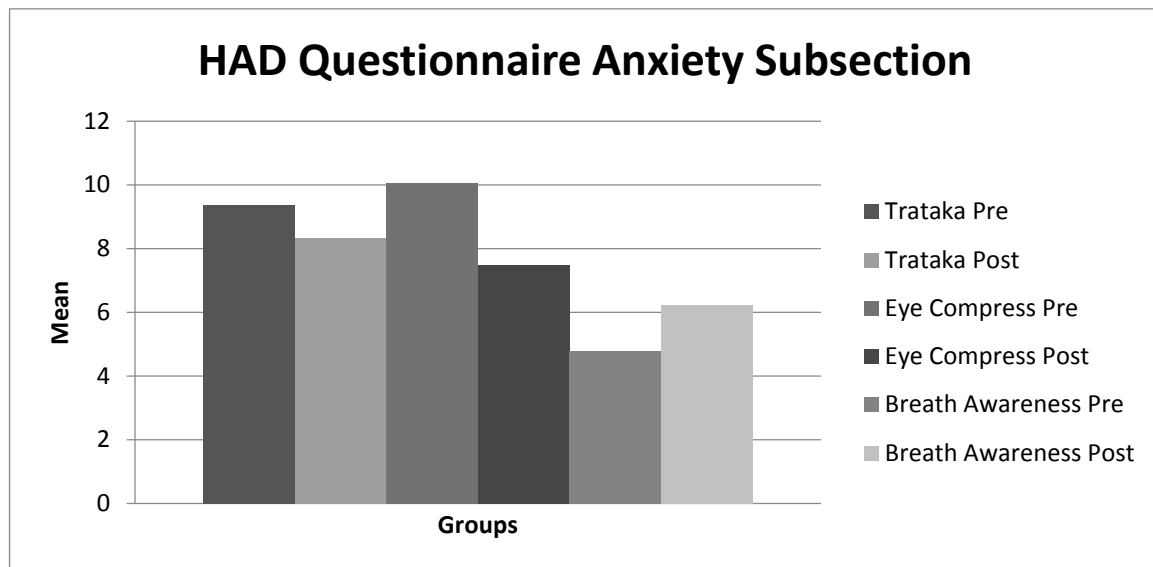


Table 2: Paired t test for HAD Questionnaire, Depression subsection:

Group	Mean	N	Std. Deviation	P Value
Trataka	1.29630	27	2.23288	.006
Eye Compress	0.81250	16	2.28674	.176
Breath Awareness	-0.38462	13	2.50128	.589

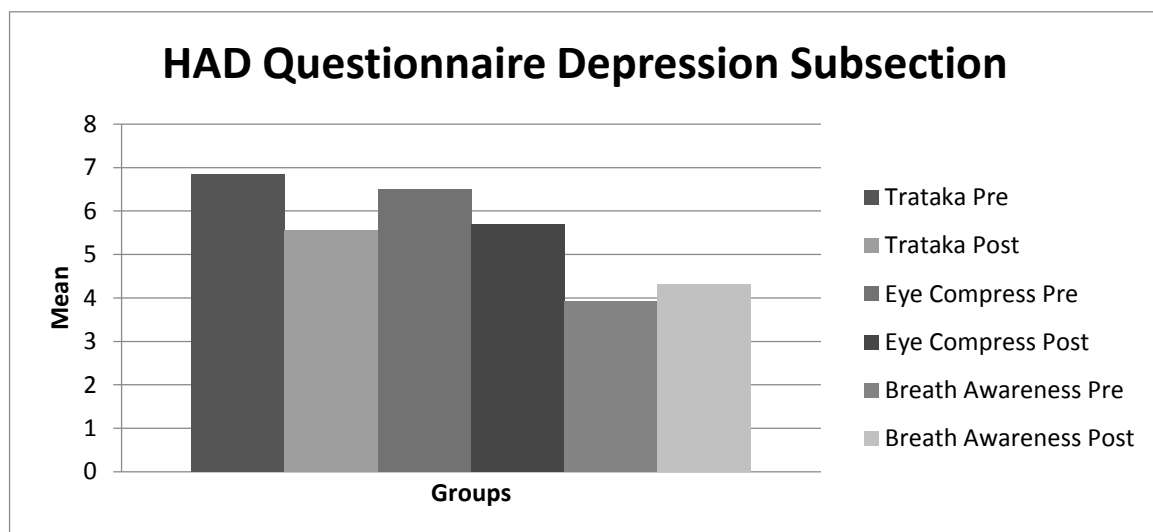


Table 3: Paired t test for STAI:

Group	Mean	N	Std. Deviation	P Value
Trataka	-4.74074	27	8.99398	0.011
Eye Compress	-5.50000	16	5.85377	0.002
Breath Awareness	2.92308	13	7.83647	0.204

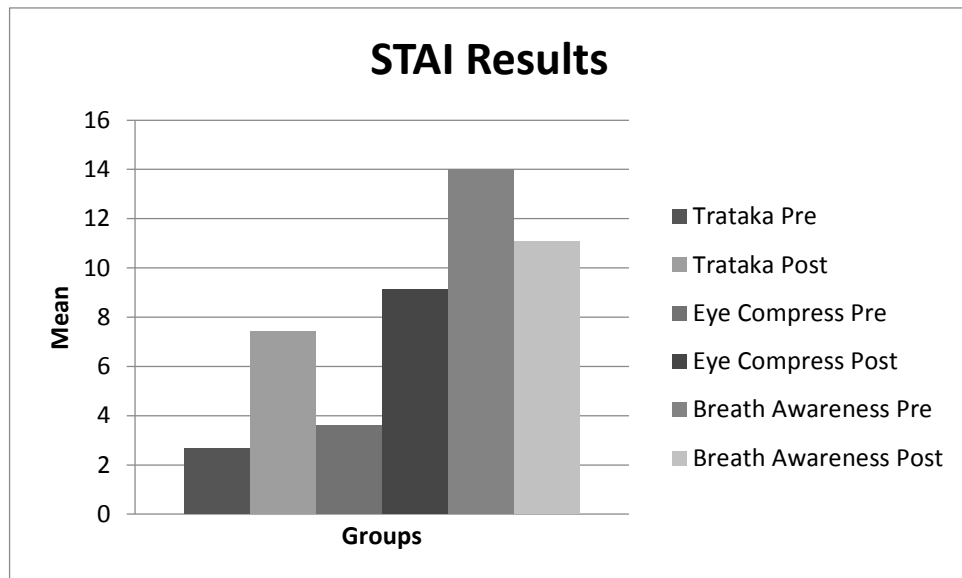
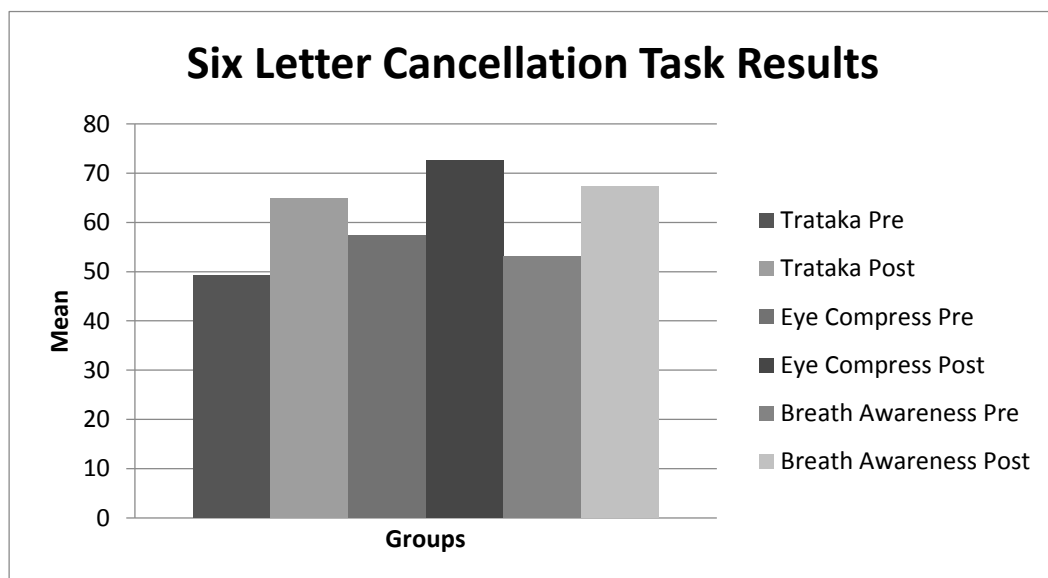


Table 4: Paired t test for SLCT:

Group	Mean	N	Std. Deviation	P Value
Trataka	-15.74074	27	11.52453	.000
Eye Compress	-15.18750	16	12.27039	.000
Breath Awareness	-14.38462	13	10.21060	.000



3. DISCUSSION:

While both eye compress and trataka were found to significantly reduce anxiety using HAD Questionnaire and STAI, Eye Compress was found to be more effective in reducing anxiety ($p \leq 0.000$ and $p \leq 0.002$ respectively) when compared to Trataka ($p \leq 0.044$ and $p \leq 0.011$ respectively). Breath awareness was

found to significantly increase anxiety level ($p \leq 0.021$) using HAD Questionnaire and found to have no significant effect on anxiety using STAI ($p \leq 0.204$). Trataka has been proven to reduce anxiety in several populations (Sherlee & David, 2020)(*Indian Journals*, n.d.). Several breath regulation techniques have also been proven to be beneficial for anxiety but breath awareness as such has not been much studied (Nemati, 2013). In Nemati's study also they have used phased pranayama practice as intervention. Trataka was found to significantly reduce depression symptoms, using HAD Questionnaire, depression subsection ($p \leq 0.006$). Eye Pack and Breath Awareness were not found to have any significant effect on depression symptoms, using HAD Questionnaire, depression subsection ($p \leq 0.176$ and $p \leq 0.589$ respectively). Studies are available which show that trataka can alleviate symptoms in depression (Chobe et al., 2020) and improves cognitive function as well. Trataka, Eye Compress as well as Breath Awareness were found to significantly enhance attention, ($p \leq 0.000$, $p \leq 0.000$ and $p \leq 0.000$ respectively), although Trataka group showed a greater improvement in attention as compared to Breath awareness group, which showed a greater improvement than Eye Compress group. In another study it was found that trataka enhanced cognitive function. The study showed improved performance in the Stroop color word test, which tests selective attention, cognitive flexibility and reaction time. Hence we see that trataka has been proven to improve an aspect of attention (Raghavendra & Singh, 2016). Although many studies were conducted on trataka alone, not many were taken up as comparative studies. Eye compress studies are not taken up much as most studies are done on the treatment modules and not on specific treatments. A few studies are done in China on eye compress but most of it cannot be considered as compress as instructed in the treatment module as laid down by the pioneers of hydrotherapy Kellogg, J. H. (1918). *Rational Hydrotherapy: A Manual of the Physiological and Therapeutic Effects of Hydriatic Procedures, and the Technique of Their Application in the Treatment of Disease*. Modern medicine Publishing Company. Some studies on eye compress involve injecting certain medicines to improve the healing. This certainly acts as a confounding variable and interferes with the real finding of the study. Even if the healing were to improve, there will always be a confusion as to what had caused the improvement, whether compress itself or the chemical has worked.

4. CONCLUSION:

Thus, from the above data, it can be concluded that *trataka* is a potent tool to improve attention and to induce relaxation. It is a better technique for improving cognitive functions compared to eye compress and breath awareness. But eye compress is more effective in inducing relaxation and calmness of mind. Thus, a module with both practices incorporated will make a better approach to deal with attention problems and anxiety among students.

Further suggestions:

Since the study was done for a short period of time, significant effects could not be seen. A bigger study needs to be planned to study the effects of *trataka*, eye compress and breath awareness on relaxation of body and mind. More detailed study with longer duration and larger sample size needs to be conducted. Indeed, hydrotherapy treatments are much less explored in scientific studies.

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**“THE CIRCADIAN TYPOLOGY AND DIURNAL VARIATION INFLUENCED
THE TIME OF PEAK PERFORMANCE COMPONENTS AMONG TRACK &
FIELD ATHLETES”**

ANIL KUMAR N.

Assistant Professor & Head

Department of Physical Education, Government Engineering College Barton Hill,
Thiruvananthapuram, Kerala 695035, India

Email: anilkumarcoach@gmail.com

Abstract:

There are considerable differences in chronotype distribution when comparing different populations from around the world. Chronotype distribution has also been shown to differ with regard to latitudinal distribution or geographic location. The aim of this study was to determine how far the chrono-type and diurnal variation is influencing the performance components among track & field athletes” Essentially, the study would support to find the differences in chronotype distribution when comparing different populations from around the world. Chronotype distribution has also been shown to differ with regard to latitudinal distribution or geographic location the magnitude to which CR_T influencing on performance, at different times of the day

Key Words: Chrono-Type, Diurnal Variation, Circadian Typology

1. INTRODUCTION:

Excelling in the performance of his or her chosen sport is the major aim of any elite athlete. The drive to win, the desire to succeed and the ambition to push beyond the present limits of performance are all essential features of achieving excellence in elite sport. Athletes must constantly strive to attain peak levels of performance to reach and subsequently stay at the top. In field sports, players must now move faster, anticipate better, demonstrate greater levels of technical and tactical ability and persist longer than competitors from the past. The commitments made by club, coach and player in attempting to attain perfection undeniably necessitate an extensive amount of time and financial contribution, especially as the gap between winning and losing grows ever smaller. The foundations for training and competing can no longer be based on simple subjective views of how well athletes perform or on traditional methods passed from one generation of coach to another. The success in sports, are measured by competitive performance and are dependent upon a number of significant variables such as mental and physical components, stomata types, motor skills, age, national status, physiology, psychology, training level, genetic endowment and injury risk are the major variables influencing performance of sports persons. Physical performance in sports depends on his/her movement-oriented behaviour and all these actions have their roots in biological phenomena. These biological phenomena are the foremost and that fluctuates periodically and has relatively a greater influence on sports physical performances, since, sports take place at different times of the day. Present study provided the first indication that has the chrono-type and diurnal variation influenced the time of peak performance components among Track & Field Athletes” By understanding these it will be a useful tool for coaches and athletes with regards for improving training and racing principles.

2. MATERIALS AND METHODS:

2.1 Morningness- Eveningness questionnaire (Horne JA and Ostberg.O, 1976)

Circadian rhythm type among the athletes was measured using morningness-eveningness questionnaire (MEQ) to evaluate the time the athlete get up and go to bed, self-reported preferred times for physical and mental activity, and also the subjective alertness. The MEQ contains total nineteen questions with Likert-type responses and four choices of answer were given, indicating; definite morning type (D_{MT}), moderate morning type (M_{MT}), moderate evening type (M_{ET}), definite evening type (D_{ET}) and Intermediate type (IT).

The choices for each answer were clear and were equally semantically placed from each other. In a few questions, a time scale is used. This scale is clearly divided in to periods of fifteen minutes over a seven-hour time range. The order of questions was important and a logical sequence of question topics was arranged. The order of choices from morningness to eveningness within each answer was balanced over the whole questionnaire in order to avoid any fixed response pattern. The importance was given in phraseology, clarity and shortness of questions and the avoidance of leading or embarrassing question, which might give false answers. Questions were given a loading factor based upon the putative powers of discrimination of morningness-Eveningness determined from the item analysis. For simplicity of scoring these loading factors were rounded off in to whole numbers. The scores range from 16-86. The highest scores between the 70-86 numbers indicated definite morning type (D_{MT}) between 16-30 indicates definite evening type (D_{ET}) between 59- 69 indicated moderate morning type (M_{MT}) between 31 -41 indicate moderate evening (M_{ET}) and score between the range 42-58 indicates intermediate type (IT) neither belong to MT nor ET. The time scales were assigned a 1-5 range, in the direction of high eveningness to high morningness. The scoring for the questions 3,4,5,6,7,8,9,10,11,12,13,14,15,16 and 19, where the appropriate score for each response is displayed besides the answer box. For questions, 1,2,10 and 18 the cross-made a long each scale is referred to the appropriate score value range below the scale. For question 17 the most extreme cross on the right hand side is taken as the reference point and the appropriate score value range below this point is taken. The scores are added together and the sum converted in to a five point.

2.2 Digital Thermometer (Model No MT-101)

Axillary temperature (A_T) was measured by inexpensive (IE) temperature devices (model no MT-101 Stupendous Handheld DT Manufacturers, based in India) used according to the method instruction manuals, placed high in the central axillary region (A_R) with the subject's right arms adducted after being wiped free of sweat with antiseptic location. DTM ensures high durability, robust structure and accurate measurement of temperature. The display range: 32.0 to 42.0°C (90 to 107.6°F) Accuracy: $\pm 0.1^{\circ}\text{C}$ ($\pm 0.2^{\circ}\text{F}$) Minimum Scale: 0.1 Measurement time: 60 ± 10 seconds in oral, 100 ± 20 seconds underarm. Beeper function, auto shut-off. Capacity: 1.5V button battery (LR/SR-41) Memory: last measuring reading LCD size: 15.5 x 6.5mm Size: 127 x 18 x 10mm and Net weight: 10.5g.

3. RESULTS & DISCUSSION:

The results of the study were collected and analysed the chrono-type of the athletes and its influence over the day time variation in temperature and performance components of the athletes. All statistical analyses were conducted using SPSS (release 2.0, SPSS, Chicago, IL). The result showed that chrono type had insignificant difference over diurnal variation and significant difference prevailed among the performance components of the athletes. The present result goes hand in hand with the study conducted by the study conducted by Zani et al., (1984) and Lastella et al., (2010)^[1] shows that a significant difference in chronotype distribution has been observed when comparing different sports. Present result also goes hand in hand with the finding by Burgoon et al., (1992)^[2] on chronotype and running performance in 26 untrained males showed no significant differences in maximum exercise performance according to chronotype. Similar finding also by the author, Rossi et al. (1983)^[3] compared chronotype and performance of male golfers and water-polo players, showed the result ^[4] It with no differences in chronotype between low-performing and high-performing individuals when comparing the two sports. Further the result shows that chronotype had no differences over diurnal variation. However a significant difference prevailed over the time peak of performance components among track and field events. The graphical representation of the mean score of diurnal variation and the time peak of performance components presented below in Fig 1, 2, 3 and 4

Tables and Figures

Table 1: Diurnal variation on Chrnotype

Dependent variable	Circadian rhythm type	Mean	Std. Deviation
Diurnal variation (Temperature)	Definitely Morning	96.95	1.10
	Moderate Morning	96.20	.78623
	Definitely Evening	97.24	.82411
	Moderate Evening	96.88	1.06
	Total	97.00	1.00

Table 2: Performance components on Chronotype

Dependent variable	Circadian rhythm type	Mean	Std. Deviation
Diurnal variation (Performance)	Definitely Morning	622.96	136.385
	Moderate Morning	567.50	78.60
	Definitely Evening	602.37	132.689
	Moderate Evening	606.42	122.253
	Total	606.84	126.776

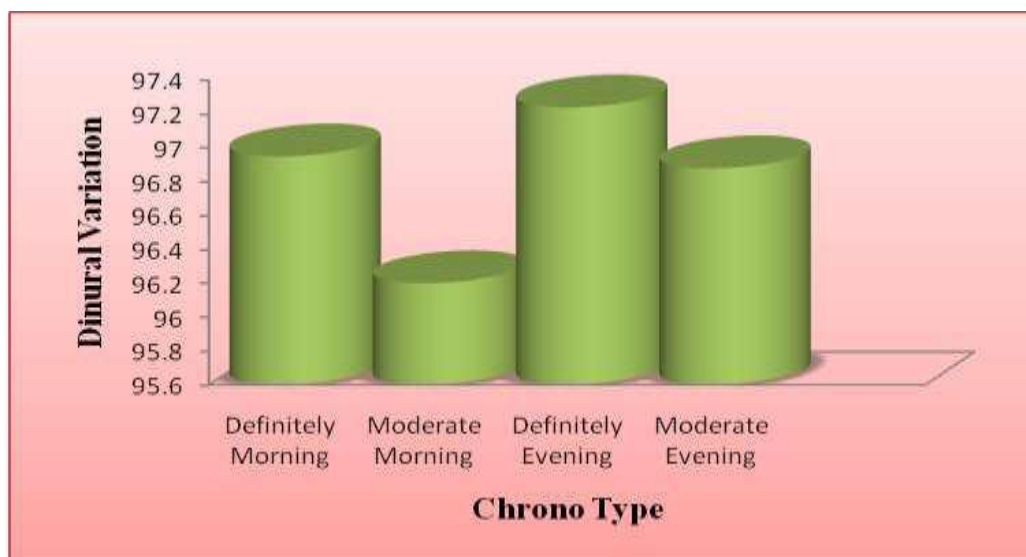


Figure 1 Diurnal variation on Chronotype

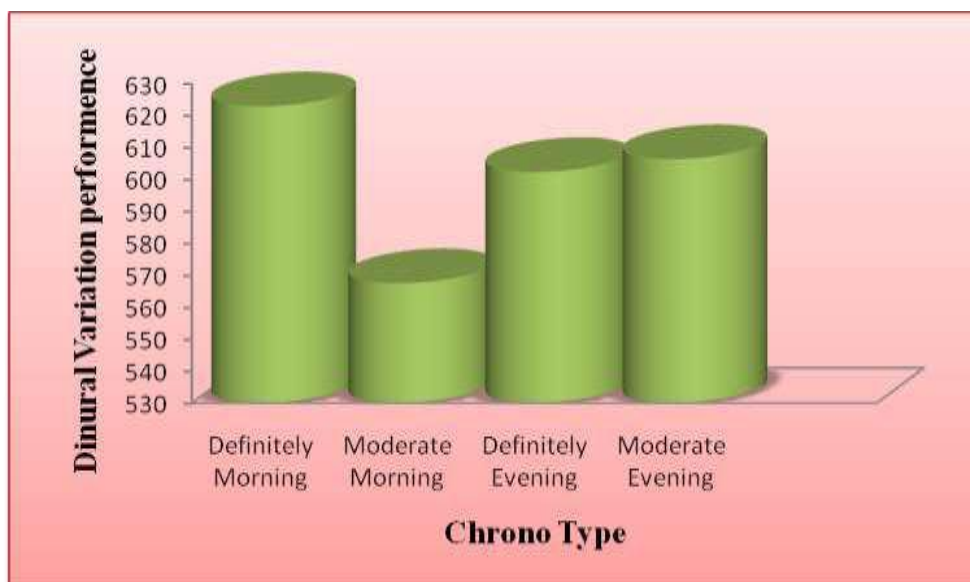


Figure 2. Performance variation on Chronotype

Table 3: ANOVA on Chrono type with diurnal variation

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig (P- value)
Diurnal Variation	6.729	3	2.243	4.046	.010
	37.700	68	.554		

(Temperature)					
Diurnal Variation (Performance)	16023.747	3	5341.249	.354	.787
	1026620.517	68	15097.361		

Table 4: Diurnal variation on Events

Dependent variable	Circadian rhythm type	Mean	Std. Deviation
Diurnal variation (Temperature)	Sprint	97.17	1.07037
	Middle Distance	96.75	.98268
	Long Distance	96.51	.89432
	Jump Vertical	97.04	.95362
	Jump Horizontal	97.36	.95238
	Throw Distance	97.17	1.07037

Table 5: Diurnal variation on Performance

Dependent variable	Circadian rhythm type	Mean	Std. Deviation
Diurnal variation (Temperature)	Sprint	615.95	54.880
	Middle Distance	655.95	90.379
	Long Distance	638.05	110.115
	Jump Vertical	647.60	81.879
	Jump Horizontal	611.15	151.408
	Throw Distance	472.35	152.544

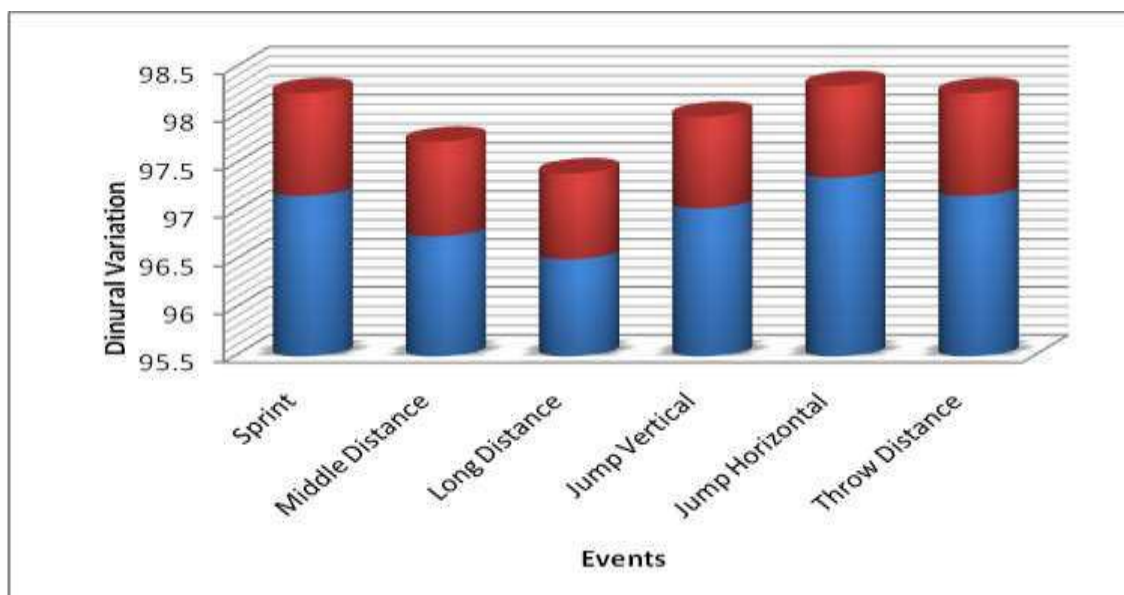


Figure 3. Diurnal variation on Events

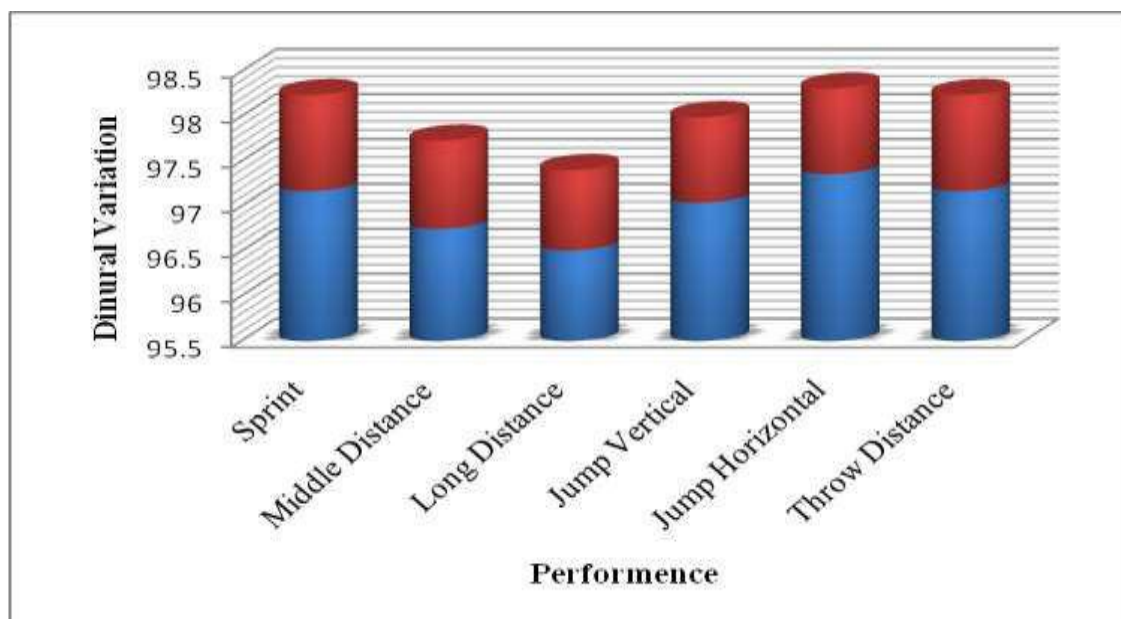


Figure 4. Diurnal variation on Performance

4. CONCLUSIONS:

The result showed that the influence of diurnal variation over the circadian typology was found to be insignificantly satisfied but it had a significant difference over the events. The result also showed that definitely evening and moderate evening had significant difference concerning diurnal variation which had greater influence over jump horizontal, jump vertical, throw distance due to the fact that event discus, hammer, javelin and shot-putt which involves high velocities of projectiles and dynamic explosive, rather than sustained effort for activities which depend more on central nervous system arousal than on the curve in body temperature and the period for high performance levels may be closer to mid-day. Also the diurnal variation had a positive influence over the events sprint, middle distance and long distance is concerned. This is due to the facets that these events required high gross motor skills and involving high velocities of projectiles scheduled between 14.00hrs and 16.00hrs, not later than 17.00hrs, at which physical, physiological, biomechanical and psychological components along with the body temperature; strength, anaerobic power output, and joint flexibility are high at its maximum, along with the environmental temperature and meteorological conditions are at its maximum favourable, and the physiological functions such as sleep-wake cycle, glucose uptake, core body temperature, neurotransmitter function, heart rate, and circulating and gross motor peak at its maximum during late afternoon or early evening along with the demand of media will advantage for the performance component to peak at its maximum.

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**“COLLEGE WOMENS’ ATTITUDE TOWARDS EATING AND ITS
INFLUENCE ON BODY MASS INDEX AND SOCIO-ECONOMIC STATUS
AMONG VARIOUS EDUCATION INSTITUTIONS OF KERALA”**

DR. MARGRETTE LEENA V.

Assistant professor & Head
Department of Physical Education, All Saints’ College Chackai,
Thiruvananthapuram Kerala, 695008, Indi
Email - leena.margaret063@gmail.com

Abstract:

The health status of any country depends on the socio-economic status (SES) and the per capita income of its citizens. The SES also decides the affordability and utilization of the health facilities. Constant changes in the price of goods in the country due to inflation make it mandatory to constantly update the income-based socioeconomic scales. Eating attitudes (EA) consist of beliefs, thoughts, feelings, behaviours and relationship with food, and understanding these attitudes may help to understand food choices and the dietary pattern of a population are governed by many factors such as geography of the region, socio-economic and cultural characteristics of the people and their exposure to the world outside, therefore, eating not just because we are hungry and craving nutrients but also for a host of emotional and habitual reasons. The aim of this study was to determine how the SES associates EA among women belonging south, middle and northern regions of Kerala. Also an attempt is made to remind about to improve eating attitude, dietary pattern and nutritional status.

Key Words: Social-Economic status, Eating Attitude, Women, Region

1. INTRODUCTION:

Today, women are more independent and have their own food decisions and choices. Many women experience a progressive development and this will gradually augment in frequent appetite. They also need healthy foods to meet their growth demands. Women are prone to eat more meals away from home. The choice and timing of the meal, will be purely based on their convenience, and this may lead to many wrong decision making in the types of food they prefer (for example, soft drinks, fast-food, processed foods). Maintaining good nutrition is fundamental for their health and wellbeing also to maintain healthy balance, women, should practice eating regular meals, engage in doing compulsory daily physical activity, and eating a wide variety of foods. Food choices of women have become increasingly unhealthy placing them at increased risk of malnutrition and chronic diseases in the future. Thus, dietary decisions made by women may have long term health implications. Awareness on healthy eating habits will definitely make women to aware about their health and its importance in future living. The society and social norms can play a major role in bringing a positive and healthy change in the eating pattern of the women. Eating is a complex process made up of learned behaviour, social expectations, acquired tastes, and attitudes and feelings about eating in general and about certain food items in particular. Family and peer negative communication and modelling may be related to preadolescent girls' body image dissatisfaction and maladaptive eating attitudes and behaviours. ^[1] Eating attitudes consist of beliefs, thoughts, feelings, behaviours and relationship with food, and understanding these attitudes may help to understand food choices. The dietary pattern of a population is governed by many factors such as geography of the region, socio-economic and cultural characteristics of the people and their exposure to the world outside. We eat not just because we are hungry and craving nutrients but also for a host of emotional and habitual reasons. Healthy eating is not about strict dietary limitations, staying unrealistically thin, or depriving our self of the foods we love. Rather, it's about feeling great, having more energy, and stabilizing our mood. Women are an ideal population with which to explore eating behaviours as the first time also able to make his or her own food choices ^[2] also at an increased risk for poor eating habits due to their stressful lifestyle, and frequently poor diet practices. This period in an individual's life is an important time to develop healthy eating attitudes and behaviours to prevent diseases later in life. Studies focusing only on women have shown that overweight

women had a stronger drive for thinness and a more negative body image than normal-weight women or underweight women^[3] Overweight women, especially, have more negative views about their appearance, fitness, and health. Disordered eating and body dissatisfaction are influenced by body mass index (BMI) and found that higher^[4] BMIs were significantly correlated with higher body dissatisfaction in preadolescent girls and elevated BMI has been found to be positively associated with disturbed eating attitudes influenced by a desire to be thinner.

2. MATERIALS AND METHODS:

2.1. Eating Attitude Test (EAT-26):

The EAT-26 has been a particularly useful screening tool to assess "eating disorder risk" in high school, college and other special risk samples (Garner, Rosen and Barry, 1998). The Eating Attitudes Test is the tool that is commonly used as a screening instrument for the presence of disturbed eating patterns. The questionnaire contains 26 questions and the scores range from 0-78. All the questions, except the question number 26, receives the following value: Always = 3 ,Usually = 2 ,Often = 1 ,Sometimes = 0, Rarely = 0 ,Never = 0. For question number 26, the responses value receive on reversed order such as :Always = 0 ,Usually = 0 ,Often = 0 ,Sometimes = 1 ,Rarely = 2 ,Never = 3 respectively. The total score is obtained by adding the value of each responses together. Higher score ranging from 20 and above indicate chance of an eating disorders and other related behaviours such as are anorexia nervosa and bulimia nervosa.

2.2. Body Mass Index (BMI):

Body Mass Index (BMI) is the ratio of weight to height measured in kilograms/metres². Measured height and weight values were used to calculate and categorize weight status according to body mass index, a standard assessment of body fat composition (Agras, 1995), obtained for this study from the formula known as Quetelefs Index, which calculates the ratio of weight, in kilograms, to the square of height, in meters (Garrow & Webster, 1985). Measured height and weight were taken from the students and was classified as underweight (below 18.5), normal weight (18.5–24.9) and overweight (above 25). In the current study, BMI was treated as a continuous variable with lower numbers representing less fatness.

2.3 Socio-economic status (Kuppuswamy, 1976):

Socio-economic status (SES) is an important determinant of the health, nutritional status, mortality, and morbidity of an individual. SES is defined as the level of indicative of both the social and economic achievements of the individual or group (Good, 1945) and also influences the accessibility, affordability, acceptability, and actual utilization of available health facilities. SES designed by Kuppuswamy in the year 1976 based on a composite score considering the education and occupation of the head of the family along with monthly income of the family with the score range from 3-29 was used as a tool in the present study. The SES of a pupil are measured in terms of the three variables viz, education, occupation and income of parents. This scale classifies the study populations into high, middle, and low SES classes.

3. RESULTS & DISCUSSION:

Results of the study shows that no significant difference prevails in eating attitude on region ($F=5.582$, $p>0.05$) and SES ($F= 2.057$, $p >0.05$). However, significant difference was found in BMI and Institution ($F = 8.722$, $p < 0.05$) and ($F = 9.449$, $P < 0.05$) respectively. Further, BMI Classes differ significantly with northern region (Palakkad, Malapuram, Kozhikode, wayanad, Kannur and Kaseragode) have highest ratio compare to the southern region (Trivandrum, Kollam, Alappuzha and Pathanamthitta districts) and middle region (Ernakulum, Kottayam, Idduki and Thrissur district). The present study which goes hand in hand with the study conducted by^[8],^[9] that regional differences found in appearance concerns support the notion that modern societies are more likely to foster eating disorders in women and elevated BMI has been strongly associated with disturbed eating attitudes. A similar result is also found by^[10] over the potential link between disordered eating attitudes and being overweight. The relationship may exist for females of all BMI scores, but it could be particularly important in understanding why women who are already close to society's ideal would engage in disordered eating behaviours in an attempt to lose weight a large sample of women across all BMI categories were found to experience a high drive for thinness, suggesting that women's eating attitudes are influenced by a desire to be thinner. The graphical representations of the mean score of Eating Attitude among three different regions, body mass index , scio-economic status and institution is presented below in Fig 1, 2,3 and 4 respectively.

3.1 Tables and Figures:

Table 1: Details of the Women Participants in the Study

Variables		Value Label	N
Region	1	South	686
	2	Middle	544
	3	North	545

	Total		1775
Body Mass Index	1	Underweight	545
	2	Normal	1136
	3	Overweight	94
	Total		1775
Socio-Economic Status	1	Low	783
	2	Middle	922
	3	High	70
	Total		1775
Institution	1	Government	630
	2	Aided	604
	3	Unaided	541
	Total		1775

Table 2: Descriptive statistics on Region, Body Mass Index Socio-Economic status and Institution

Dependent Variable	Demographic variables	Sub Scale	Mean	Std. Deviation	N
Eating Attitudes	Region	South	10.65	8.008	686
		Middle	10.48	8.434	544
		North	10.98	7.576	545
		Total	10.70	8.006	1775
	Body Mass Index	Underweight	10.83	8.175	545
		Normal	10.18	7.738	1136
		Overweight	16.23	8.246	94
		Total	12.41	8.053	1775
	Socio-Economic Status	Low	10.63	8.530	783
		Middle	10.80	7.645	922
		High	10.18	6.668	70
		Total	10.54	7.615	1775
	Institution	Government	9.54	7.601	630
		Aided	11.06	8.114	604
		Unaided	11.64	8.210	541
		Total	10.75	7.975	1775

The above table shows that the total mean score for the female among the region's is 10.708 (SD = 8.00626), BMI the mean score 12.41 (SD = 8.053), SES mean 10.54 (SD = 7.615) and the institution the score is 10.75 (SD = 7.975) respectively. The ANOVA on region, body mass index, socio-economic status and institution is shown on table .3

Table 3: ANOVA on Eating Attitudes with Region and Socio-Economic Class

Source	Demographic Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Eating Attitude	Region	72.089	2	36.045	.582	.559
	Body Mass Index	1089.248	2	544.624	8.722	.000*
	Socio-Economic Status	256.922	2	128.461	2.057	.128
	Institution	1169.857	2	584.929	9.449	.000*

* Significant at .05 level

The ANOVA result reveals that, the dependent variable eating attitude not is statistically significant with region and socio-economic status ($F=.582.624$, $p>0.05$) and ($F= 2.057$, $p >0.05$). But significant difference was found in body mass index and Institution ($F = 8.722$, $p < 0.05$) and ($F = 9.449$, $P < 0.05$). Since F value is found significant, post hoc test comparison was performed on the dependent variable to find out the difference in the mean value of eating attitude.

Table 4: Pair wise Comparisons of Eating Attitude on BMI and Institution

Dependent variable	Demo-graphic variable	Sub variable (I)	Sub variable (J)	Mean difference (I-J)	Std. error	Sig. (P-value)
Eating attitudes	BMI	Underweight (10.83)	Normal	0.650	.411	.254
			Over weight	-5.399*	.882	.000*
		Normal (10.184)	Under weight	-0.650	.411	.254
			Over weight	-6.050*	.848	.000*
		Overweight (16.234)	Under weight	5.399*	.882	.000*
			Normal	6.050*	.848	.000*
	Institution	Government (9.547)	Aided	-0.450	.473	.341
			Unaided	-3.440*	.486	.000*
		Aided (11.069)	Government	0.450	.473	.341
			Unaided	-2.990*	.491	.000*
		Unaided (11.643)	Government	3.440*	.486	.000*
			Aided	2.990*	.491	.000*

*. The mean difference is significant at the .05 level.

The pair wise comparison of eating attitudes with regard to BMI shows that, eating attitudes differs among Underweight with Overweight ($MD=-5.3992$), Normal with Overweight ($MD=-6.0501$) and no differences were seen with Underweight with Normal. And in the case of institution the difference found among government with unaided ($MD=-3.440$), aided with unaided institution ($MD=-2.990$) and no difference between government with aided institution. The graphical representations of the mean score of eating attitude among regions, BMI Class, socio-economic status and institution is presented below in Fig 1 ,2, 3 and 4.

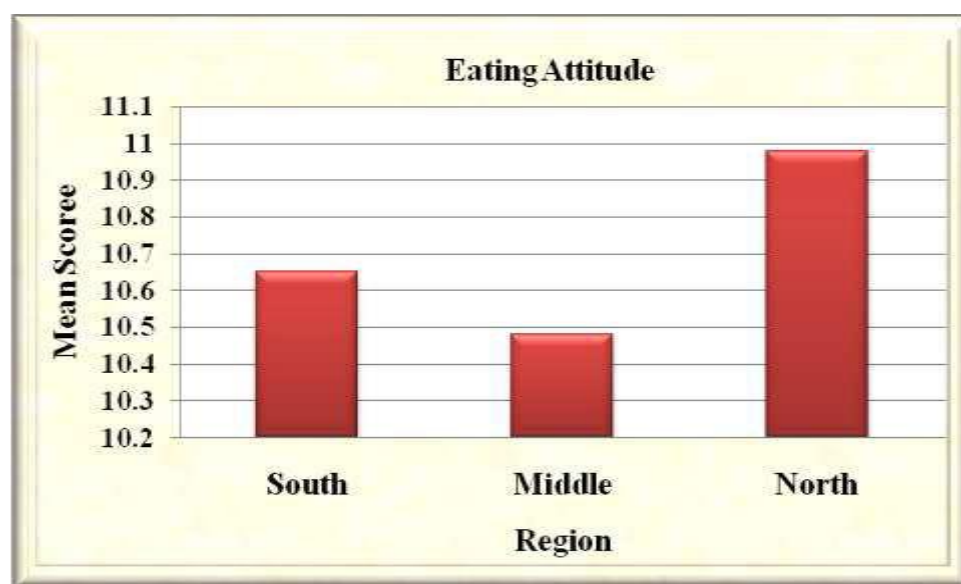


Figure 1. Estimated marginal means of mean score of Eating Attitudes on region

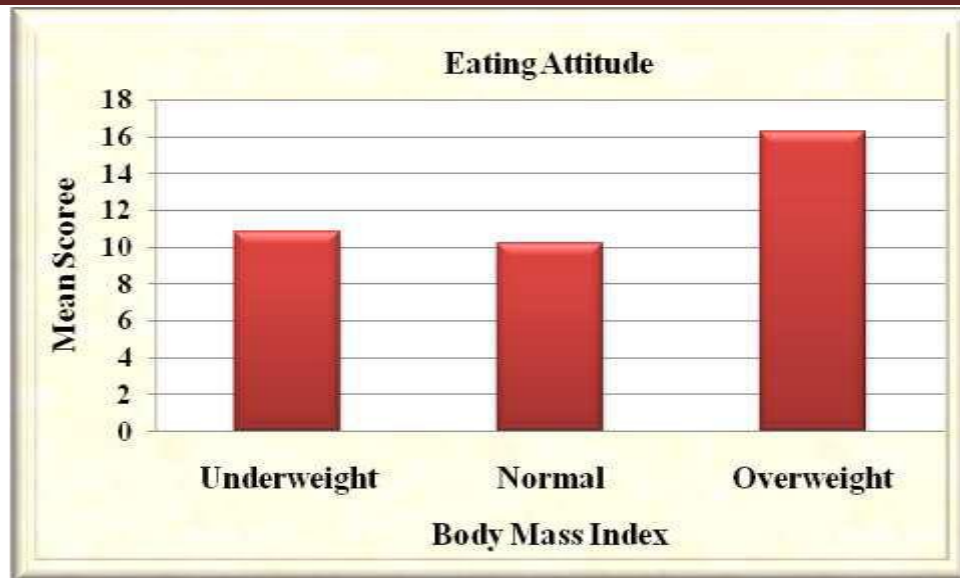


Figure 2. Estimated marginal means of mean score of Body Mass Index on eating attitude.

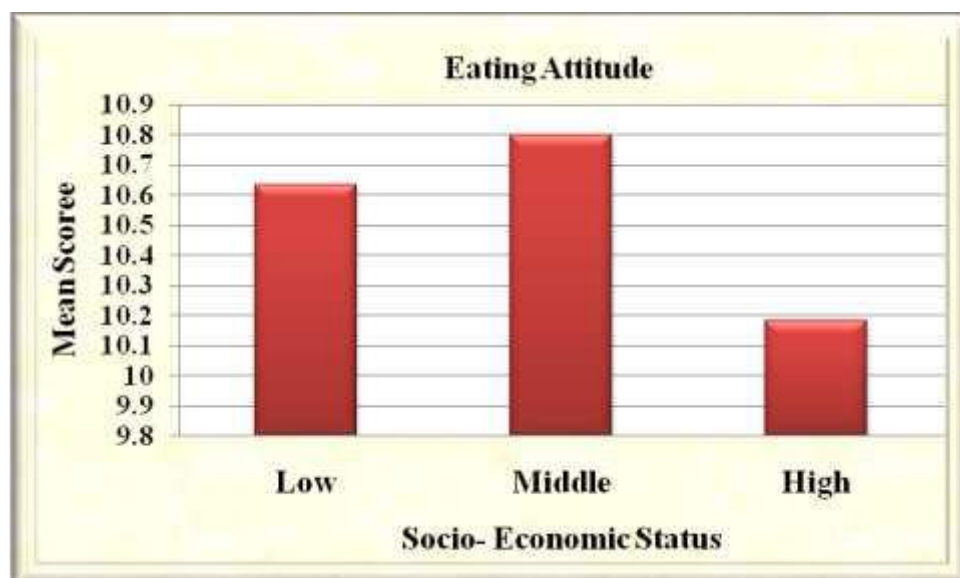


Figure 3 Estimated marginal means of mean score of socio-economic status on eating attitude.

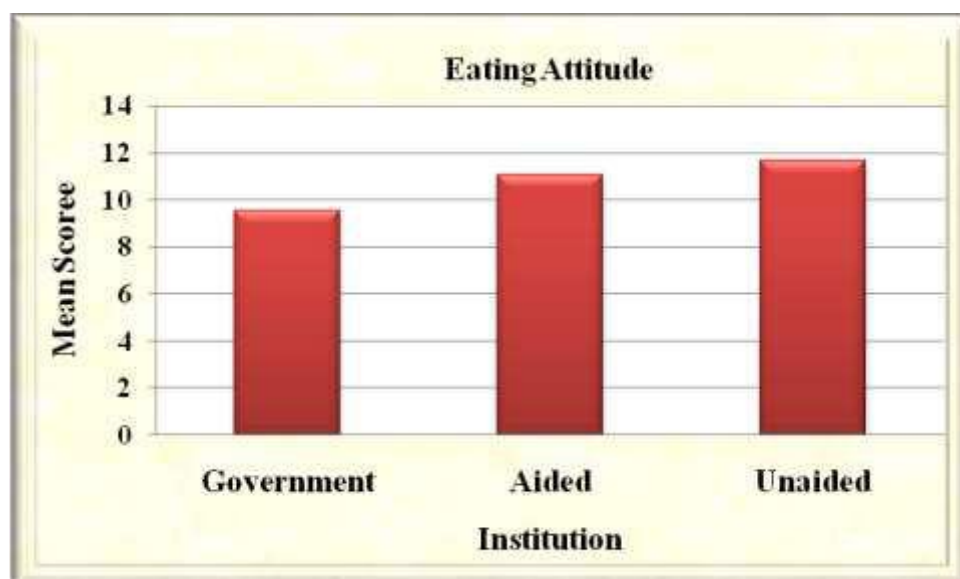


Figure 4. Estimated marginal means of mean score of institution on eating attitude.

4. CONCLUSIONS:

The present result study shows that no significant difference prevails in EAT over the three different region, however, significant difference exist in BMI and institution which is similar that of conducted by ^[8], ^[9] shows that regional differences found in appearance concerns support the notion that modern societies are more likely to foster eating disorders in women. Body Mass Index related with disturbed eating attitudes. The present study, BMI Classes differ significantly on Eating attitudes ($F = 8.722$, $p < .000$) which parallels the study by ^[10] that, elevated BMI has been strongly associated with disturbed eating attitudes. A direct link was also found between eating attitudes and BMI as having a higher weight was linked to disturbed eating habits. In another female adolescent sample a potential link are found between disordered eating attitudes and being overweight, this relationship may exist for females of all BMI scores, but it could be particularly important in understanding why women who are already close to society's ideal would engage in disordered eating behaviours in an attempt to lose weight a large sample of student females across all BMI categories were found to experience a high drive for thinness, suggesting that women's eating attitudes are influenced by a desire to be thinner. Improving knowledge to take balanced nutrition; to eat breakfast and meals regularly; to avoid frequent snacks and fatty food consumption; to stop eating before fullness; to avoid soft drinks and to control stress and to do regular physical exercise may promote healthy body weight management among women.

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COMPARITIVE STUDY OF SELF-ESTEEM BETWEEN THE TEACHING AND ADMINISTRATIVE STAFF OF PHYSICAL EDUCATION AND SPORTS

¹Roshan Limbu¹, ²Iadarika Wann

¹Lecturer, ²PGT (PE),

¹District Institute of Education and Training, Hailakandi, Assam

²BSF Sr. Secondary School, Shillong, Meghalaya

Abstract:

The main purpose of the study was to compare self-esteem between the teaching and administrative staff of physical education and sports. The study was based on a sample of 20 Lecturers (16 from various District Institute of Education and Training of Assam and 4 from Dibrugarh University, Assam) and 20 Sports Officer (8 District Sports Officer, 10 Sub-Divisional Sports Officer and 2 Inspector of Physical Education) employed under Directorate of Sports & Youth Welfare, Assam. Data pertaining to the study were collected by administering SECS Self-Esteem questionnaire developed by Lilburn S. Barksdale. Independent t-test was employed to assess the difference in self-esteem of teaching and administrative staff of physical education and sports. There was no significant difference in self-esteem of teaching and administrative staff of physical education and sports as calculated t-value of 0.79 was quite less than the tabulated t-value of 2.02.

Key Words: Self-Esteem, Teaching Staff, Administrative Staff, Physical Education, Sports

1. INTRODUCTION:

The purpose of participating in physical education and sports is to achieve all round development i.e. development of physical, intellectual, emotional and social domain. Changing the behavior of an individual towards a desired direction through systematic movements is known as physical education. And sports are organized play with certain rules and regulation which help to achieve purpose of physical education. Personality is an important parameter which is used to influence by physical education and sports. Self-Esteem is a trait of personality. Self-Esteem is a person's overall sense of self-worth or personal value. It is the subjective evaluation of an individual's own worth.

1.1. Purpose of the Study: The main purpose of the study was to compare the self-esteem between the teaching and administrative staff of physical education and sports.

1.2. Hypothesis: It was hypothesized that there might be significant difference in self-esteem of teaching and administrative staff of physical education and sports.

2. METHODOLOGY:

2.1. Participants: Twenty Lecturers of physical education and sports i.e. sixteen from various District Institute of Education and Training of Assam and four from Dibrugarh university, and twenty sports officers i.e. eight District Sports Officer, ten Sub-Divisional Sports Officer and two Inspector of Physical Education employed under Directorate of Sports and Youth Welfare, Assam were selected as subjects for the purpose of this study. The age of the subjects were ranging from 25 to 35 years.

2.2. Tools Self-Esteem was assessed by administering SECS Self-Esteem questionnaire developed by Lilburn S. Barksdale.

2.3. FINDINGS:

To determine the significant difference if any in self-esteem of teaching and administrative staff of physical education and sports independent t-test was used and have shown in the table below-

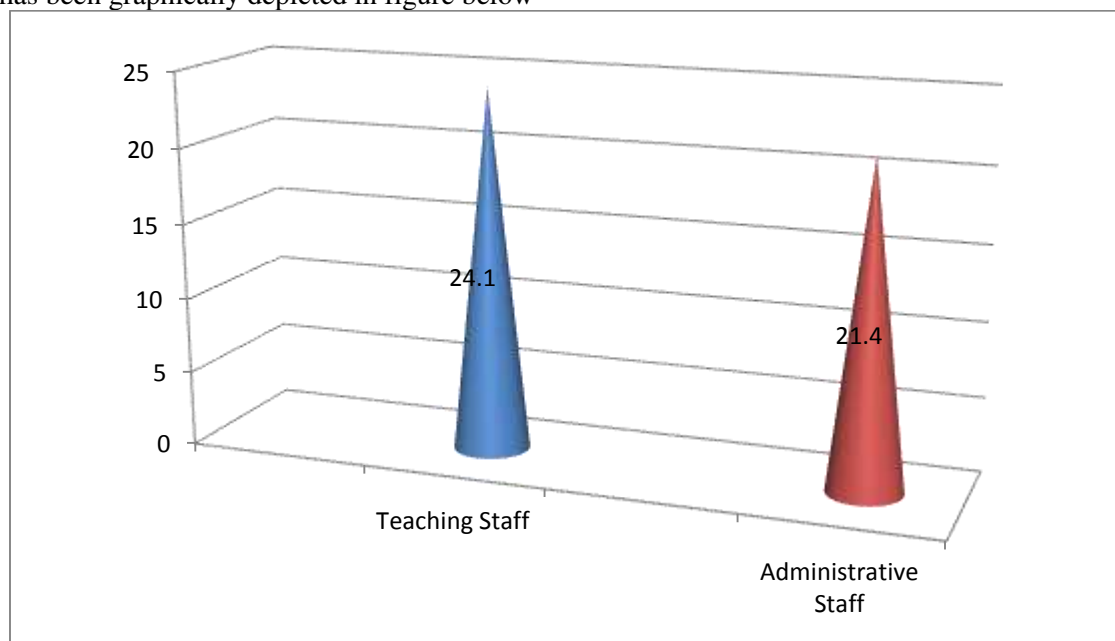
**Comparison of Means of Self-Esteem between Teaching and Administrative Staff of Physical Education
and Sports**

Groups	Mean	S.D.	MD	SE	t-ratio
Teaching	24.1	7.19	2.7	3.43	0.79@
Administrative	21.4	13.53			

@Not Significant at 0.05 level

Tabulated $t_{0.05}(38) = 2.02$

It is evident from the above that calculated t-value of 0.79 is quite less than that of tabulated t-value of 2.02 for the 38 degree of freedom at 0.05 levels. Hence, statistically there is no significant difference in self-esteem of teaching and administrative staff of physical education and sports. The comparison of means of self-esteem has been graphically depicted in figure below-



Comparison of Means of Self-Esteem between Teaching and Administrative Staff of Physical Education and Sports

4. DISCUSSION OF FINDINGS:

The findings of statistical analysis revealed that there was no significant mean difference in self-esteem of teaching and administrative staff of physical education and sports. It may be attributed to the fact that both teaching and administrative staff belonged to same background, they have same kind of experiences and their statuses in the society are approximately same. From the mean values of teaching and administrative staff we came to see that teaching staff has higher level of self-esteem than administrative staff. The mean value of teaching staff is 24.1, which is greater than the mean value of 21.4 of administrative staff. It may be because the work environments of administrative staff are more stressful and overly demanding than the teaching staff. Both teaching and administrative staff are seriously handicapping in their self esteem as their mean values are less than 35. It may be because there are contradiction between how they perceive they should be treated versus how they are actually treated by their superior, subordinate and society.

4.1. Testing of Hypothesis: In the beginning of the study it was hypothesized that there would be significant difference in self-esteem of teaching and administrative staff of physical education and sports. The result of the study revealed that statistically there is no significant difference in the variable between teaching and administrative staff of physical education and sports. Hence, the hypothesis stated earlier is rejected.

5. CONCLUSION:

Considering the limitations of the study and on the basis of statistical findings it was concluded that there was no significant difference in self-esteem of teaching and administrative staff of physical education and sports. Both teaching and administrative staff were seriously handicapping in their self-esteem.

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**SELECTED PHYSICAL FITNESS VARIABLES BETWEEN
GOVERNMENT AND PRIVATE SCHOOL STUDENTS: A
COMPARATIVE ANALYSIS**

¹Deepak Singh Bisht, ²Dr. Usha Tiwari, ³Dr. Vimlesh Tanwar

¹Research Scholar, ²Associate Professor, ³Section Officer

¹Department of Physical Education, Banasthali Vidyapith, Rajasthan.

²Department of Physical Education, Central University of South Bihar, Gaya.

³Academic section, Banasthali Vidyapith, Rajasthan.

Correspondence: Email - sporty07deepak@gmail.com

Abstract:

Objective: to compare the selected physical fitness variables between the government and private school students (boys) of Nainital district (UK).

Methods: To achieve the motive of this study, Fifty (N=50) students (25 boys from government school and 25 from private school) were selected as subjects, by using stratified sampling method. The subjects were selected in the age group of 14 to 19 years (teenagers). Speed, Muscular endurance, Explosive strength and Flexibility were selected as the variables of Physical fitness, for this study. The data was collected to descriptive statistics and student independent 't' test, and level of significance was set, at 0.05 level of confidence.

Results & Discussion: From the study, we found that there were significant differences between the government and private school students on speed, explosive strength and Flexibility. No significant difference exists on muscular endurance between the groups.

Conclusion: Government school students were superior in speed, stronger and better in explosive strength and more pliable in flexibility than the private school students.

Key Words: boys, government, physical fitness, statistics, private, school and students.

“I don't look at sports as something, which merely tones up the body. I look at it as a tool of education that stimulates the mind, and brings in a culture of discipline”.

- Narendra Modi-

1. INTRODUCTION:

“A healthy mind resides in a healthy body”.

Physical exercise plays an important role to maintain our health and wellness. It also helps to maintain our healthy body weight, healthy bones, joints and muscles and encouraging to keep fit our different types of body systems i.e. circulatory, respiratory etc. Physical activity or yogic exercises builds strength and endurance for us. A school health programme should include provision of a wholesome environment, the organization of a healthful school day or week and the establishment of such teacher pupil relationship that give a safe, sanitary and favorable atmosphere for the best development of teacher pupil relationship. Physical activity and sports have significant benefits in promoting health, wellbeing and youth development. The famous Greek philosopher Aristotle stated: “Every individual should be physically fit to enjoy the life fully. In intellectual as well as physical work, a sound heart and lungs, good digestion, a well-developed physique, all are the great assets for living a happy and satisfying life.”

According to Clarke (1976), “Physical fitness is most appropriately considered as the ability to carry out daily tasks with vigour and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and unforeseen emergencies”. It is considered that being physically active daily is requisite for the human wellness and health. Systematic bodily activities has several health advantages and plays a major role in fostering health and prevent various disease and also improves the psychological wellbeing

1.1. Objective:

- a. To compare physical fitness variables between the government and private school students.

1.2. Hypothesis:

H₀₁: There would be no significant difference between government and private school students (boy) of Nainital district on Speed variable.

H₀₂: There would be no significant difference between government and private school students (boy) of Nainital district on Muscular Endurance variable.

H₀₃: There would be no significant difference between government and private school students (boy) of Nainital district on Explosive Strength variable.

H₀₄: There would be no significant difference between government and private school students (boy) of Nainital district on Flexibility variable.

2. METHODOLOGY: This part consists of selection of subjects, variables, assessment tools, procedure and statistical analysis.

2.1. Selection of subjects:

To obtain required data, fifty (N=50) school students (25 boys of government and 25 boys from private school) were chosen as subjects, by adapting stratified random sampling method, for this study, from Nainital district of Uttarakhand. The range of age was from 14-19 years respectively.

2.2. Selection of Variables:

- Independent variable: Government and private school students (boys).
- Dependent variables: Speed, Muscular endurance, Explosive Strength & Flexibility.

2.3. Assessment Tools: The following test items were selected to measure the physical fitness variables.

Table A-:

S.no	Variables	Test	Measuring unit
1	Speed	50 meter dash	Time in Seconds
2	Muscular endurance	Bend knee sit-ups	Time/ Score
3	Explosive strength	Standing broad jump	Meter/Centimeter
4	Flexibility	Sit and reach test	Centimeters

3. PROCEDURE:

Before collecting the data, the subjects were assembled at one place and informed about the motive, procedure and possible risks of the research study. The requisite consent and approval was obtained from all the participants. The prescribed tests were explained to the subjects so that they would be familiar with the tests and procedure. The participants with injury, disease, sick or ill health were excluded from the study. Participants were not paid for sharing their views and we expressed our heartfelt gratitude for their sincere involvement, after accomplishment of the study.

3.1. Statistical Analysis:

The descriptive statistics and independent 't' test was used to observe the significant discrepancy, between the groups, if any. SPSS 24.0, was employed for this study and the significance of level was fixed at 0.05.

4. RESULTS AND FINDINGS OF THE STUDY:

The descriptive analysis of the data shows mean, SD, 't' and 'p' value on the selected physical fitness variables between the Govt. & private school students. The results of this study are displayed in the below mentioned tables.

Table-1: Descriptive statistical analysis of speed between the students (Boys)

S.No	Variable	Group (School type)	N	Mean Scores	S.D	t-value	p-value
1.	SPEED	Govt.	25	6.98	0.39	-4.667	0.000
		Private	25	7.60	0.54		

*Significant at .05 level. 't' 0.05 (48) = 2.009

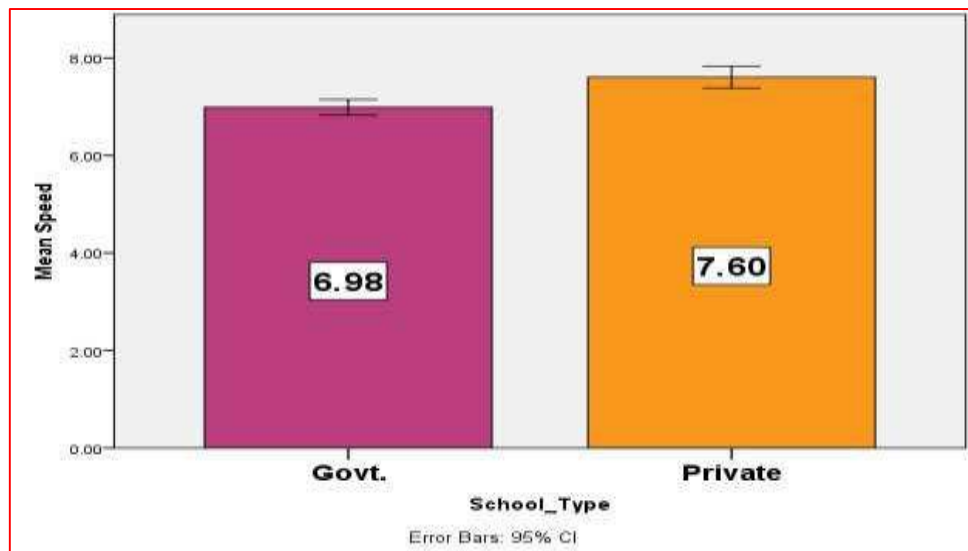


Figure 1: Graphical representation of speed between the students (Boys).

It appears from the **Table & Fig. no-1** that the mean value of speed for government and private school students are 6.98 (± 0.39) and 7.60 (± 0.54) respectively. The obtained 't' value on speed is -4.667, which is greater than the table value 2.009, and signifies towards significant discrepancy. Thus, the null hypothesis is refused in support of the alternative hypothesis at .05 level.

Table-2: Descriptive statistical analysis of Muscular Endurance between the students (Boys).

S.No	Variable	Group (School type)	N	Mean Scores	S.D	t-value	p-value
2.	Muscular Endurance	Govt.	25	39.08	10.29	0.869	0.389
		Private	25	36.36	11.78		

* Significant at .05 level. 't' 0.05 (48) = 2.009

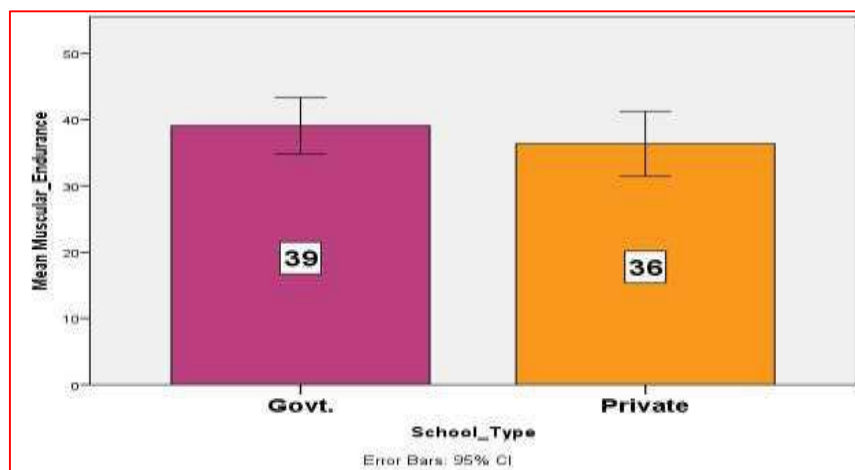


Figure-2: Graphical representation of Muscular Endurance between the students (Boys).

It appears from the **Table & Fig. no-2** that the mean value of muscular endurance for government and private school students are 39.08 (± 10.29) and 36.36 (± 11.78) respectively. The obtained 't' value on muscular endurance is 0.869, which is lesser than the table value 2.009, and indicates towards no significant difference. Thus, the null hypothesis is accepted (statistically insignificant) at .05 Level.

Table-3: Descriptive statistical analysis of Explosive Strength between the students (Boys).

S.No	Variable	Group (School type)	N	Mean Scores	S.D	t-value	p-value
3.	Explosive Strength	Govt.	25	2.05	0.25	5.484	0.000
		Private	25	1.67	0.24		

*

Significant at .05 level. 't' 0.05 (48) = 2.009

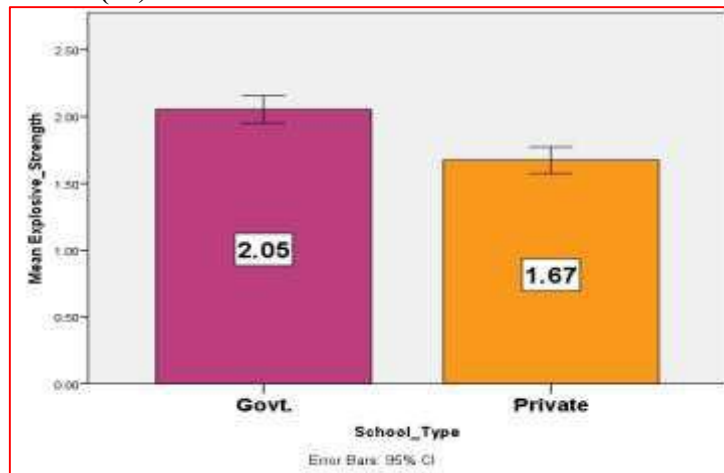


Figure 3: Graphical representation of Explosive Strength between the students (Boys).

It appears from the **Table & Fig. no-3** that the mean value of explosive strength for government and private school students are 2.05 (± 0.25) and 1.67 (± 0.24) respectively. The obtained 't' value on explosive strength is 5.484, which is greater than the table value 2.009, and signifies towards significant discrepancy. Thus, the null hypothesis is refused in support of the alternative hypothesis at .05 level.

Table-4: Descriptive statistical analysis of Flexibility between the students (Boys).

S.No	Variable	Group (School type)	N	Mean Scores	S.D	t-value	p-value
4.	Flexibility	Govt.	25	31.52	6.45	2.282	0.027
		Private	25	27.76	5.13		

* Significant at .05 level. 't' 0.05 (48) = 2.009

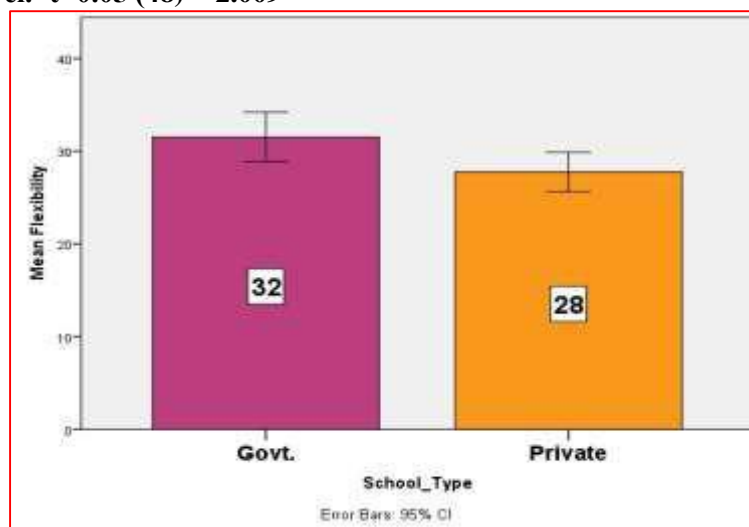


Figure 4: Graphical representation of Flexibility between the students (Boys).

It appears from the **Table & Fig. no-4** that the mean value of flexibility for government and private school students are 31.52 (± 6.45) and 27.76 (± 5.13) respectively. The obtained 't' value on flexibility is 2.282,

which is greater than the table value 2.009, and signifies towards significant discrepancy. Thus, the null hypothesis is refused in support of the alternative hypothesis at .05 level.

5. DISCUSSION OF FINDINGS:

The primary motive of the research was ‘to compare the selected physical fitness variables between the government and private school students (boys) of Nainital district (UK)’. It is shown from results that there are statistically significant differences exists between the students (boys) of Government and private school on the ‘selected variables’ i.e. Speed, explosive strength and flexibility. Many previous studies by (Guleria, 2007), (Watson, 1978), (Mohite, 2011), (Singh, 1986), (Bamaniya and Nayak, 2017), (Kaur, 2003), (Kumar, 1998) and (Falls, 1979) also found a significant differences in their studies. (Singh et al., 2017) in their study on school (Govt. and Private) boys in Punjab, reported significant differences in mostly number of tests between the Govt. and Private school boys. In another study, (Andrews, 1976) conducted AAHPERD Physical fitness battery between South African and Canadian boys’ students, data revealed that South African boys found better than the Canadian boys in AAHPERD Tests. The result of this research clearly shows that no statistically significant discrepancy exists in muscular endurance between the students (boys) of Government and private school (statistically insignificant). Previous studies by other researchers (Kaur, 1989), (Yadav, 1986), (Box, 1973) and (Das, 1980) also supported this study. A number of recent research studies, (Prakash and Uppal, 2012), (Jagathesan and Ganeshkumar, 2013) and (Marshall et al., 2005), have shown that regular physical activities are beneficial for our young generation, and, physical activities should be encouraged in our society and educational institutional. It is clear from above mentioned points that for having a long and quality life, increased physical fitness or activity level is required (Vural et al., 2010). At present, recommendations for the general population are that all adults should perform at least forty to sixty minutes per day of balanced intensity physical movements (Driskell et al., 2005) and (WHO, 2015).

6. CONCLUSION:

On the support of the conclusion of the research, and within limitation it is observed that:

- The result of this research clearly shows that no statistically significant discrepancy exists in Muscular endurance between the students (boys) of Government and private school (statistically insignificant).
- There are statistically ‘significant differences’ exists between the students (boys) of Government and private school on the selected variables ‘Speed, Explosive strength and Flexibility’. Government school students are faster, stronger, powerful, superior and more pliable (flexible) than the private school students.
- Furthermore, we feel that differences in physical fitness variables between the students (boys) of Government and private school may be due to their home & educational environment, food habits, active involvement in physical activities and yogic exercises, daily lifestyle, and anthropometrical structures of students.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

ADAPTED PHYSICAL EDUCATION

Prof. Madhukar Tukaram Kshirsagar
Sambhaji College Murud, Tq.-Dist. Latur
Email - kshirsagarm2013@gmail.com

Abstract:

The study was carried out to identify the effect of exercises on selected physiological variable among the school of mental retarded children. To achieve the purpose of the study, thirty male respondents were selected from residential renaissance Malarchi Special School, kalamavur, Pudukkottai district, Tamilnadu state. The age ranged between 14 to 19 years. The subjects (N=30) were randomly selected and divided into two groups. The experimental group (N=15) underwent sukshma vyayama exercise practice during morning and evening hours over the period of six weeks. The control group (N=15) left out from the sukshma vyayama exercise practices. The criterion variables selected for this study were resting pulse rate. The following standardized test items were used to assess the dependent variables such as resting pulse rate were measured by radial pulse method. The data were collected before and the after experimental period. The data pertaining to the variable for this study were examined by using dependent t – test and analysis covariance (ANCOVA). The level of confidence was fixed at 0.05 levels for all the cases. The result of the study revealed that there was significant improvement on selected physiological variable such as resting pulse rate of experimental group due to the influence of sukshma vyayama exercises practices, when compare to control group of criterion variables.

Key Words: exercises, Resting pulse rate.

1. INTRODUCTION:

Yoga has been recommended as an adjunct to psychotherapy and standards medical treatment for a number of reasons. Its integration of the mental, physical and spiritual dimension of human life is helpful to patients struggling with distorted cognitive or pain syndromes. By practice of suksma vyayama exercise gives more benefits for the respiratory system help to induce a sense of relaxation and strengthen the human immune system (D.C. kaushal, 2019).

While sitting position always it shows abnormal and indicates extremely impaired left ventricular systolic function and severely impaired pulmonary function. In normal physiological function heart rates 60-100 beats per minutes. (Jonathan K. Ehrman 2009).

Mental retardation is one of the major areas of special education. These children's are characterised by low intelligence in comparison with mental children. These are various terms used in the part such amenitia, feeble, minded, moron, imbecile, with advanced methods of providing educational and vacationing training, we find that retarded people are capable of leading more independent lives. (J. Sujatha Malini, 2006).

1.1. Statement of the problem:

Yogic exercise gives more beneficial to the organs and their muscles. The purpose of the study to find out efficacy of exercises on selected physiological variable among the mentally retarded children.

2. MATERIALS AND METHODS:

The study was carried out to identify the efficacy of sukshma vyayama exercises on selected physiological

variables among the mentally retarded children.

2.1. Selection of the respondents:

To achieve the purpose of the study, thirty male respondents were selected from residential renaissance Malarchi Special School, kalamavur, Pudukottai district, Tamilnadu state. The age ranged between 14 to 19 years. The subjects (N=30) were randomly selected and divided into two groups. The experimental group (N=15) underwent sukshma vyayama exercises practice during morning and evening hours over the period of six weeks. The control group (N=15) left out from the sukshma vyayama exercise practices.

2.2. Selection of Variables:

The criterion variables selected for this study were resting pulse rate. The following standardized test items were used to assess the dependent variables such as resting pulse rate were measured by radial pulse method.

2.3. Statistical and Interpretation of the data:

The data were collected before and the after experimental period. The data pertaining to the Physiological variable were statistically analyzed by using the dependent 't' test and analysis of covariance (ANCOVA).

TABLE-I: THE SUMMARY OF MEAN AND DEPENDENT 'T' TEST FOR THE PRE AND POST OF RESTING PULSE RATE OF EXPERIMENTAL AND CONTROL GROUP

Group	Number	Mean		't' value
		Pre test	Post test	
Experimental group	15	79.20	74.40	7.483*
Control group	15	77.73	77.73	

*Significant at 0.05 level (The table value required for significance at 0.05 level with 14 is 2.14) Table -I indicate that the experimental group of pre and post test mean value is 79.20 and post test value is 74.40 and control group of pre and post mean value is 77.73 and 77.73 respectively. The obtained 't' value of resting pulse rate was 7.483 which is greater than the table value of 2.14 for significance of 0.05 levels. Hence, it is understood that sukshma vyayama exercise group significant difference between the mean score of pre and post test of resting pulse rate.

TABLE 2. ANALYSIS OF COVARIANCE ON RESTING PULSE RATE OF CONTROL AND EXPERIMENTAL GROUP

Variable	Adjusted post test mean		Sum of square	Source of variance	df	Mean square	F- ratio
	Experimental group	Control group					
Resting Pulse rate	74.40	77.73	Between	1699.767	1	1699.767	57.73*
			Within	76.766	27	2.843	

*Significant at 0.05 level (The table value required for significance at 0.05 level with df 1 and 27 is 4.28)

It is observed from the above table that the adjusted post test means of experimental and control groups were 74.40 and 77.73 respectively. The obtained 'F' ratio value of adjusted post means of experimental and control group on resting pulse rate was 57.73 which is higher than the table value of 4.28 with 1 and 27 at 0.05 levels of confidence. Since the obtained 'F' value is higher than table value, it indicates that there existed significant difference on resting pulse rate between the experimental and control groups. Hence it is inferred that the experimental group which underwent sukshma vyayama exercise had significantly decreased the resting pulse rate.

TABLE 3. GRAPHICAL REPRESENTATION FOR PRE AND POST TEST OF EXPERIMENTAL GROUP MEAN VALUE OF RESTING PULSE

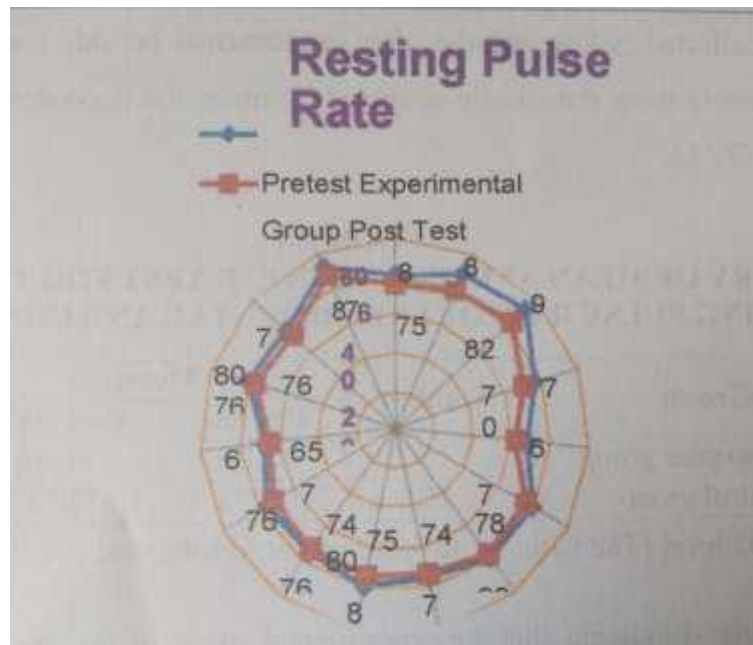
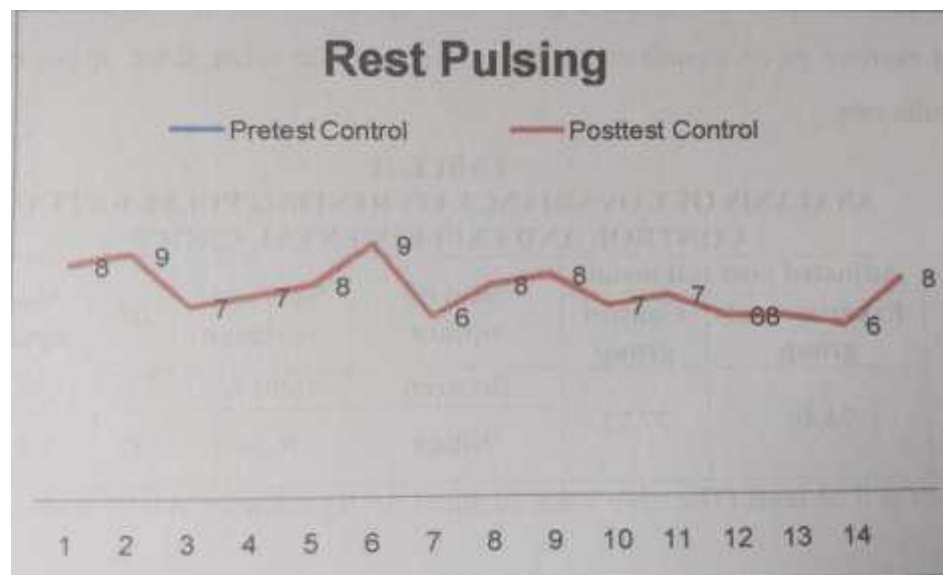


TABLE 3. GRAPHICAL REPRESENTATION FOR PRE AND POST TEST OF CONTROL GROUP MEAN VALUE OF RESTING PULSE RATE



3. DISCUSSION ON FINDINGS:

Regular practice of suksma vyayama exercise makes the children to feel the impact of stretch over the muscle and its show more strengthen on their muscle group. Initially children felt difficult to breathe while practice the exercises. Later they found to be improved the level of breathing as possible. **M.P.Pathak(1983)** indicates that significantly improved by regular practice of yoga exercises. This study revealed that practice of suksma vyayama exercise indicates that significant difference between the experimental group of resting pulse.

4. CONCLUSION:

On the basis of the interpretation of the data, the conclusion may be drawn as follow

- It revealed that there existed significant improvement on selected physiological variable such

as resting pulse rate among the experimental group due to influence of sukshma vyayama exercises.

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HEALTH AWARENESS AMONG ADOLESCENT STUDENTS OF THE CENTRAL VALLEY DISTRICTS OF MANIPUR

Koiyam Sobita Devi
Department of Teacher Education, Manipur University,
Canchipur, Imphal-795003, Manipur, India
Email - drksobita@gmail.com

Abstract:

Adolescents faced many health issues both physical and mental and about 1.3 million adolescent deaths are reported annually. The present study aims to investigate the health awareness of the adolescent students of the central valley districts of Manipur. 500 adolescent students of the age 12 to 19 years residing in the central valley were administered a questionnaire to assess the health awareness and behavior related to (a) Habits and Physical Activity (b) Food and Nutrition (c) Oral Health Awareness and (d) Mental Health Awareness. 29.65 percent of the students were found underweight, 57.36 percent were found to be of normal weight, 5.84 percent overweight and 4.98 percent obese. 19.26 percent of the students reported that they never exercised at all, 38.96 percent reported occasional exercise and 41.77 percent reported daily exercise. 21.35 percent of the girls and 18.97 percent boys reported skipping breakfast frequently. 38.58 percent girls and 36.41 percent boys reported taking food less than 3 times a day. About 17 to 52 percent of the students show signs of anxiety or depression one form or the other for which interventions are required both at the family, community and government level.

Key Words: *Body mass index, physical activity, meals, mental health*

1. INTRODUCTION:

The World Health Organization (WHO) defines adolescents as those people between 10 and 19 years of age. Adolescence is a crucial time of formative development towards achieving human potential. Adolescents are biologically, emotionally and developmentally driven to engage the rapidly changing world of globalisation, urbanization and digital media beyond their families. In the process, they take risks and grab opportunities for their health, wealth being and social development. Adolescents are vulnerable to many health issues. The urge for adaptation and inability to resist may lead to health issues both physical and mental resulting into illness or premature deaths. Examples may be tobacco or drug use, poor eating and exercise habits, etc. (WHO, 2018). It is reported that many women, children and adolescents worldwide have little or no access to essential, good-quality health services and education, clean air and water, adequate sanitation and good nutrition (Every Woman Every Child, 2015; Millennium Development Goals Report, 2015). According to the “World Bank, United Nations Population Division. Trends in maternal mortality: 1990 to 2013”, the annual death toll reported is 289,000 maternal deaths, 2.6 million stillbirths, 5.9 million deaths in children under the age of five including 2.7 million newborn deaths and 1.3 million adolescent deaths (WHO, UNICEF, UNFPA, 2014). Most of these deaths could have been controlled or even prevented with proper awareness and by instilling proper strategy to realize the full potential for growth and development. School going adolescents need to be aware about health-related issues. Proper needs assessment, intervention, monitoring, and evaluation plans needs to be promoted. A collective effort from parents, teachers, school authorities, etc. with co-operation from health professionals, psychologist, physical trainers, etc. will go a long way in guidance and all round development of the youths (Harikrishnan & Sailo, 2019). In the light of the above, the present study aims to investigate the health awareness of the adolescent students of the central valley districts of Manipur. The study will also make a comparison on the health awareness of boys and girls students. The peculiar setting of the study area in the north eastern part of the country and the food and habits of the people make it justifiable for such a study. No such study has been reported earlier in this region.

2. METHODOLOGY:

The study is limited to the central valley of Manipur state. 500 adolescent students of the age 12 to 19 years residing in the central valley were selected as samples of the study through random sampling from the adolescent student population. The samples consisted of 270 girls and 230 boys. A questionnaire was developed for the purpose of ascertaining the health awareness of students through consultation of books, experts, health reports of WHO, health manuals, etc. After assurance and obtaining informed consent, the student samples were asked to complete the questionnaire assessing awareness of health and related issues. Demographic details were also recorded. The questionnaire assessed health awareness and behavior related to (a) Habits and Physical Activity (b) Food and Nutrition (c) Oral Health Awareness and (d) Mental Health Awareness. Out of the 500 responses, 38 responses were rejected due to absurd responses and results.

3. RESULTS AND DISCUSSION:

The response accepted for the study were 267 girls and 195 boys. From the Body Mass Index (BMI), 29.65 percent of the students were found underweight, 57.36 percent were found to be of normal weight, 5.84 percent overweight, 4.98 percent obese and 2.16 with severe obesity (Table 1). 30.34 percent of the girls were underweight as against 28.72 percent boys. Chi-Square (X^2) test shows that the difference is not significant ($p > 0.05$).

Table 1. Body Mass Index of the Students

Sl. No.	Body Weight Characteristics	Boys	Girls
1	Underweight	56	81
2	Normal	113	152
3	Overweight	14	13
4	Obesity	6	17
5	Severe obesity	6	4

On being asked about their time spent in sleeping every night, 15.80 percent of the students reported sleeping for 5 to 6 hours, 27.27 percent reported sleeping for 6 to 7 hours, 33.77 percent for 7 to 8 hours, 17.10 percent for 8 to 9 hours, 3.46 percent for 9 to 10 hours and 2.60 percent for 10 to 11 hours. Most teenagers require 8 to 10 hours of sleeps every night to promote optimum health (Paruthi et. al., 2016).

19.26 percent of the students reported that they never exercised at all, 38.96 percent reported occasional exercise and 41.77 percent reported daily exercise. 31.84 percent of the girls exercised daily as against 55.38 percent boys. Chi-Square (X^2) test shows that the difference was highly significant ($p < 0.01$).

Table 2. Time spent in exercise in a day

Sl. No.	Minutes spent in a day	Boys	Girls
1	Not at all	32	57
2	Less than 30 minutes	12	13
3	About 30 minutes	80	150
4	About 60 minutes	43	42
5	About 90 minutes	17	4
6	more than 90	11	1

49.78 percent of the students reported devoting their time in exercise for about 30 minutes in a day, 18.40 percent for 60 minutes, 4.55 percent for 90 minutes and 2.60 percent for more than 90 minutes. Adolescents need aerobics and muscle and bone strengthening activities. Workouts are also required to increase flexibility. Some examples of the activities are at Table 3. From Table 4, 35.78 percent of the students reported doing moderate activities. 18.97 percent students reported doing more intense or aerobic activities. 6.90 percent of the students reported doing both moderate and more vigorous intense activities. 15.73 percent of the students reported doing muscle strengthening exercises and 9.91 percent of the students reported yoga. 40 percent of the girl students practiced yoga as against 6 percent of boy students. There was highly significant differences in the nature of physical activities done by girl and boy students ($p < 0.01$). Children and adolescents of ages 6 through 17 years require at least 60 minutes or more of moderate to vigorous physical activity daily. Most of the 60 minutes or more per day should be either moderate or vigorous-intensity aerobic physical activity and the vigorous-intensity physical activity should be for at least 3 days a week. As part of the 60 minutes or more daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days a week (U.S. Department of Health and Human Services, 2018).

Table 3. Types of physical activities for adolescents

Activity	Type of Activity	Examples
1	Moderate	pleasure walking, climbing stairs, pleasure dancing, sweeping short approach roads
2	Aerobic with vigorous intensity	brisk walking, running, skipping rope, vigorous dancing, cycling, hiking, swimming, playing on playground
3	Muscle and bone strengthening	pushups, pull ups, squat, lifting weights
4	Flexibility	Yoga

Table 4. Nature of physical activities reported

Sl. No.	Activities	Boys	Girls
1	Activity 1	27	139
2	Activity 2	58	34
3	Activity 3	58	15
4	Activity 4	6	40
5	Activity 1 & 2	14	18
6	Activity 1 & 3	9	1
7	Activity 1 & 4	3	9
8	Activity 2 & 3	15	1
9	Activity 2 & 4	-	-
10	Activity 3 & 4	3	2
11	Activity 1, 2 & 3	2	2
12	Activity 1, 2 & 4	-	-
13	Activity 1, 3 & 4	1	1
14	Activity 2, 3 & 4	2	3
15	Activity 1, 2, 3 & 4	2	2

Students are well aware of oral health. 55.81 percent girls and 41.54 percent boys reported brushing their teeth twice a day. 92.8 percent of students agreed that use of tobacco is bad for their gums and teeth. 73.59 percent, 85.06 percent and 69.91 percent of the students also reported use of alcohol, chewing pan and eating sweets respectively as bad for their gums and teeth. 61.90 percent of the students reported that fibrous food is good for healthy teeth.

Table 5. Time of having meals

Meals	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Breakfast	6.30 am to 7.00 am		7.00 am to 7.30 am		7.30 am to 8.00 am		8.00 am to 8.30 am		8.30 am to 9.00 am	
	100	100	45	74	19	48	21	19	10	26
Lunch	9.00 am to 10.00 am		10.00 am to 11.00 am		11.00 am to 12.00 noon		12.00 noon to 1.00 pm		1.00 pm to 2.00 pm	
	57	56	58	79	55	87	13	31	12	14
Dinner	6.00 pm to 7.00 pm		7.00 pm to 8.00 pm		8.00 pm to 9.00 pm		9.00 pm to 10.00 pm		10.00 pm to 11.00 pm	
	11	22	73	86	90	123	19	30	2	6

43.29 percent of the students take breakfast at 6.30 am, 25.76 percent at 7.00 am, 14.5 percent at 7.30 am, 8.66 at 8.00 am and 7.79 at 8.30 am (table 5). Chi-Square test shows that the difference in the time of taking breakfast between girls and boys is significant at 0.01 level ($p < 0.01$). 24.6 percent of the students reported taking lunch at 9 am, 29.65 percent, 30.74 percent, 9.52 percent and 5.63 percent reported taking lunch at 10 am, 11 am, 12 noon or 1 pm respectively. The difference in the time of taking lunch between girls and boys is not significant ($p > 0.05$). 7.14 percent of the students reported taking dinner between 6 to 7 pm, 34.42 percent between 7 to 8 pm, 46.10 percent between 8 to 9 pm, 10.61 percent between 9 to 10 pm and 1.73 percent between 10 to 11 pm. There is also no significant difference in the time of taking lunch between girls and boys ($p > 0.05$). 21.35 percent of the girls and 18.97 percent boys reported skipping breakfast frequently. 38.58 percent girls and 36.41 percent

boys reported taking food less than 3 times a day. 32.58 percent girls and 27.69 percent boys reported considering breakfast as the most important meal of the day whereas 48.31 percent girls and 50.26 percent boys consider lunch as the most important meal of the day. Breakfast is often described as the most important meal of the day as it provides sustenance and energy (i.e., calories) for the upcoming activities of the day. The body needs 15-25 percent of the daily intake at breakfast (Spencer, 2017). The decision about what to eat and drink at the start of the day has been shown to have some profound effects on our health, wellbeing, and cognitive performance (Spence, 2017). There is cultural variation in the kinds of foods that different people like to eat at different times of day, as anyone who has come across the morning meal behavior of the region will acknowledge. The students were asked, "Which of the followings provide energy for your brain and muscles?" 17.32 percent of the students responded that bread, cereals and grain whereas a majority 47.84 percent responded meat, chicken, fish and nuts. On being asked about the foods which have lots of vitamins and minerals that boost the immune system, 69 percent responded fruits and vegetables. 57.14 percent of the students responded that meat, chicken, fish, eggs, nuts, etc. are good sources of iron and protein.

Regarding mental health, 17.3 percent of the students reported getting easily fatigue frequently. 30.3 percent reported difficulty in concentrating frequently. 18.61 percent of the students reported having sleep disturbance problems. 20.35 percent of the students frequently experienced fear of dying. 52.60 percent of the students frequently experienced fear of losing their dear ones. 16.02 percent of the students reported frequently having phobia of specific object, activity or a situation which in fact are understood to be harmless. 19.48 percent of the students reported that they frequently loss interest or pleasure in all activities. 16.23 percent of the students reported that frequently suffer from change of appetite. 19.28 percent reported that they frequently experienced difficulty in controlling their aggressive actions. 5 to 6 percent of the students reported difficulty in resisting urges for cigarettes, alcohol, drugs and other abusive substances. A majority of the students (79 percent) reported that they are satisfied with their life. As against the mentally problematic condition of the students, it is reported that only 10 percent of the students took the assistance of a professional counselor. Mental health is a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO 2001).

4. CONCLUSION:

A significant percentage of the students both boys and girls are found underweight in the study for which proper interventions are required. A major portion of the students are not having enough sleep and this may affect the overall wellbeing of the students. A significant portion of the students are skipping breakfast and do not recognize the importance of breakfast. A significant portion of the students show signs of anxiety and depression. Mental health is the responsibility of the community, not just an individual concern. The high social and economic costs of poor mental health will continue to grow without community and government action.

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**ANALYTICAL STUDY ON DIFFERENT INJURIES OF INTER
STATE PEDESTRIAN PILGRIMS DURING HOLY TRIP TO
SABARIMALA IN KERALA**

Dr. Y. Kalyan Kumar

Lecturer in Physical Education, S.J.G.C.(A),
Kurnool, A.P., India.

Abstract::

Background: Standardized assessment of Injuries provides important epidemiological information and also directions for injury prevention. **Purpose:** To analyze the frequency, characteristics and causes of the injuries incurred during the “Mahapadayatra” from Hyderabad to Sabarimala in Kerala (pedestrian pilgrims of Lord Ayyappa) in 2018. **Study Design:** Descriptive epidemiological study. **Methods:** The Life Science students of Silver Jubilee were collected the data on 36th day of the devotees at Ilayaraja guesthouse, Kerala through the Nordic Questionnaire by the volunteers while they serviced to the devotees who travelled 1131km. The Physical Education professionals noted down the significant signs of the injuries during their Mahapadayatra which will end on 37th day to Satram. The entire Mahapadayatra was limited to 1131km. **Results:** The risk of Foot Blister was more in 21-30 years age group devotees. In addition to that the shin splint and knee pains are more in 31-40 years age groups when compared to the other age groups. **Conclusion and Recommendations:** This study suggest that, the injuries may prevent with sufficient rest and recovery after the daily walk and proper stretching should be made by the holy walkers and at least 10days schedule should be practiced prior to start the holy trip of 1131 Km.

Key Words: Pedestrian, Injuries, Medial tibial stress syndrome, Knee injury, Foot blister.

1. INTRODUCTION:

The Sabarimala is the largest pilgrimage of Hindus around the South India that happens once a year in Sabarimala, state of Kerala. Approximately 4 to 5 million devotees arrive each year to perform the rituals and believes Infront of the “Lord Ayyappa” which was located in a forest “Pathanamthitta” is a hill shrine with an altitude of 468meters above sea level and surrounded by dense forest and mountains. Vehicles going to Sabarimala are allowed only up to “Pamba” which is at a 5km distance from the Temple kshetram. From Pamba, visitor pilgrims have to proceed by foot. The temple is open during the pilgrim season known as “Mandala Kalam” which falls approximately between 14th November to 27th January every year and Makara Sankranti which falls mid-January each year. During this time millions of Ayyappa devotees visit the shrine of Lord Ayyappa with the mantra “Swamiye Saranamayyappa”.

There are strict traditional practices, rituals, preparations and dress codes meant for those intending to visit Sabarimala. Pilgrims wear Black Rudraksha beads around their neck, dress in black or blue Mundus/dhotis and abstain from the consumption of Non-Vegetarian food and Alcohol. They also take a vow to Celibacy for 37 days prior to their pilgrimage. Women in the menstruating age group of 10 to 60 are not allowed to visit Sabarimala but now the Hon’ble Supreme Court (in the month of Sept.2018) ruled that all pilgrims regardless of gender, including women in the menstruating age group should be allowed entrance to Sabarimala. As per the observations and interactions with the devotees, it’s analysed that, the devotees from Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Orissa are more when compared to the other states. The organization of “Mahapadayatra” was performed by the interested Lord Ayyappa devotees since 2002 by Suvarnabhumi and TV5 agencies. As per the devotees reports the said agencies will look after all the things to the devotees during their 37 days of Mahapadayatra up to 1131km. The entire duration of their pedestrian they travel near about (31± 1.2) km per day according to the schedule (as mentioned in Figure – I) given by the agencies and they will arrange all the amenities according to the requirements of the devotees.



The Mahapadayatra started on 3rd November of 2018 and ended on 9th December of 2018 (37days) and the walked around 1131 Km with an average of 31 km per day and they can walk with their Comfortable foot wears.

2. Material and Methods: A detailed standardized questionnaire Nordic questionnaire was used to collect the data from the devotees of Mahapadayatra who started their journey from Hyderabad to “Sannidanam” at Sabarimala. The data was collected on 36th day their Pedestrian journey on 08.12.2018 at Ilayaraja Guest house where the devotees completed their walk of 1131 km. Data collected on Height, weight, Age, frequency of padayatra, and Degrees of Injuries on Lower extremities. The study is delimited to 4 age categories and three injuries of lower extremities and degree of injuries. The age Categories are divided as 21-30, 31-40, 41-50 and 51-60. The Injuries are Foot Blister, Medial tibial stress syndrome (MTSS) (Shin splint) and Knee Injury. As per the data availability through questionnaire, all the data processed for statistical method applied for descriptive and log-linear analysis for an AXBXC of Chi-square, SPSS version 19 was used for statistical analysis. The degree of Injury is categorized as Mild, Moderate, Severe and Very severe. The data was interpreted in table -I

Table: 1: Age Groups and Degree of Injuries of Lower Extremities

Age	Frequency of Mahapadayatra				Blisters				MTSS (Shin Splint)				ACL Knee Injury				Total of 1 to 4 columns	%
	1	2	3	4	Mild	Moderate.	Severe.	Very Severe	Mild	Moderate.	Severe.	Very Severe	Mild	Moderate.	Severe.	Very Severe		
21-30	52	7	2	1	2	51	8	1	2	36	23	1	6	32	19	5	62	25.8
31-40	24	18	49	14	58	36	7	4	61	22	13	9	48	31	19	7	105	43.7
41-50	19	11	6	11	21	10	11	5	19	12	14	2	14	16	14	3	47	19.5
51-60	13	9	3	1	8	9	7	2	6	11	7	2	6	10	8	2	26	10.9

3. RESULT, DISCUSSION AND FINDINGS:

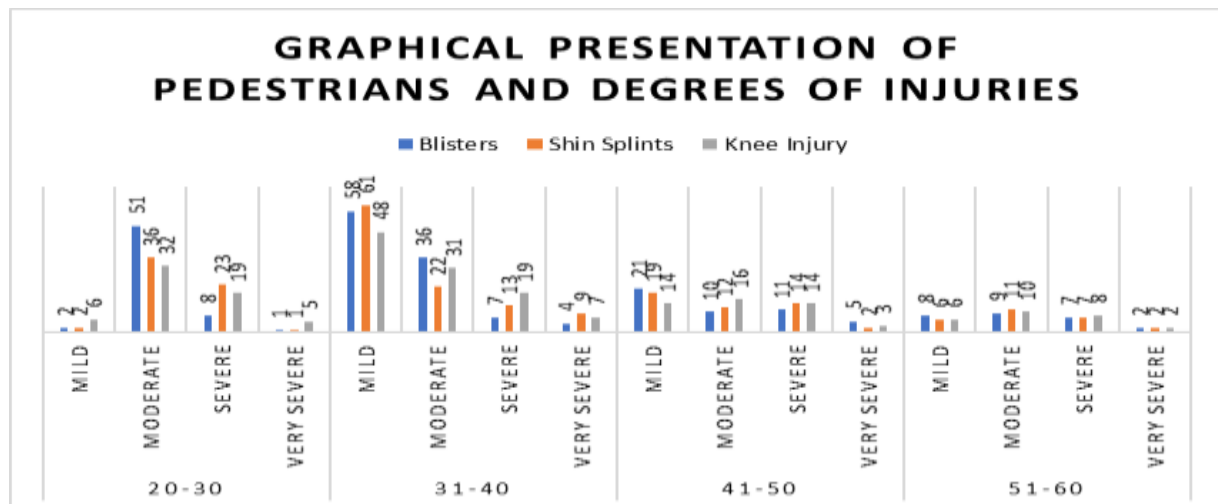
Study participation: In 2018, questionnaires (bilingual) were handed over to pedestrian pilgrims on 38th day at Ilayaraja guest house which were figured in table-1. Out of these 240 pilgrims, 132 devotees of Lord Ayyappa were previously experienced and they guide the 108 kanya swamy (which means first time wearing Mala). Again 132 experienced pilgrims also bifurcated that 45(34%) devotees are pedestrianizing for second time, 60 (45.4%) were third time and 27(20.45%) were fourth time. The head of this group usually call him as Guruswamy who was excluded in this study, he has been walking since 2002 (16th time).

LOG-LINEAR ANALYSIS FOR AN AXBXC OF CHI-SQUARE.

Source	G ² (log likelihood ratio test)	df	P	X ² distribution value
ABC	202.88	39	<.0001	54.572
AB	164.3	9	<.0001	14.684

AC	0	6	1	12.592
BC	15.48	6	0.0168	12.592
AB(C)	187.4	27	<.0001	40.113
AC(B)	23.1	24	0.5139	36.415
BC(A)	38.58	24	0.0302	36.415

ABC representing the 3-way interaction between A, B and C (Blister, Shin splint and knee pain) is stating that the chi square distribution value 54.572 is higher than the χ^2 table value i.e. 25.8. Interaction between Blister and Shin splint has shown significant changes and mild injuries of blisters and Shin splints occurred more in 31-40 years age group. Interaction between A C is stating that the difference between Shin splint and knee injuries are significant. 21-30 years of age group has shown more knee injuries when compared to other age groups.



4. CONCLUSION: This study concluded that the 31-40 years of pedestrians were suffered 43% injuries during their Mahapadayatra when compared to other groups.

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**COMPARATIVE STUDY OF MENTAL TOUGHNESS BETWEEN
NATIONAL AND STATE LEVEL BADMINTON PLAYERS**

¹Rajkumar Devjit, ²Dr. L. Santosh Singh

1. INTRODUCTION:

A sport is an activity in which millions of people throughout the participants and in which many more take interest through media. It is a social phenomenon, which involves competition and co-operation. The various parameters use the presence of spectators, the need to do well the social class and community of athletes all influence of their participation and perform. Therefore, attempts to identify the various factors determining success in competition sports, Psychologist, coaches, sports commentators, sports fans and athletes acknowledge the importance of mental toughness in sporting performance. There is widespread agreement on the importance and benefit of mental toughness and calls to identify psychological attributes that creates a champion athlete. A few years back Graham Jones, Hanton and Connaughton conducted a qualitative study of elite athlete aiming to define mental toughness and to determine the essential attributes required to be a mentally tough performer. There has been a growing body of knowledge on the psychological factors influencing athletic performance. Mental toughness is considered as one of the main characteristics contributing to athletic success. Mental toughness has been defined in different ways. For example, Jones and colleagues(2002) defined mental toughness as ‘having the natural or developed psychological edge that enables you to, generally, cope better than your opponents with many demands(competition, training, lifestyle) that sport places on a performer and, specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure’. The important point in this definition is the epithets ‘natural and developed’ suggesting that mental toughness is partly influence by genetics though it may also develop out of experience and learning (Crust & Clough, 2011). Mental toughness is closely related to qualities such as perseverance, resilience and grit; however it is a broader concept. Many know resilience as being the ability to recover from setbacks. By its definition, resilience is reactive. Mental toughness adds proactive attributes to resilience in seeking challenge, change and finding opportunity with self-confidence. The difference between the two is sometimes described as; ‘resilience makes you survive, mental toughness makes you thrive’. Mental toughness is not only about winning, over confidence, uncaring or self-centred. It is about having self-awareness and being confident in your own skills. There is toughness and inner strength to not give up and being positive that that you can prevail, even if the odd are against you. Mental toughness is important because mentally tough individuals simply are mentally and physically healthier and perform better. Mentally tough individuals performed consistently under pressure and deal well with stress and challenges.

Lastly I conclude that irrespective of the kind of sports, an athlete’s success or failure is dependent on a combination of physical and psychological abilities. Everyone is born with specific physical and psychological strength and weaknesses but sports skills can also be learned and developed. A champion requires mental skills to be systematically practiced and integrated with different physical abilities.

1.1. Statement of the problem: The statement of the problem was to compare the mental toughness between the State level and National Level Men’s badminton player of Manipur

1.2. Hypothesis: On the basis of literature reviewed, it was hypothesised that there would be significant difference in mental toughness level between the State and National Level players.

1.3. Objectives of the Study: The main objectives of the study is to compare the mental toughness between the State level and National Level Men’s badminton player of Manipur

2. METHODOLOGY: Before administration of questionnaire, all the subjects were oriented with the purpose of the study and to respond the questionnaire items as per the direction described in the Questionnaire. The

direction was read by the research scholar. The subject was given enough time to answer the questions. The questionnaires were taken back after responding by the subject.

2.1. Selection of Subjects: Thirty male badminton players of Manipur were selected to this study among them 15 were of National level and 15 were of State level.

2.2. Selection of Test Item: “Mental toughness questionnaire” by Alan Goldberg (2004) has been used for the present study.

3. ANALYSIS OF THE DATA & RESULT OF THE STUDY:

The data collected from the subject were arranged in a tabular form and to find out the significant difference and independent t-test was used. On the basis of the objective of the study the entire analysis of the data was done. The data was obtained by administering mental toughness questionnaire to the subject and the scores were obtained by using the key of Dr. Alan Goldberg’s mental toughness questionnaire. The collected data of the various component of comparing mental toughness between National and State level badminton players of Manipur are presented below.

Table 1. Group Statistics of National and State level badminton player on the sub-variables and overall mental toughness

	Group	N	Mean	Std. Deviation
Rebound ability	National	15	3.67	1.68
	State	15	2.27	1.16
Ability to handle pressure	National	15	3.20	1.32
	State	15	2.13	1.51
Concentration	National	15	2.73	1.33
	State	15	2.20	1.21
Confidence	National	15	3.20	1.26
	State	15	2.73	.80
Motivation	National	15	4.07	1.28
	State	15	3.87	.99
Overall mental toughness	National	15	16.87	4.58
	State	15	13.00	4.07

Table 1 shows the group statistics of national level and state level badminton players on the sub-variables of mental toughness (i.e. rebound ability, ability to handle pressure, concentration, confidence and motivation) and overall mental toughness.

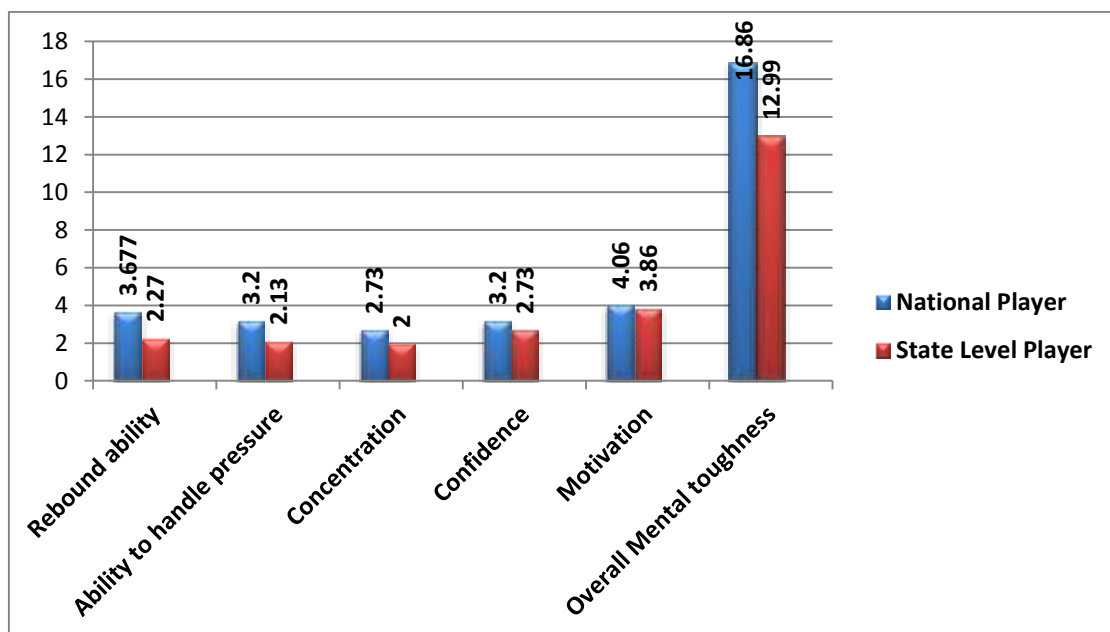


Figure1. Mean scores of National level and State level Badminton players on the sub Variables and over all mental toughness.

Figure 1 shows the graphical representation of the mean scores for national level and state level badminton players on the sub-variables of mental toughness (i.e. rebound ability, ability to handle pressure, concentration, confidence and motivation) and overall mental toughness.

Table2. Independent t-test of National level and State level Badminton players on the sub variables and overall mental toughness

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Rebound ability	Equal variances assumed	3.25	.08	2.66	28.00	.01	1.40	.53	.32	2.48
	Equal variances not assumed			2.66	24.94	.01	1.40	.53	.32	2.48
pressure	Equal variances assumed	.52	.48	2.06	28.00	.05	1.07	.52	.01	2.13
	Equal variances not assumed			2.06	27.53	.05	1.07	.52	.01	2.13
concentration	Equal variances assumed	.54	.47	1.15	28.00	.26	.53	.46	-.42	1.49
	Equal variances not assumed			1.15	27.72	.26	.53	.46	-.42	1.49
confidence	Equal variances assumed	2.16	.15	1.21	28.00	.24	.47	.39	-.32	1.26
	Equal variances not assumed			1.21	23.63	.24	.47	.39	-.33	1.26
motivation	Equal variances assumed	.59	.45	.48	28.00	.64	.20	.42	-.66	1.06
	Equal variances not assumed			.48	26.34	.64	.20	.42	-.66	1.06
Overall Mental toughness	Equal variances assumed	.35	.56	2.44	28.00	.02	3.87	1.58	.63	7.11
	Equal variances not assumed			2.44	27.62	.02	3.87	1.58	.62	7.11

*Significant at 0.05 level

3.1. Rebound ability: Table - 1 presents the result of National level and state level Badminton Players with regard to the variable mental toughness. The descriptive statistics shows the mean and SD values of National level Badminton players on the sub variable rebound ability as 3.66 and 1.67 respectively. The t-value 0.013 shown in **Table 2** was statistically significant at 0.05 level of confident.

3.2. Ability to handle Pressure: The result statistically shows that the Mean and SD values of National level Badminton Players on the sub-variable ability to handle pressure as 3.20 and 1.32 respectively. However, State level Badminton players have Mean and SD value as 2.13 and 1.50 respectively. The t-value 0.048 shown in the **table 2** was found statistically significant at 0.05 level of confident.

3.3. Concentration: The result statistically shows the Mean and SD values of National level Badminton players on the sub-variable concentration as 2.73 and 1.33 respectively and State level Badminton players had Mean and SD values as 2.00 and 1.13 respectively. The t-value 0.11 shown in **table 2** was found statistically insignificant at 0.05 level of confident.

3.4. Confidence: The result statistically shows the Mean and SD values of National level Badminton players on the sub-variable confidence as 3.20 and 1.26 respectively and State level Badminton players had Mean and SD values as 2.73 and 0.79 respectively. The t-value 0.23 shown in **Table 2** was found statistically insignificant at 0.05 level of confident.

4. MOTIVATION: The result statistically shows the Mean and SD values of National level Badminton players on the sub-variable confidence as 4.06 and 1.27 respectively and State level Badminton players had Mean and SD values as 3.86 and 0.99 respectively. The t-value 0.11 as shown in **table 2** was found statistically insignificant at 0.05 level of confident.

4.1. Overall Mental toughness: The result statistically shows that the Mean and SD values of national level Badminton players on the overall mental toughness as 16.86 and 6.85 respectively. However, state level Badminton players had Mean and SD values as 12.99 and 5.77 respectively. The t-value 0.02 as shown in **Table 2** was found statistically significant at 0.05 level of significance.

5. DISCUSSION ON FINDINGS: It is easily evident from the **Table 2** that significant difference have been observed on the overall mental toughness between the two groups and also insignificant differences have also been observed on sub-variables; concentration, confidence and motivation, it may be because of the Athlete's perception towards their own behaviour may be different or by the effect of uncontrollable factors that might influence the subject while responding the questionnaire, but with regard to rebound ability and ability to handle pressure are found significantly difference. When compared the mean values of both the groups, it has been found that National level Badminton players have performed significantly better on sub variables and all over mental toughness. Golby and Sheared found that mental toughness improves sports performance in athletes. He found in his study in team sports that the individual has more opportunities than team athletes and they require greater effort for progress and achieving fame and that is the reason why they exhibit more mental toughness. Thelwell et al.(2008) identified its attributes from single sport perspective of professional soccer players closely resemble the attributes that mental toughness investigate in those individuals who have achieved the ultimate outcome in their sports.

5.1. Discussion of hypothesis: The hypothesis in Chapter 1 stated that there would be significant difference in mental toughness between National level and State Level Badminton player of Manipur is accepted.

6. CONCLUSION: On the basis of findings it is concluded that there was statistically significant difference on over all mental toughness between National level and State level Badminton players and also found significant difference in in sub-variable with regard to rebound ability and ability to handle pressure but insignificant differences were found in concentration, confidence and motivation.

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**EFFECT OF VAMAN DHOUTI KRIYA ON DIGESTIVE
PROBLEMS OF SEDENTARY MALE – A PILOT STUDY**

DENISH BRAHMA HAZARIKA

Ph.D Scholar

Abstract:

The objective of the present study was to compare the effect of VamanDhouthi Kriya On Digestive Problems Of Sedentary Male. A total of ten sedentary male subjects were selected and used as experimental groups of Ten subject and control group of Ten subjects from Guwahati (Assam). VamanDhouthi Kriya were considered as independent variable and Digestive Disorder was taken as dependent variable. VamanDhouthi Kriya training was given up to one month with two days in week, each session scheduled for forty-five minutes. The pre-test post-test randomized group design was used for this study. Tests were administered before the training program and just after the completion of the training program. Paired t test results revealed that there was insignificant difference of VamanDhouthi Kriya on Digestive Disorder. Hence, we can conclude that more time is required to get improvement in Digestive Disorder through VamanDhouthi Kriya.

Key Words-*VamanDhouthi Kriya, Pragma Yoga, Digestive Disorder*

1. INTRODUCTION:

A sedentary lifestyle, imbalanced diet, and frequent stress are the main enemies of our digestive system. As a result, we may end up suffering one or more from a large set of ailments: indigestion, gastritis, constipation, flatulence, diarrhea, and colitis. According to research published in the *American Journal of Gastroenterology* (2004), 63 million people in North America suffer from constipation (under Rome II diagnosis criteria). Let us see how Yoga can become our good helper in combatting such problems. Cleansing of the digestive tract is a way to rid your body of toxins and flush out all accumulated impurities from your digestive tract. At the end of the process, one is supposed to feel rejuvenated and healthy. A digestive cleansing involves the cleansing of the complete digestive system whereas a stomach cleansing involves the cleansing of only the stomach. There are many different digestive and stomach cleansing methods that can be safely practiced at home. Before deciding on any particular method of digestive cleansing one has to make certain dietary changes a few days prior to the cleansing process. Meals should be freshly made and kept simple. All kinds of junk food, snacks, fried foods, salty foods, canned foods processed foods and desserts have to be avoided completely. Foods with a high fat, protein and carbohydrate content have to be gradually tapered off in favor of light foods such as vegetables and fruits. Dhauti is a series of yogic practices that cleanses the stomach and digestive system. There are different types of dhauti including Vamandhauthi, Vastradhauthi, Dandadhauthi and Varisardhauthi or ShankhaPrakshalana. These are all different techniques used to clean the stomach and digestive tract and benefit the practitioner in different ways. For example, Vamandhauthi involves the use of water to wash the stomach. It helps to cleanse the intestines too and is reputed to help in disorders of the throat, stomach and gallbladder. It is said to be most effective when performed first thing in the morning on an empty stomach. Stomach and digestive cleansing should be resorted to whenever you have any kind of digestive problem such as gas or indigestion. Since it may cause side effects such as insomnia, palpitations, dizziness or weakness, it is better to check with your doctor before trying out any of the techniques.

2. METHODOLOGY:

A total of ten sedentary male individuals with age ranged between 40-50 years from Guwahati. were selected randomly, which further divided into two groups (one experiment and one control) of Ten subjects each. All subjects were almost from the same socio- economic group and were found to be physically fit for the type of training programme they were selected. *VamanDhouthi were considered as independent variable and Digestive Disorder was taken as dependent variable. standardized Reliability Quotient of Rome III Diagnostic Criteria for Functional Gastrointestinal Disorders. (Rome III Questionnaires) was used for measuring the subjects'*

Digestive Disorder. In the present study, pre-test post-test randomized group design was used to compare the effect of *Vaman Dhauti* on Digestive Disorder. The experimental group was imparted two days of *Vaman Dhauti* per week and each session scheduled for forty-five minutes under the supervision and guidance of the scholar. The said experimental training was administered in the Yoga hall of LNIPE, Guwahati and subjects in the experimental groups were practiced *Vaman Dhauti*. The practice session was conducted for a period of forty-five minutes in the morning i.e. 8.00 a.m. to 8.45 a.m. from Monday and Friday for the duration of one month. To find out the significance of difference among the groups, descriptive, analysis of variance and analysis of covariance were used. The level of significance was set at 0.05.

Table 1. Descriptive Statistics

Groups	Test	Mean	Std. Deviation	N
Vaman Dhauti	Pre	36.30	07.70	10
	Post	08.50	03.40	
Control Group	Pre	36.20	07.77	10
	Post	35.60	07.64	

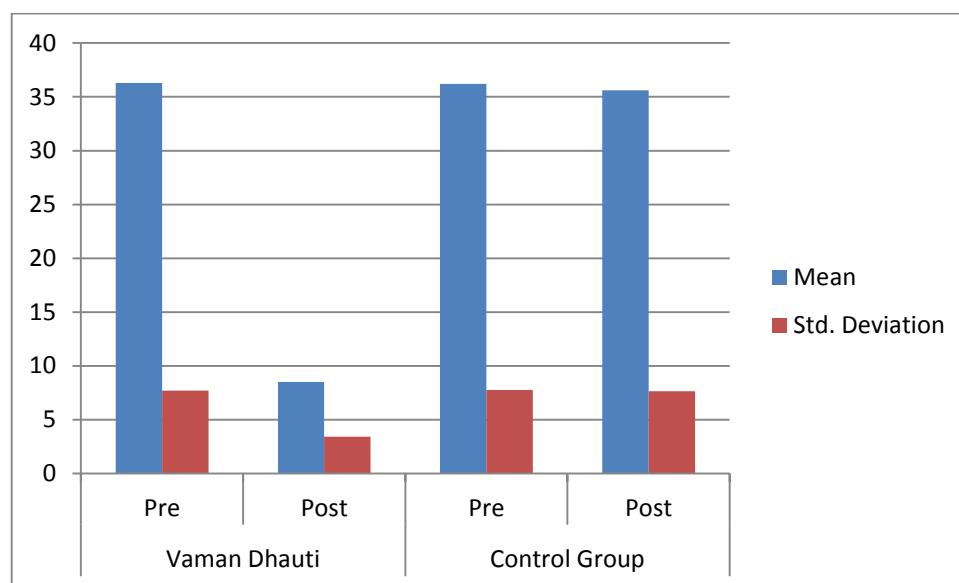


Figure 1: Means of all the three Groups for Serum Cholesterol

Table 2. COMPARISON OF PRE AND POST TEST OF VAMAN DHAUTI KRIYA ON CONTROL GROUP

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Pre-test	36.20	07.77	0.60	0.47	1.26
Post-test	35.60	07.64			

*Significant at 0.05 level of significance $t'_{(0.05)(9)} = 2.26$

Table-2 show that there is no significant difference among pre- post test of Digestive Disorder of control group as calculated value t-ratio is 1.26 lesser than tabulated t-value 2.26.

Table 3. COMPARISON OF PRE AND POST TEST OF VAMAN DHAUTI KRIYA ON EXPERIMENTAL GROUP

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Pre-test	36.30	07.70	27.80	2.18	12.69
Post-test	08.50	03.40			

*Significant at 0.05 level of significance $t'_{(0.05)(9)} = 2.26$

Table-4 show that there is significant difference among pre- post test of Digestive Disorder of Experimental group as calculated value t-ratio is 12.69 Higher than tabulated t-value 2.26.

2. DISCUSSION OF FINDINGS:

The result of the study suggests that there is significant difference found on Digestive Disorder by the effect of VamanDhauti for Sedantary Male Individual. These significant differences are occurred due the VamanDhauti; this significant difference occurred probably due to the volume of Kriya that existing in the training program. The findings of this study demonstrate that one month VamanDhauti Kriya training have significant effect on Digestive Disorder.

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**INFLUENCE OF DIFFERENT INTENSITY AEROBIC DANCE TRAINING ON
RESTING HEART RATE AMONG YOUNG SCHOOL BOYS**

Dr. Ashokan. K.

Physical Education Department,
General Education wing, Kasaragod, Kerala, India.
Email - ashokkollyadka@gmail.com

Abstract:

The purpose of the present study was to find out the influence of different intensity aerobic dance training on resting heart rate among young school boys. A total of forty five young school boys ($n = 45$) were randomly selected as subjects and their age was ranged from 14 to 18 years. The selected subjects were further assigned into three equal groups of fifteen subjects each ($n = 15$), they were named as experimental group I underwent high intensity aerobic dance training; experimental group II underwent medium intensity aerobic dance training and the third group was acted as control group. The control group does not do any specific training while the training duration. The training was extended twelve weeks and three sessions per week. Resting heart rate was selected as criterion variable and it was measured by using stop watch monitoring system. The data were collected before and after the training duration and the collected data were analysed by using the SPSS statistical tool of analysis of covariance (ANCOVA). The Scheffe's test was applied as a post hoc test to determine the paired mean difference if any. The result of the study shows that there was a significant change held on resting heart rate among the selected groups of high intensity and control group, medium intensity and control group. And there was no significant difference between high and medium intensity training groups on resting heart rate after aerobic training programme. It was further concluded that as per the mean value the high intensity aerobic dance training was produced better result than the medium intensity workouts.

Key Words: Resting heart rate, high intensity aerobic dance, medium intensity aerobic dance.

1. INTRODUCTION:

Physical fitness is not the sole basis of being healthy; being healthy means being mentally and emotionally fit. Being healthy should be part of our overall lifestyle. Living a healthy lifestyle can help to prevent chronic diseases and long-term illnesses. Feeling good about ourself and taking care of our health are important for us self-esteem and self-image. Maintain a healthy lifestyle by doing what is right for our body (www.foundationforpn.org).

Our resting heart rate (RHR) is the number of times our heart beats per minute (bpm) while at complete rest. It is an indicator of our physical fitness. Our resting heart rate will decrease as our heart becomes stronger through aerobic exercise training (www.verywellfit.com). A low resting heart rate indicates better fitness in people who are in athletic training or a workout program, but it can have other health significance for people who are not physically fit. The meaning of aerobic dance is much easier than describing the meaning of life. While life means different things to different people, aerobic dance is a particular type of workout style performed in a group exercise setting. Each participant does aerobic dance for personal reasons such as to improve health, lose weight, tone muscles and improve the quality of their meaningful life (Wolfe, 2018).

2. METHODOLOGY:

The aim of the present study was to determine the influence of different intensity aerobic dance training on resting heart rate among young school boys. Forty five young school boys ($n = 45$) were randomly selected as subjects. All the subjects were students of a single school of Government Vocational Higher Secondary School,

Karakda in Kerala State. The subjects were further randomly assigned into three different groups of fifteen ($n = 15$) each in strength. The age of the selected subjects were ranged between 14 and 18 years. The first group was named as high intensity aerobic dance training group and the second group was named as a medium intensity aerobic dance training group and the third group was acted as control group. They were not involved in any special training programme while the training duration. The training was extended a total of 12 weeks duration and three sessions per week. The training programme was made with the consultation of experts and the training was conducted with the supervision of the researcher. The resting heart rate was selected as the dependent variable for the present study and it was measured by using the standard equipment of stop watch. The heart rate was noticed for the duration of one minutes. The aerobic dance training was scheduled in the evening between 4.30 to 5.30 pm. The training was included proper warming up around 10 minutes; aerobic dance training programme for 30 to 40 minutes and the session was concluded with 10 minutes of cooling down programme.

3. RESULTS:

Table- 1. Analysis of Covariance of Different Intensity of Aerobic Dance Training groups on Resting Heart Rate

		High Intensity (Beats/Min.)	Medium Intensity (Beats/Min.)	Control Group (Beats/Min.)	SO V	SS	df	MS	'F' Ratio
Pre Test	Mean	73.60	72.53	73.40	B	9.78	2	3.26	0.10
	SD	5.88	5.48	5.32	W	1831.80	42	32.71	
Post Test	Mean	70.33	70.20	72.86	B	72.73	2	24.24	0.79
	SD	5.84	5.27	4.99	W	1717.90	42	30.67	
Adjusted Post Test		69.91	70.78	72.63	B	64.65	2	21.55	11.39*
					W	104.03	41	1.89	

*Significant $F = (df\ 2, 42) (0.05) = 3.22$; ($P \leq 0.05$) $F = (df\ 2, 41) (0.05) = 3.23$; ($P \leq 0.05$)

The table 1 shows that, the pre test mean values on resting heart rate for the high intensity, medium intensity aerobic dance training groups and the control group are 73.60, 72.53 and 73.40 respectively. The obtained 'F' ratio of 0.10 for pre test is lower than the required table value 3.22 with df 2 and 42 at 0.05 level of confidence. Hence there is no significant change on resting heart rate among the selected subjects. The post test mean values of high intensity, medium intensity aerobic dance training groups and the control group are 70.33, 70.20 and 72.86 respectively. The obtained 'F' ratio of 0.79 for the post test mean also lower than the required table value of 3.22. But in the case of the adjusted post test mean values of resting heart rate for the different intensity aerobic dance training groups and the control group were 69.91, 70.78 and 72.63. The obtained 'F' ratio of 11.39 for the adjusted post test is greater than the required table value of 3.23 with df 2 and 41 for significance at the 0.05 level of confidence. Hence, the results of the study showed that there was a significance difference exists between different intensity aerobic dance training groups and the control group on resting heart rate among the selected subjects. Further to determine, which of the paired mean has a significant improvement, Scheffe's test was applied as a post hoc test.

Table -2. Scheffe's Test for the difference between the Adjusted Post-Test Mean of Resting Heart Rate

Adjusted Post Test Mean			Mean Difference	CI
High Intensity Group	Medium Intensity Group	Control Group		
69.91	70.78	-	0.87	1.45
69.91	-	72.63	2.72*	
-	70.78	72.63	1.85*	

*Significant at 0.05 level of Confidence

Table 2 shows that, the adjusted post-test mean difference in resting heart rate between high intensity and control group, medium intensity and control group were 2.72 and 1.85, which are greater than the CI of 1.45. Hence the result of the study showed that there was a significant change occurred on resting heart rate among the selected groups of high intensity and control group, medium intensity and control group. And there was no significant difference between high and medium intensity training groups on aerobic training programme. It was further concluded that the high intensity aerobic dance training was produced better result than the medium intensity workouts. The pre, post and adjusted post test mean values of high intensity, medium intensity and the control group on resting heart rate was graphically represented in the figure 1.

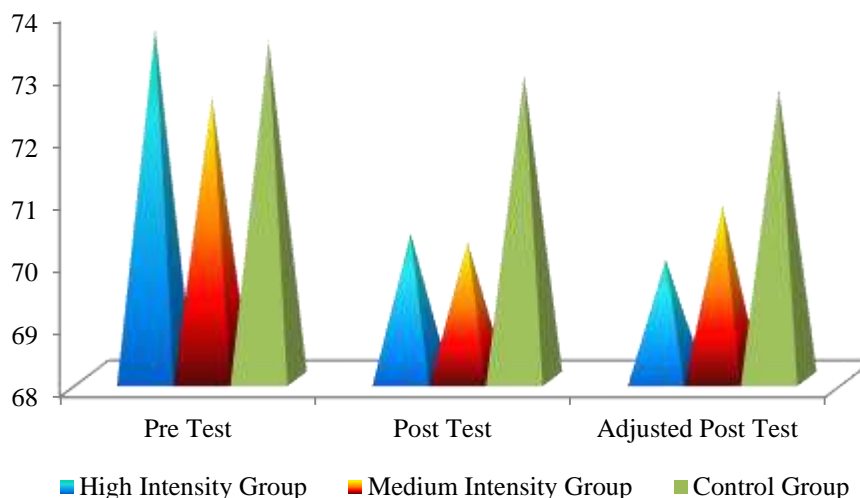


Figure 1: The pre, post and adjusted post test mean values of different intensity aerobic dance training groups on resting heart rate

4. DISCUSSION AND FINDINGS:

Kang et.al. (2016) conducted their study of aerobic exercise among the patients with metabolic syndrome. The study was concluded that the resting heart rate of the patients were reduced significantly after the systematic package of training. Valerie and Watterson (2016) evaluated their study among sixteen women for the duration of one hour aerobic dance sessions for three days per week. They were noticed that the training were significantly improved the resting heart rate of the women after the training duration. Reimers et. al. (2018) examined the effect various aerobic training packages to different training groups. The study shown the significant improvement in resting heart rate of the groups after the completion of the training duration. Almeda and Araujo (2003) examined the study of aerobic activity and the change of resting heart rate among the selected participants. The training were positively improved the resting heart rate after the training duration. Gillette and Eisenman (1987) conducted their study among thirty eight overweight women. The training package included aerobic dance programme for the duration of sixteen weeks and reached the conclusion that the training were significantly changed the aerobic capacity as well as the resting heart rate of the participants. Awopetu et. al. (2018) evaluated their study among overweight candidates for the duration of six weeks. The training were included the aerobic dance activity and the result positively changed the resting heart rate of the participants after the stipulated time interval. All these results have similarity as like the result of the present study. The result of the present study says that the resting heart rate of the selected subjects were significantly changed after the training of aerobic dance in different intensities.

5. CONCLUSION:

The result of the study shows that there was a significant change held on resting heart rate among the selected groups of high intensity and control group, medium intensity and control group. And there was no significant difference between high and medium intensity training groups on resting heart rate after aerobic training programme. It was further concluded that as per the mean value the high intensity aerobic dance training was produced better result than the medium intensity workouts.

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EFFECT OF PSYCHOLOGICAL SKILLS TRAINING PROGRAM ON SELECTED SKILL PERFORMANCE VARIABLES OF SOCCER PLAYERS

¹Dr. Sorokhaibam Premananda Singh

Assistant Professor, National Sports University (A Central University), Imphal, Manipur, India.

²Dr. Kh Sanatombi Devi

Head & Associate Professor, Department of Physical Education & Sports Science, Dhanamanjuri University,
Manipur, India.

³Dr. R. K Chandrakumar Singh

Associate Professor, Department of Physical Education & Sports Science, Dhanamanjuri University, Manipur,
India.

Abstract:

Purpose: The present study aimed to evaluate the effect of 12 weeks Psychological Skills Training (PST) Program on Selected Skill performance Variables of soccer players

Methods: For the purpose of the study sixty soccer players belong to Th.Birchandra Singh Football Academy (TBSFA), Imphal West, Manipur were selected purposively. Subjects were divided into experimental and controlled group (30 players in each group). The data was collected through the appropriate test for all the selected skills namely kicking for a distance with right and left foot, dribbling, and feinting.

Statistical analysis: To find out the significant effect of Psychological Skills Training Program on Skill Performance Variable of soccer players descriptive statistics' and ANCOVA was used and level of significance was set at 0.05.

The study was carried out at Th.Birchandra Singh Football Academy (TBSFA), Imphal West, Manipur. The data was collected and statistically analysed by employing the analysis of covariance. Findings revealed that there was no significant effect of soccer players in skill performance variables those who underwent the PST program. Hence, training was found no significant effect on skill performances variables of soccer players.

Key Words: Psychological Skill, kicking, Dribbling and feinting.

1. INTRODUCTION:

Soccer is a team game and it requires an optimal performance from all the players in a team. Soccer is undoubtedly one of the most popular sports in the world, engaging people worldwide as players, spectators and to viewers (Haugaasen & Jordec, 2012). At the turn of the 21st century an estimated 250 million people in more than 200 countries played soccer (also internationally known as “football”). The game is the world’s most popular sport supporting a worldwide industry (Guttman, 1993; Mueller et al., 1996; Dunning, 1999). Over the year’s soccer has developed into a more complex game in which optimal performance depends on the interaction of five pillars: namely, technical skills, tactical strategies, physiological factors, psychological skills, and team factors. Many coaches, however, focus almost exclusively on the first three dimensions of the game mentioned above. The researcher tries to lay the foundation for Psychological Skill Training program in soccer through introduction of selected psychological intervention. How psychological skill training can be used to prepare for and meets the demands of specific performance situation and to set and achieve long term performance goals of soccer players. Researcher personally feels PST is an important to stress for the development of performance in the same way as physical training. The purpose of my study is to provide soccer players with some psychological skill training that they can apply with the framework of their own identified goal in soccer. Soccer players are encouraged to experiment with the exercises given and adapt, then apply where necessary and reflect on how psychological skills can interact to enhance Soccer performance.

2. METHODS:

Subjects: For fulfilling the purpose of the study, a total of sixty (n=60) soccer players belonging to Th. Birchandra Singh Football Academy of Manipur with their age ranging between 17-20 years were selected.

Selection of Test Items: In order to measure the following skill performance variables, test which are standardized are implemented for measuring the given skills in soccer: -

- Kicking
- Dribbling
- Feinting

Criterion Measures: Psychological Skill training namely Self Talk, Visuo motor Behavioral Rehearsal and Pulmonary muscle relaxation technique (PMR) was given as a training tool for 12 weeks and the standardized test was used to assess the dependent variables.

1. **Kicking:** Kicking for Distance with right foot and left foot (Warner, 1950).
2. **Dribbling:** Dribbling (Mor-Christian Test)
3. **Feinting:** Angular Feinting with the Ball

Collection of Data:

The data was collected by administering the standardized test by scholar himself with the co-operation of coaches' managers and consent of athletes was obtained prior to the administration of the inventory. In all cases the athletes were assured.

Statistical Analysis: To find out the significant difference in psychological skill between the different soccer teams participating in the intervarsity competition descriptive statistics and one-way ANCOVA was employed and levels of significance was set at 0.05.

3. RESULTS AND DISCUSSION:

The one-way ANCOVA was employed to find out the effect of psychological skill training program on Selected Skill Performance Variables of Soccer Players. The findings pertaining to this have been shown in table 1.

Table 1
Descriptive Statistics of Kicking for a Distance with Right Foot of experimental and control group

Group	Mean	Std. Deviation	N
Experimental	70.10	4.39	30
Control	67.60	3.94	30
Total	68.85	4.32	60

The above table 1 reveals the descriptive analysis in terms of mean and standard deviation in kicking for distance (right foot) for experimental group was (70.10 \pm 4.39) and control group was (67.60 \pm 3.94) respectively.

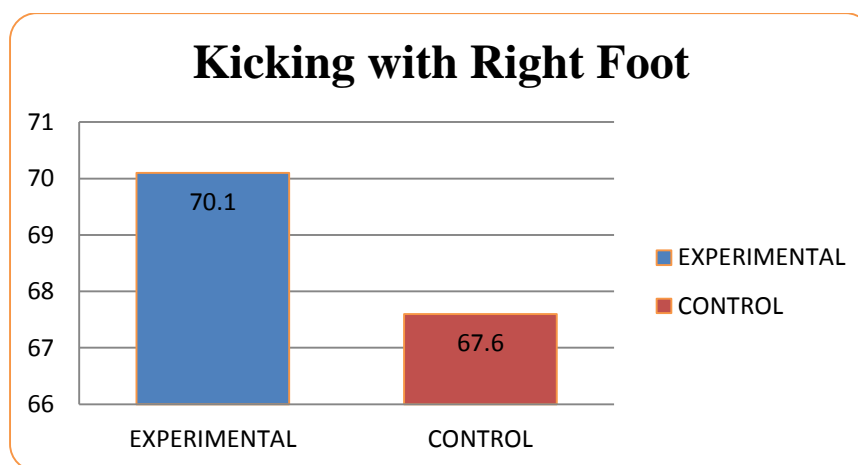


Figure 1. Mean Scores of experimental and control group on kicking for a distance with right foot between Experimental and Control group

Table 2. Tests of Between-Subjects Effects of Kicking for Distance with Right Foot

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	888.60 ^a	2	444.30	1.18	.000
Intercept	50.31	1	50.31	1.33	.001
KRF_PRE	794.85	1	794.85	2.11	.000
Group	41.27	1	41.27	1.09*	.002
Error	215.05	57	3.77		
Total	285523.00	60			
Corrected Total	1103.65	59			

a. R Squared = .805 (Adjusted R Squared = .798)

Table 2 shows the ANCOVA scores along with the covariate. Looking first at the significance value of *Group* it was clear that the result of F-test supports the effect after controlling for pre-test, obtained $F = 1.09$ at $p\ 0.02 < 0.05$.

Table 3. Pairwise Comparisons of Mean Kicking for Distance with Right Foot among experimental and control group

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Experimental	Control	1.67*	.505	.002	.659	2.68

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The above table 3 exhibits that the mean difference among experimental and control group was 1.67*, significant at $.002 < 0.05$.

Estimated Marginal Means of KICKING RIGHT FOOT POST

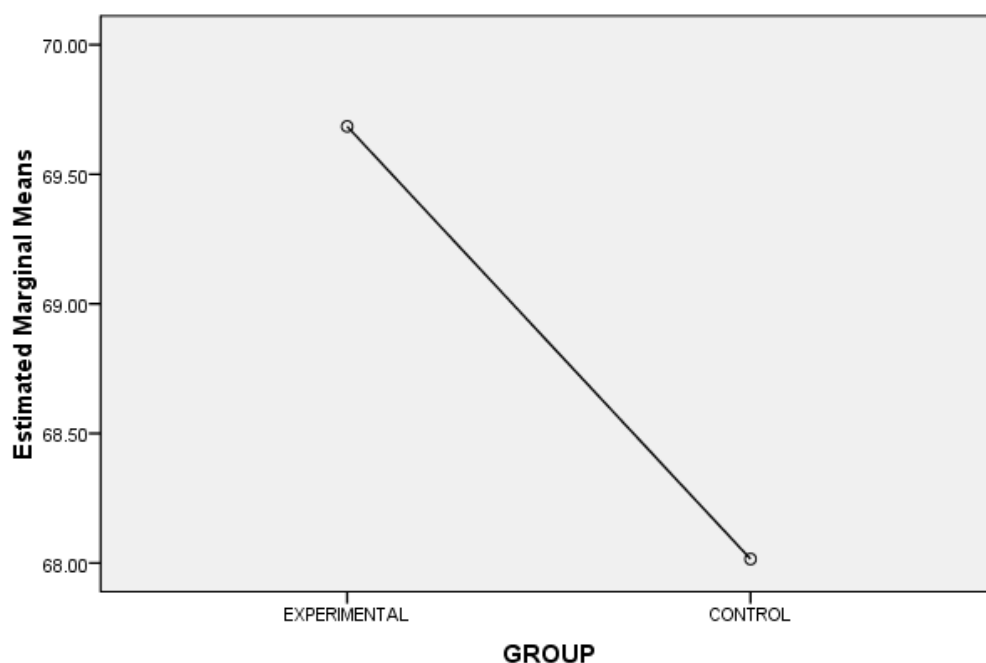


Figure 2. Mean score of Kicking for a Distance with Right Foot between Experimental and Control group

Table 4. Descriptive Statistics of Kicking for Distance with Left Foot of experimental and control group

Group	Mean	Std. Deviation	N
Experimental	61.96	5.15	30
Control	61.76	5.93	30
Total	61.86	5.51	60

The above table 4 reveals the descriptive analysis in terms of mean and standard deviation in kicking for distance (left foot) for experimental group was (61.96 ± 5.15) and control group was (61.76±5.93), respectively.

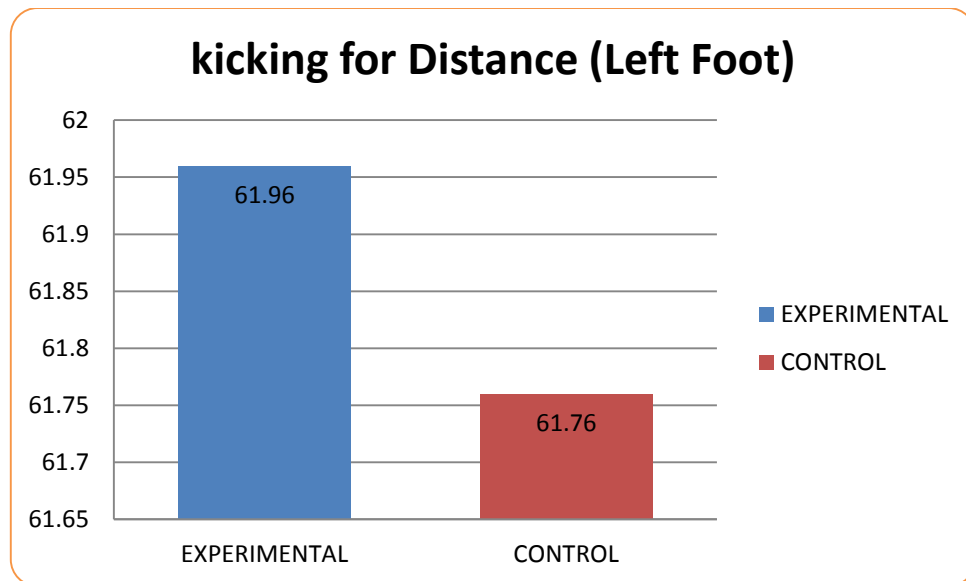


Figure 3. Mean scores of Experimental and Control Group in kicking for a distance with left foot

Table 5. Tests of Between-Subjects Effects of Kicking for Distance with Left Foot

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1414.72 ^a	2	707.36	1.07	.000
Intercept	107.29	1	107.29	1.62	.000
KLF_PRE	1414.12	1	1414.12	2.14	.000
GROUP	.135	1	.135	.021	.887
Error	376.21	57	6.60		
Total	231440.00	60			
Corrected Total	1790.93	59			

a. R Squared = .790 (Adjusted R Squared = .783)

The above table 5 shows the ANCOVA scores along with the covariate. Looking first at the significance value of *Group* it was clear that the result of F-test supports the effect after controlling for Pre-test, obtained $F = .021$ at $p .887 < 0.05$.

Table 6. Pairwise Comparisons of Mean of Kicking for Distance with Left Foot

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Experimental	Control	.095	.663	.887	-1.23	1.42

The above table 6 exhibits that the mean difference among experimental and control group was .095, $p=.887$ which was insignificant because the p value was greater than 0.05 level of significance.

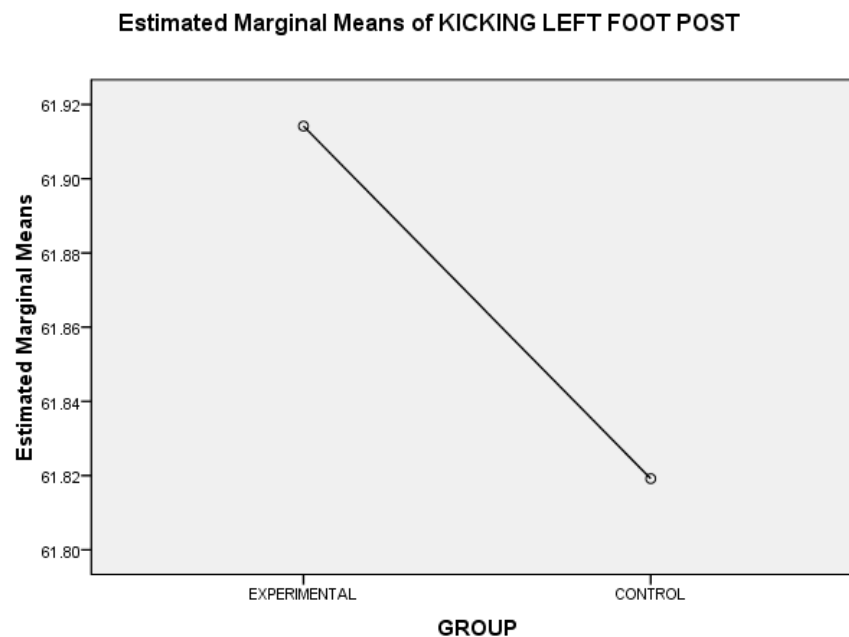


Figure 4. Comparison of Mean scores in Kicking for a Distance from Left Foot between Experimental and Control Group

Table 7
Descriptive Statistics of Dribbling of experimental and control group

GROUP	Mean	Std. Deviation	N
Experimental	22.64	1.29	30
Control	22.00	1.53	30
Total	22.32	1.44	60

The above table 7 reveals the descriptive analysis in terms of mean and standard deviation in dribbling for experimental group was 22.64 ± 1.29 and control group was 22.00 ± 1.53 .

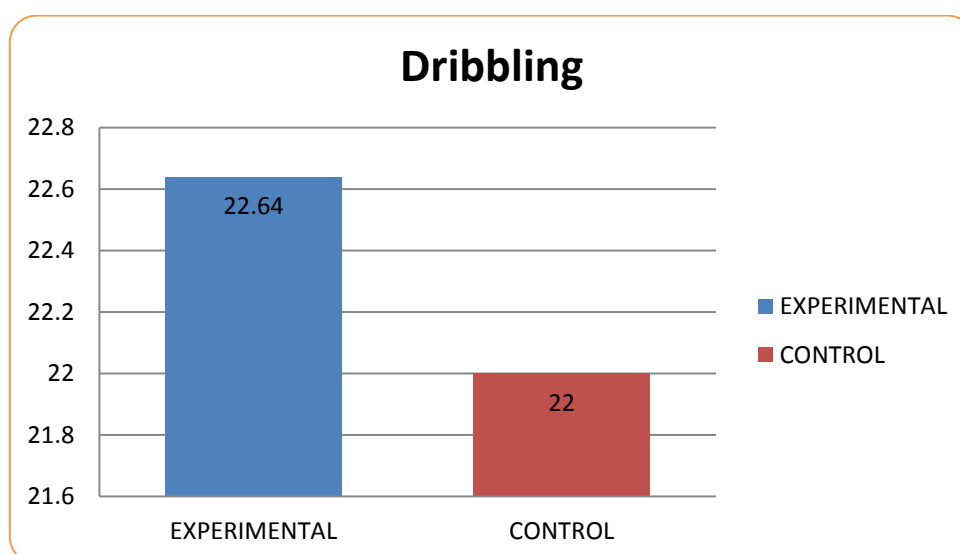


Figure 5. Mean scores of Psychological Skill Training in Dribbling between Experimental and Control Group

Table 8 Tests of Between-Subjects Effects of Dribbling

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	51.67 ^a	2	25.84	2.08	.000
Intercept	12.43	1	12.44	1.00	.002
DRIB_PRE	45.63	1	45.63	3.68	.000
GROUP	2.84	1	2.84	2.29	.136
Error	70.62	57	1.24		
Total	30015.91	60			
Corrected Total	122.29	59			

a. R Squared = .423 (Adjusted R Squared = .402)

The above table 8 shows the ANCOVA table with the covariate included. Looking first at the significance value of *Group* it was clear that the result of F-test supports the effect after controlling for pre-test, obtained $F = 2.29$ at $p = .136 > 0.05$.

Table 9. Pairwise Comparison of Mean scores of Dribbling

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Experimental	Control	.438	.289	.136	-.141	1.017

The above table 9 exhibits that the mean difference among experimental and control group was .438, $p = .136$ which is insignificant because the p value was greater than 0.05 level of significance.

Estimated Marginal Means of DRIBBLING POST

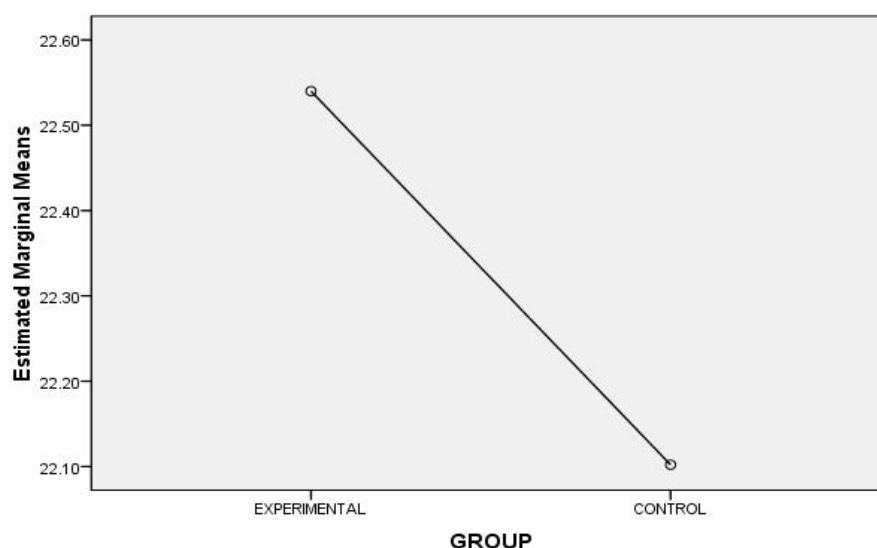


Figure 6. Mean scores of Dribbling between Experimental and Control Group

Table 10. Descriptive Statistics of Physical Variables in Feinting

Group	Mean	Std. Deviation	N
Experimental	24.93	1.18	30
Control	24.72	1.14	30

Group	Mean	Std. Deviation	N
Experimental	24.93	1.18	30
Control	24.72	1.14	30
Total	24.83	1.15	60

The above table 10 reveals the descriptive analysis in terms of mean and standard deviation in feinting for experimental group was 24.93 ± 1.18 and control group was 24.72 ± 1.14 .

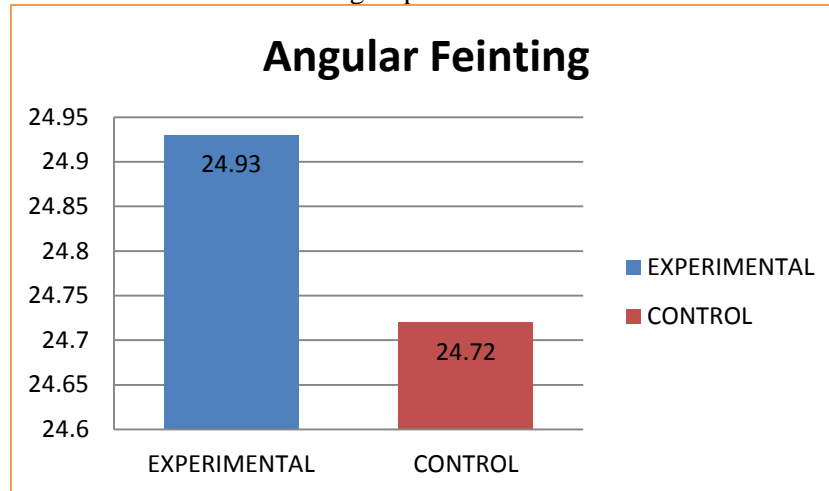


Figure 7. Mean Scores of Psychological Skill Training in Angular Feinting between Experimental and Control Group

Table 11. Tests of Between-Subjects Effects of feinting

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.739 ^a	2	.369	.271	.764
Intercept	70.94	1	70.94	5.20	.000
AF_PRE	.063	1	.063	.046	.831
GROUP	.72	1	.720	.527	.471
Error	77.83	57	1.36		
Total	37067.82	60			
Corrected Total	78.57	59			

a. R Squared = .009 (Adjusted R Squared = -.025)

The above table 11 shows the ANCOVA table with the covariate included. Looking first at the significance value of *Group* it was clear that the result of F-test supports the effect after controlling for pre-test, obtained $F = .527$ at $p = .471 > 0.05$.

Table 12. Pairwise Comparison of Mean scores for Receiving of Feinting

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
EXPERIMENTAL	CONTROL	.221	.304	.471	-.389	.831

The above table 12 exhibits that the mean difference among experimental and control group was .221, $p = .471$ which was insignificant because the p value was greater than 0.05 level of significance.

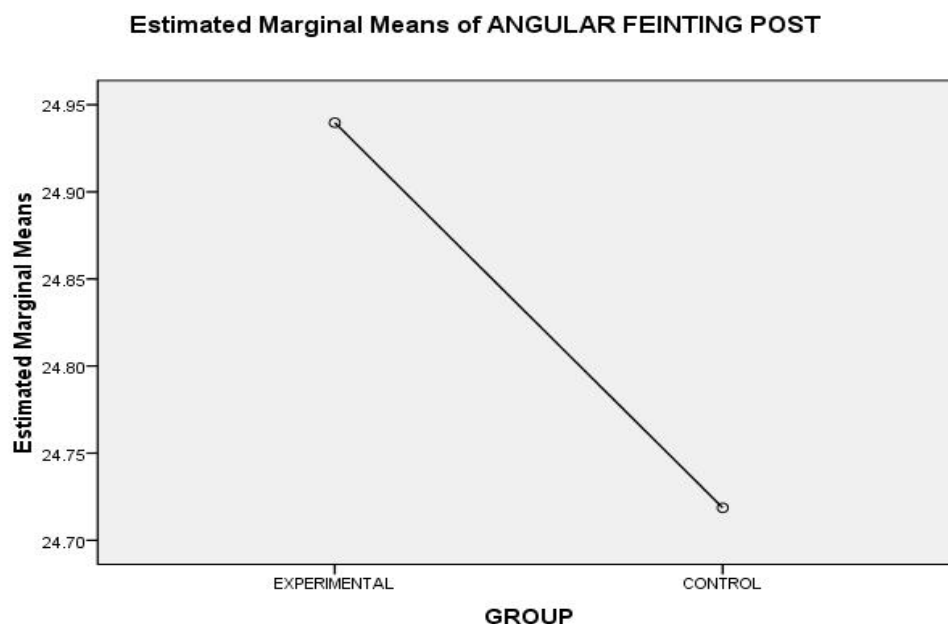


Figure 8. Comparison of Mean Scores in Feinting between Experimental and Control Group

4. DISCUSSION:

The present study was mainly concerned with soccer players participated in the all India intervarsity competition. At present the game soccer is becoming as a professional sport. So, the competition among the soccer players is growing up day by day with different colours. Most psychologists believe that levels of psychological skills are required to achieve and enhanced the performance at the time of main competition at every levels. The results of the study reveal that the analysis of co variance along with the covariate indicates the significant effect of group in the result of F-test that support the effect after controlling for Pre-test in Kicking for distance with right foot ($F = 1.09$ at $p 0.02$) & ($MD=1.67^*$). The reason may be due to the psychological intervention i.e. imagery which help the athletes to focus and visualize to one particular skills. Most of the athletes tend to visualize the kicking skill like free kick, indirect kick and penalty kick etc during the session. Whereas insignificant effect was found in other skill performance variable i.e. kicking for a distance with left foot, dribbling, receiving the ball through ground pass, receiving the ball through aerial pass, angular feinting tackling. The results revealed the partial rejection of the null hypothesis as insignificant effect of psychological skill training has been observed according to the results. The reason may be due to both the groups i.e. experimental and control group belong to same academy and they are having same coaching schedule and coaching methods. Apart from PST program both the groups were undergone normal training scheduled.

J Jooste, BJM Steyn, L Van Der Berg (2013) investigated the effect of psychological skills training program on African youth soccer players in different playing positions. A result indicated insignificant differences among the players in different playing positions. Simao de. Richard C. Thelwell. Iain A. Greenlees & Neil J. V. Weston (2006) investigated the study using psychological skills training to develop soccer performance. As per the results the position need a specific intervention to enable at least small improvements. C. F. Williams & Krane (2001) examined the effects of a seven- week psychological skills training (PST) program on competitive swimming performance and positive psychological development. Results indicated significant result in post- PST program improvement in three separate swimming strokes, each over 200 m. Non- significant improvements were shown in 10 other events. The approach in the current study was to use the contributions of a number of athletes from a wide variety of team sports in all phases of the research program. The current study was initially based on a strong theoretical foundation provided by Michael J. Mahoney (1987) that is supported by over 20 years of research,

5. CONCLUSIONS:

1. The results showed that there was a significant improvement found owing to psychological skill training program on kicking with a right foot among experimental and control group.

2. The results showed that there was no significant improvement found owing to psychological skill training program on kicking with a left foot, dribbling and angular feinting among experimental and control group.

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EFFECT OF SOCIAL MEDIA ON ADOLESCENTS AND SPORTS

MR. PINTU DEBNATH

PhD Scholar

Faculty of Physical Education and Yoga

ICFAI University Tripura

Email - Pintudn12@gmail.com

Abstract:

Social media is a common word in the modern society and use them in expected and unexpected ways. It is an interactive computer-mediated technology that facilitates the creation or sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. Most of the adolescent spend their time using the Social Media these days, and the vast majority of them have access to internet, cell phone, smart phone, video games, and many more. The purpose of this study was to determine how a healthy adolescent person's affected by using social media and also affect sports activity. When we have compared with primitive time and modern time, we have seen that primitive time adolescent they played different game and sports. And those times they were staying healthy and fit because we know that those who are involve with game and sports he/she can stay healthy. But in modern technology is very interesting and danger also because it's all function are done by sitting position and without any body movement. If anyone spent the more time in a same place it will be harmful for person. We have seen now a day most of the adolescents they are having problem with different types of lifestyle disease.

Key Words- *Social Media, Adolescent, Game and Sports, Lifestyle disease*

1. INTRODUCTION:

The 'social media' recently the world has seen a sudden increase in the augmentation of records and communication technology especially mobile communication. Modern technology has experienced vast expansion in recent years, leading to its extensive use by people from all generation. . It is an interactive computer-mediated technology that facilitates the creation or sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. The 'Media' Part: refers to an instrument of communication, like the internet (while TV, radio, and newspapers are examples of more traditional forms of media). For a generation of young people, social media has assumed a substantial stake in their social and educational lives. The vast majority of adolescents have access to computers, the internet, cell phones, video games, and many other forms of modern technology. But in modern technology is very interesting and danger also because it all activity is done by sitting position and without any body movement. Due to over use of social media most of the adolescence is having so many lifestyle problems. And children also forger day by day physical activity and playing game and sports. This is directly affected on health of adolescence.

1.1. STRESS:

Stress is the body's reaction to any change that requires an adjustment or response. The body reacts to these changes with physical, mental, and emotional responses. Stress can be positive, keeping us alert, motivated, and ready to avoid danger. Stress becomes negative when a person faces continuous challenges without relief or relaxation between stressors. In today social media landscape, adolescence faces severe pressure and anxiety when it comes to their social media presence and keeping up with the latest digital trends. According to NBC Washington, "Research now points to Smartphone-driven social media as one of the biggest drivers stress. Constant checking on the different status on social media like – political and cultural climate disagreement is often played out on social media. When reading such kind of status which one you don't like, it can lead to anger, hypertension and feelings of negativity. Another big reason of increasing stress is children they don't participate any kind of sports activity. We know that those who have attained regularly in the sports activity they are free from stress. But children they like to spend the time with social media than sports activity.

1.2. HYPERTENSION:

Hypertension means increased blood pressure. It has become a worldwide health problem because a great number of adolescents are facing the problem of hypertension throughout the world. Hypertension used to be considered a middle- age problem but nowadays, the youngsters are also having the problem of hypertension due to their faulty lifestyle. Social media addiction and not attaining in sports activity is associated with psychiatric disorders in adolescents including depression, anxiety, attention deficit and hyperactivity disorder. Many factors affect the occurrence of hypertension. The relationship between psychosocial factor and blood pressure has attracted more and more attention.

1.3. OBESITY:

Nowadays, obesity has become an enormous as well as fatal health problem. This problem is not only in India but in other countries also. In fact, 'Obesity is that condition of the body in which the amount of fat increases at extreme level'. The study found that adolescents who spend more than five hours a day on screen devices were twice as likely to have a sugary drink every day and not get enough sleep or indulge in any kind of physical activity. Such children have more obesity compared with adolescents who did not spend time on these devices. So, we can say that physical activity is more beneficial for control the obesity than social media.

2. SLEEP DEPRIVED:

Sleep has an important role in maintain health and wellbeing, this relationship is increasingly recognized for adolescents and young adults. Adolescents who spent five hours a day on social media are more likely to be sleep deprived. The national institute of health has been studying the effects of sleep deprivation your health, and the results are startling. While the benefits of getting enough sleep at night include a reduction of stress and tension levels, researchers also found that there are several problems that can occur when you aren't well rested at night. Sports participation and physical activity is the more powerful effect to improve sleep but in modern days children are better like social media than sports activity.

3. CYBER BULLYING:

It is one of the prime negative impacts of social media on youth as some of the negative minded individuals use it for bullying someone. People use social media for communication each other that sometimes create trauma for the others as well. Misinformation or false propaganda is another negative impact of social media on youth. On the other hand, cyber bullying is quite common, can occur to any young person online and can cause profound psychosocial outcomes including depression, anxiety, several isolation, and suicide. This cyber bullying can decrees through the physical activity because when children go to the playing they don't use social media that means they focus only playing which is very helpful for our body and mind. In such way we can decreases cyber Bullying.

4. POSTURAL DEFORMITIES:

Postural deformities imply not having proper alignment of body part. An individual who has postural deformities cannot perform his work efficiently. There are various postural deformities like knock knees, bow legs, flat foot, scoliosis, lordosis and kyphosis. Now how it is happen? When children busy with their smart phone he/ she always look her phone by forward bending position and even different body movement unscientifically, it also one causes of deformities. It also has chance to happening kyphosis. If children stay in home always chances to increasing body weight. Over weight also causes of knock knees, bow less, and flat foot. So we can say social media also one reason for deformities. If children spend most of the time with their physical activity than social media then deformities is not possible to come in the body.

5. CHANGE IN THE LIFESTYLE:

Lifestyle is a way of life established by a society, culture, group or individual. This includes patterns of behavior, interaction, consumption, work, activity and interests that describe how a person spends their time. Where adolescence is spending the time with social media they have no any particular time table that means they don't follow the regular routine. They have no proper sleeping time, eating, and exercises time. So they don't follow the regular routine due to social media. A positive lifestyle can bring you happiness. While a negative lifestyle can lead to sadness, illness, and depression.

6. BACK PAIN:

The back pain which is felt in the back usually originates from the bones, joints, Muscles, nerves etc. it may be in the cervical, thoracic or lumbar region. It may be spontaneous or can be chronic. It can be constant, stay in the place or radiate to other parts such as arms, hips or legs. Back pain can affect people of any age, for

different reasons. As people get older, the chance of developing lower back pain increases. Nowadays most of the children they spend the time with social media in a single day. Slouching in front of your computer could result in severe back pain. Back pain may result owing to bad personal health habits and personal risk factors such as overweight, lack of physical activity or exercise, lack of flexibility or undue stress on back. So those who are doing regular physical activity or join different kind of sports activity they can reduce the back pain.

7. CONCLUSION:

From the above review it is clear that, the used of social media has benefited the life of adolescents in several ways. But over used of social media also harmful for adolescents health and students to lose focus on academic task and negative effects on the academic result. It will adversely impact their behavioral skills, health and study. For more time spending of the social media they also lose doing physical exercise and attained the difference sports activity. It come very negative effect on the adolescent in their daily life. Therefore, it is the biggest responsibility of the every parent does not give permission to spend more time in the social media without proper reason. And parent responsibility is to involve your children to participation any kind of sports activity.

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THE EFFECT OF COMPETITIVE STATE ANXIETY ON SPORT PERFORMANCE AMONG MALLAKHAMB PLAYERS

¹Gujar Tushar, ²Jondhale, Suresh, ³Shendkar, Deepak

¹Director of Physical Education, Marathwada Mitra Mandal's College of Engineering, Karvenagar, Pune.

²Director of Physical Education, Saraswati Sangit Kala College, Latur

³Director of Physical Education, Modern College of Arts, Science and Commerce, Ganeshkhind, Pune.

Email- ¹tushargujar20@gmail.com, ²jondhale.suresh1971@gmail.com

³deepakshendkar@moderncollegegk.org

Abstract:

Sports psychologists have long believed that high levels of competitive state anxiety during competition is harmful and main cause of worsening performance. The main purpose of the study was to find out competitive state anxiety of Inter University Mallakhamb players participated in All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018. Competitive State Anxiety Inventory-2 was utilized for data collection which was administered during Data collected from 64 male Mallakhamb players. The results indicate that there was no statistically significant correlation between performance and cognitive factor ($r = -.113, p=0.375$), Somatic ($r = 0.109, .0392$) and Self Confidence ($r = .221, p=0.08$).

Key Words: Mallakhamb, Anxiety, Inter-University Players, CSAI-2, Performance

1. INTRODUCTION:

Mallakhamb is a pure ancient Indian sport. The word Mallakhamb is composed of Malla which denotes a wrestler and Khamb which means a pole. Mallakhamb can therefore translated in English as wrestlers pole in ancient India Malla means wrestler practices the Mallakhamb to improve their wrestling techniques. Mallakhamb was originated in Maharashtra around 200 years ago in 17 century Guru Balambhatt Dada Deodhar is known as founder of Mallakhamb he is a physical instructor of King Bajirao Peshwa II. The earliest mention of Mallakhamb can back to the 12th century it is mentioned in the Classic "MANASOLHAS" (1135 A.D) competitive Mallakhamb at the national level first made its appearance at the national gymnastics competition held at Paharganj Stadium New Delhi India in the year 1958. The first national Mallakhamb Championship was held at Gwalior Madhya Pradesh India in the year 1962 as a part of national gymnastics Championship they were continuously organized by Gymnastics Federation of India until 1976 when they are associated from the Gymnastics Federation of India from 1977 to 1980. Mallakhamb was introduced in the All India Inter University gymnastics Championship in 1968 – 1969. Mallakhamb includes various exercises that improve strength, flexibility, coordination and agility, Mallakhamb also requires speed and concentration.

High anxiety often causes people to perform well below their usual standard in any performance domain. For many athletes, anxiety manifests as an all-too-familiar feeling of worry, tension, apprehension, and fear. In reality, anxiety is not tangible; it simply involves a perceived imbalance between the skills you have and the demands of a particular sporting situation. The precise impact of anxiety on your sporting performance depends on how you interpret it. If you accept anxiety as a normal psychological reaction to competition, it will be less likely to disrupt your performance. Most research suggests that athletes who are predisposed to feel anxious (high trait anxiety) are not necessarily precluded from becoming champions, although clearly they do have a greater need to develop ways to avoid the negative effects of anxiety during performance. Research has also shown that more experienced athletes generally have less anxiety about competition. There are two plausible explanations for this either sportspeople learn to cope effectively with the stresses of competition, or highly anxious athletes drop out of sport because competition is too unpleasant for them. Perhaps older and more experienced athletes are less anxious by virtue of their greater maturity and self-knowledge. Competitive anxiety is one of the factors to decrease athletes' performance (Esfahani Soflu., 2010). Feelings of tension,

thinking of upcoming events in their mind, nervousness, worry and involved in physiological changes such as increased in heart rate response are common response for the athletes prior to the competition (Hackfort & Spielberger, 1989). Some athletes are also involved with the feelings of fear, unhappiness, guilt, discouragement, and focus distraction (Cerin, 2003; Kais & Raudsepp, 2005).

Anxiety is a negative emotional state in which feeling of fear, nervousness, uneasiness and apprehension is associated with activation or arousal of the body (Weinberg and Gould, 2007). Competitive state anxiety is higher for amateur athletes in individual sports compared with athletes in team sports (Simon & Martens, 1979). Our ability to obtain independent measures of cognitive and somatic state anxiety has greatly improved our knowledge about the athletic situation. The factor which significantly influences the qualities of the athletic experience is the level of state anxiety during the time leading up to competition. Pre competitive anxiety starts relatively high and remains high and stable as the time of the event approaches (Richard, H. Cox, 2007). The main purpose of the study was to find out the competitive state anxiety of Inter University Male Mallakhamb players participating in the All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018.

2. METHODOLOGY:

Subjects:

Total Sixty Four (N=64) Mallakhamb male players were randomly selected from the All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018. All the subjects age ranging from 17-25 years.

3. DATA COLLECTION:

To measure competitive anxiety level researcher used the competitive state anxiety inventory-2 (CSAI-2) questionnaire prepared by Martens et.al (1990) this questionnaire consist of 27 items full-scale comprised of three items sub scales measuring cognitive anxiety somatic anxiety and self-confidence and each subscale were scored on a 4 point Likert type scale ranging from (1) " Not at all" to (4) " Very much so" higher score on each subscale indicate higher level of anxiety the score for each will range from 9 to 36: 9 indicating low state anxiety and 36 indicated high state anxiety. The data is presented in table 1 and 2.

Table1
Descriptive Statistics

	Mean	Std. Deviation	N
Performance	5.2391	2.09418	64
Cognitive	16.625	5.1378	64
Somatic	16.422	5.1449	64
Self Confidence	25.984	5.2840	64

Table2
Correlations Between Performance and Cognitive, Somatic and Self Confidence

	Performance	Cognitive	Somatic	Self Confidence
Performance Pearson Correlation	1	-.113	.109	.221
Sig. (2-tailed)		.375	.392	.080
N	64	64	64	64

*. Correlation is significant at the 0.05 level (2-tailed).

4. RESULTS:

Pearson Correlation coefficient was calculated between Competition Performance i.e. score of the competition and Cognitive, Somatic and Self confidence factors of the competitive state anxiety inventory-2 (CSAI-2). Analysis reveals that there was no statistically significant correlation between performance and cognitive factor ($r = -.113$, $p=0.375$), Somatic ($r = 0.109$, $p=.0392$) and Self Confidence ($r = .221$, $p=0.08$).

5. DISCUSSION:

The aim of the present study was to analyze whether anxiety was related to male Mallakhamb players participated in the All India Inter University Competition. According to Mahoney and Meyers (1989) and Zajonc (in Lloyd and Mayes 1999), athletes of different levels of skill show different levels of competitive anxiety. Most psychologists believe that the highest level of competitive anxiety will lower the athlete's performance in sport (Martens, Vealey and Burton, 1990; Cox, Qiu and Liu, 1993; Weinberg and Gould, 1999; LeUnes and Nation 2002; Ortiz, 2006, Hardy, 1999, Montgomery and Morris, 1994). On the other hand a lower level of anxiety was found to have increased the performance of athletes (Martens et al., 1990; Krane and Williams, 1994). On the other hand, athletes with low levels of skill, like those whose highest achievement is taking part in school or university competitions, normally experience higher levels of competitive anxiety. Athletes whose highest achievement is taking part in national or state level competitions, experienced low levels of anxiety. In the present study it was found that there was very little or no correlation between the performance and anxiety factor like Cognitive, Somatic and Self-confidence. The findings by Parnabas, V., Parnabas, J., and Parnabas, A.M. (2015), concluded negative correlation between somatic anxiety and sport performance among running players. It was also found that none of the variables except trait anxiety scores showed significant difference between individual and team sport athletes (Radzi, J.A., Yusof, S.M. and Zakaria, A.A). Parnabas, V. (2015) in his study on Sepak Takraw players showed that there exists a negative correlation between competitive state anxiety and sport performance among.

6. CONCLUSION:

On the basis of analysis and discussion this study concludes that at All India Inter University level in Mallakhamb, there was no effect of anxiety factors like Cognitive, Somatic and Self-confidence on the performance in Mallakhamb.

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EFFECTS OF SIX WEEKS COMPLEX TRAINING ON EXPLOSIVE STRENGTH OF INTER-COLLEGIATE MALE ROWING PLAYERS

¹Dr. Abhijit B. Kadam, ²Mr. Namdev R. Kakad, ³Dr. Shashikant Pardeshi

^{1,3}Assistant Professor, ²Director of Phy Edu

¹Dept of Physical Education, S.P.P. University, Pune, Maharashtra

²G. M. D. Arts, B. W. Commerce & Science College Sinnar Dist Nashik

³Chintamani College of Physical Education, Wardha, Maharashtra

Email - ¹akadam1207@gmail.com

Abstract:

The purpose of this study was to evaluate the effects of a complex training program, a combined practice of weight training and plyometric, on explosive strength development of inter-collegiate rowing players. It was an experimental study pre-test & post-test random group design was used. Twenty male rowing players mean age (19.17 ± 1.15) were selected as sample by using simple sampling technique ($n=20$) from Nashik city. They equal numbers of subjects were assigned randomly to two groups; experimental & control groups. Administering six weeks complex training programs and pre-test and post-test conducted on groups by used squat jump (SJ), countermovement jump (CMJ), depth jump (DJ) and medicine ball throw (MBT) and collected obtained data. A result shown that data collected was analyzed the experimental group significantly improved in the SJ, CMJ, and MBT values. The control group significantly decreased the values of CMJ while significantly increasing the MBT values. Our results support the use of complex training to improve the upper and lower body explosive levels in inter collegiate rowing players.

Key Words: Complex training program, Inter-Collegiate Rowing players.

1. INTRODUCTION:

In Rowing water sports the ability to generate maximal strength levels in the shortest period of time has been considered as essential to obtain high sport performance levels. Moreover, strength training is part of rowing programs with a background of related benefits that improve sport performance, reduce injury rate, and provide higher motivation levels for the athletes. Two methods, resistance and plyometric training, are usually referred to in the literature as improving the most powerful strength characteristics explosive strength in rowing players. Several investigations have demonstrated the positive effects that result from the application of these methods, reporting higher increases in the explosive strength indicators.

2. MATERIAL AND METHOD:

2.1. Method of the study:

The present study was an experimental research which was conducted with a purpose to investigate the effects of complex training program, a combined practice of weight training and plyometric, on explosive strength development of inter-collegiate rowing players.

2.2. Method of Sampling:

For the present research whole population, a total number of 20 male inter-collegiate rowing players were selected on the basis of simple random method of sampling technique from Nashik city.

2.3. Selection of Variable:

The study was taken to pinpoint the variables was Explosive strength. & squat jump (SJ), countermovement jump (CMJ), depth jump (DJ) and medicine ball throw (MBT) tests selected for collected obtained data.

2.4. Procedure of the study:

Subjects were assessed before and after a six-week training program for upper and lower body explosive strength, according, respectively protocols. This procedure allowed for the assessment of the

following variables: squat jump (SJ), countermovement jump (CMJ), depth jump (DJ) and medicine ball throw (MBT). There was previous familiarization with accurate testing procedures. Tests followed a general warm-up that consisted of running, calisthenics, and stretching. Which was assessed after two trials with a 60 second rest between trials, all the other tests were performed with 3 trials and all the correspondent mean values were considered for statistical analysis. There was a 20-second and a 10-second rest between trials for respectively the lower-body and the sitting chest throw. After training programs implemented three experimental group's i.e., experimental and control groups, were post tested for data collection.

2.5. Statistical Tools:

Statistical analysis followed the most important descriptive statistics, such as mean and SD. A repeated-measures t-test was used to determine the presence or absence of gains in each group. An independent-measures t-test was used to determine differences between groups pre- and post-test. Significant level of 0.05 was used.

3. RESULTS OF THE STUDY:

The obtained results are present in the following table which represents the results of analysis of covariance to compare the mean of group's i.e., experimental and control group.

Table 1. Comparisons of explosive strength test results mean pre & post test of experimental & control group

Test	Group	Pre mean	Post mean	p value
SJ (cm)	Experimental	24.79 ± 4.2	28.01 ± 4.6	0.00
	Control	22.70 ± 4.3	20.74 ± 3.9	
CMJ (cm)	Experimental	29.88 ± 5.9	33.02 ± 6.2	0.04
	Control	30.76 ± 5.1	28.40 ± 4.0	
DJ (cm)	Experimental	34.71 ± 7.4	36.64 ± 8.1	0.04
	Control	31.11 ± 0.6	30.75 ± 4.1	
MBT (m)	Experimental	3.47 ± 0.6	4.15 ± 0.5	0.00
	Control	3.10 ± 0.4	3.27 ± 0.4	

***Significant at 0.05 level.**

The results between the pre-test and post-test for explosive strength scores in both groups and the results between groups at baseline and after the training program are presented in Table 1. However, the results of SJ, CMJ, DJ & MBT test showed a significant improvement.

4. DISCUSSION OF FINDINGS:

Discussion on the results of effects of complex training program, a combined practice of weight training and plyometric, on explosive strength development of inter-collegiate rowing players six weeks training programs and pre-test and post-test conducted on groups by used squat jump (SJ), countermovement jump (CMJ), depth jump (DJ) and medicine ball throw (MBT). It was observed from the main findings from this study were the significant increases in the height of the different jumps (SJ, CMJ, and DJ) and in the distance of the MBT, which proved the complex training efficacy. The increases in the height of the DJ (5.6% and 3.4%, respectively) were statistically insignificant. On the other hand, the CG decreased in all the assessed variables, from pre- to post-testing, except for the distance in the MBT. These findings show the quality of the training program design. Several factors may have contributed to the changes in vertical jump (VJ) and MBT, including a better synchronization of body segments, increased coordination levels, and a greater muscular strength. This finding was supported by **Albert, (1991)** Plyometric training programme development begins by establishing an adequate strength base. The body must be prepared to withstand the stress of plyometric training. The goal of developing a greater strength base is muscle hypertrophy that ultimately results in greater force via an increased cross-sectional area. A large cross-sectional area can also contribute to the SEC and therefore more stored elastic energy.

5. CONCLUSION:

On the basis of findings and within the limitation of present investigation the following conclusions were drawn. The upper and lower body explosively levels of inter collegiate rowing players can be improved with a combined program of plyometrics and resistance training. These strength level improvements are usually seen as essential in explosive strength performance.

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ROLE OF SCHOOLS IN PROMOTING MENTAL HEALTH AND WELL-BEING

¹**Dr Naziya Hasan,**

¹Assistant Professor

²**Dr Naved Hassan Khan**

²Assistant Professor,

¹Department of Teacher Education, Manipur University, Imphal

²Department of Education, Aligarh Muslim University Murshidabad Centre, West Bengal

Abstract:

School, as a formal agency of education, is considered to be a child's second home. Along with providing quality education, it helps in making learners fit for the larger society which they are going to be part of in the near future. Making fit, here, means being mentally healthy and emotionally stable and strong to cope with different circumstances of life. This fitness results from the children's interaction with their school environment that is safe and positive for each and every learner irrespective of their background. Unfortunately, most of the schools mainly focus on academic excellence, neglecting the issues of mental health and stress among learners caused by different direct and indirect factors. Teachers play a pivotal role in creating a safe and positive school environment that fosters the overall development of learners. In this connection, the present paper aims to highlight the issues of mental health and stress in schools and its related factors. It further purports to focus on the important role of teachers as facilitators and guides in the creation of a safe and positive school environment that is conducive for the mental health and emotional well-being of learners.

Key Words: School Environment, Teachers, Mental Health, Stigma

1. INTRODUCTION:

After family, children spend a significant time of their lives in schools and other educational institutions with peers and teachers. Schools play a crucial role in the overall growth and development of children by helping in equipping them with knowledge, attitude, and skills for becoming better citizens of tomorrow. Through different curricular and co-curricular programs, students' mental, social, emotional, aesthetic, and physical aspects are developed. In every curriculum, the emphasis is laid on 4Hs namely; head, heart, hand, and health of students. Health is the key component for other components to develop and flourish. According to The World Health Report (2001), "for all individuals, mental, physical and social health are vital strands of life that are closely interwoven and deeply interdependent." WHO Constitution states, "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Mental health is considered as an essential component of health (WHO, 2018). According to World Health Organization (2018), "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make contribution to his or her community."

Mental health has become an issue of utmost importance to be discussed and intervened in schools as children of school-going age are more vulnerable to mental disorders and mental illness and if proper and timely intervention is not provided to them, it may lead to serious mental disorders in their later life. Many mental health-related issues show its first sign during childhood and adolescence. These can be identified timely in schools through proper and comprehensive mental health programs. Early detection may benefit from the provision of mental health care support and services or treatments. In the World Health Report (2001), Gro Harlem Brundtland, Director-General, WHO mentioned, "about 450 million people alive today suffer from mental or neurological disorders or from psychological problems such as those related to alcohol and drug abuse." She further added that depression has become the leading cause of disability and "ranks fourth in the ten leading causes of the global burden of disease." It was also mentioned that 70 million people suffer from alcohol dependence, 50 million from epilepsy, and 24 million from schizophrenia. Adding to it, a million people commit suicide every year. "One person in every four will be affected by a mental disorder at some stage of life" (The World Health Report, 2001). These estimated figures show that there is an immediate need

of addressing mental health issues and making people aware of them. If remain untreated and undetected, it will become a serious mental disorder, leading to life long-suffering. If these illnesses or disorders are unrecognized or inappropriately managed, it may lead to a wide range of social and societal problems (National Mental Health Survey of India, 2015-16). In the World Health Report (2001), it was revealed that more than 40% of countries have no mental health policy and 30% have no mental health program. Over 90% of countries have no mental health policy that includes children and adolescents. Mental health issues have been neglected and ignored since ages that need to be addressed on practical levels. These mental problems have a lifelong impact. Schools, with the help of teachers, psychologists, and counsellors, become an ideal place to spread awareness regarding mental health, to promote healthy habits and health-related talks, to do early identification followed by intervention and support program with less stigmatization and discrimination. In the National Mental Health Survey of India (2015-16), it was also reflected that “persons with mental illness are unable to receive quality care due to limited awareness, availability, accessibility and affordability.” Considering the importance of mental health, it has been emphasized in Sustainable Development Goals in target 3.4 that states, “By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.” (As given in National Mental Health Survey of India, 2015-16)

2. MENTAL HEALTH ISSUES IN SCHOOLS:

Mental issues range from common mental disorders, ADHD (Attention Deficit Hyperactivity Disorder), Autism Spectrum Disorder, eating disorder, mood disorder, depression, anxiety, aggression, drug abuse, suicidal behaviour, psychosis, attention problem, etc. These behavioural problems need to be researched properly to provide care to the students. In schools, poor mental health is caused because of examination pressure, demands and expectations of parents and teachers, overloaded curriculum, discriminatory behaviour of teachers and peers, social exclusion, etc. Several factors influence the mental health of children that include individual factors such as the ability to manage one’s thoughts, emotions, behaviour, and interaction with others. Adding to it, social, political, cultural, economic, and environmental factors with psychological and genetic factors may be responsible for mental health-related problems in students. For broader categorization, these factors are a combination of biological, psychological, and social factors that influence the mental health of the child and lead to mental and behavioural problems. Interaction of these factors are reflected in the given figure:

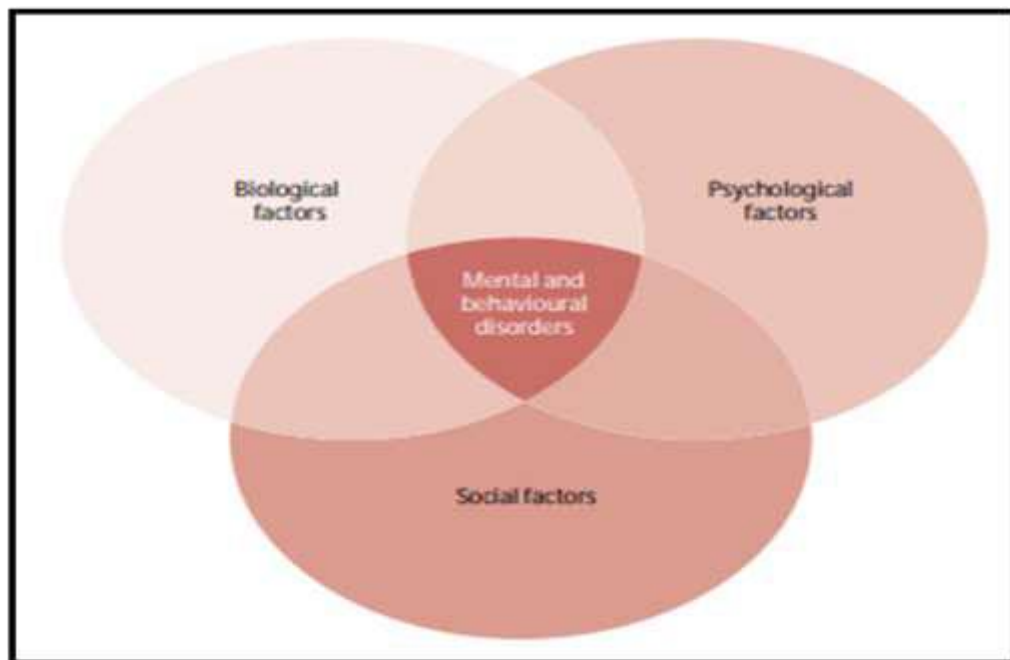


Figure 1: Interaction of biological, psychological and social factors in developing mental and behavioural disorders (source: The World Health Report, 2001)

Age, sex, and genetic factors belong to the biological category and among psychological factors, behaviour, and emotion-related factors are responsible. In social factors, urbanization, poverty, and technological changes share a larger portion. These factors may work individually as well as interactively to lead to mental and behavioural problems. In the context of schools, demand from students for academic excellence, peer pressure, academic failure, exam pressure, bullying, use of social media, parental fights and divorce, the pressure to engage in

substance abuse, sexual or physical mistreatment are also factors that influence the mental health of students. Students are less happy and more stressed in their school life due to these factors. If the mental health of students is not discussed with them, it will take a shape of mental illness or disorder that will hamper their academic achievement, distort their self-image, social rejection in and outside the school. Therefore, it is clear that mental health and well-being must be given priority in school and community programs and support services. It should be made an integral part of the school curriculum.

3. SAFE AND POSITIVE SCHOOL ENVIRONMENT:

Most of the behaviour is caused by children's interaction with their environment. Behavioural problems and its solution lie in the environment, being provided to the children. Schools, being second home of children, should provide a safe and positive environment for every child to make them grow their inner potentialities in all possible aspects. "School environment refers to the living and learning climate of the school" (Hendren, Weisen&Orley, 1994). A positive and safe school environment helps in promoting the mental health of students as well as teachers. Schools occupy an important place in teaching and learning effectively and efficiently. It gives opportunities to improve the lives of children in acceptable and desirable ways. National Curriculum Framework (2005) states, "schools have a major role to play in ensuring that children are socialized into a culture of self-reliance, peace-oriented values and health." The school environment is not only reflected through the physical dimension but also psychological, social, and academic dimensions including teacher support, school cohesiveness, equity, quality of instruction and selected methodologies, etc (Hasan & Nadeem, 2016). Connected to mental health issues, schools play a pivotal role in identifying, preventing, and treating mental health in students.

According to WHO, "mental health promotion and protection involves creating an environment which promotes healthy living and encourage people to adopt healthy life style." McLennan et.al. (2008) identified four key characteristics that help schools in playing the above role effectively. These four characteristics are access to students, training opportunities for teachers, convenience in terms of location, and a welcoming environment. The school environment should be made conducive keeping in mind the changing health scenario and concerns. In schools, comprehensive mental health programs at all levels must be adopted to identify, prevent, and support the issues regarding mental health. Scottish Health Education Group (1984) identified three basic elements of schools that help in promoting mental health.

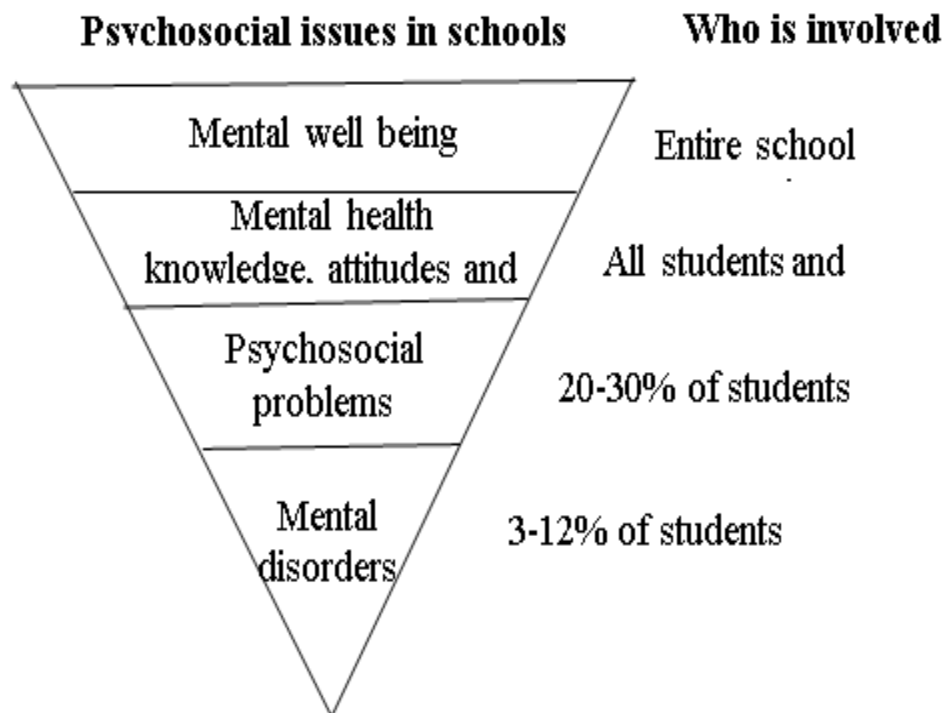


Figure 2: Showing Psychosocial Issues in Schools (Source: Hendren, Weisen&Orley, 1994)

These are the formal curriculum, the school ethos, and the relationship between the school, home, and community. Here, school ethos means a physical and social environment that helps in supporting the mental health of students. According to WHO, "mental health promotion involves actions that improve psychological

well-being. This may involve creating an environment that supports mental health. An environment that respects and protects basic civil, political, socio-economic and cultural rights is fundamental to mental health. Without the security and freedom provided by these rights, it is difficult to maintain a high level of mental health.” Schools should be concerned about mental health challenges, being faced by students. This concern should depend upon frequency, duration, intensity, and pervasiveness of the challenges or problems. Mental health issues can be addressed in schools through proper intervention, raising awareness, and mobilizing efforts in support of mental health. In Mental Health Programmes in Schools, Hendren, Weisen and Orley (1994) had given a model framework for school mental health programs along with psychosocial and mental health issues that remain present in schools. The psychosocial issues and involved members are reflected in the following figures: It is reflected through the figure that mental well-being is concerned with all school communities and should be dealt carefully to address the issues with coping skills and support services. Mental health knowledge, attitude, and behaviour affect all students and teachers. When it comes to psychosocial problems and mental disorders, 20-30% of students and 3-12% of students respectively can be involved. These students must be identified and proper intervention should be provided.

Successful models of intervention can be found at four levels:

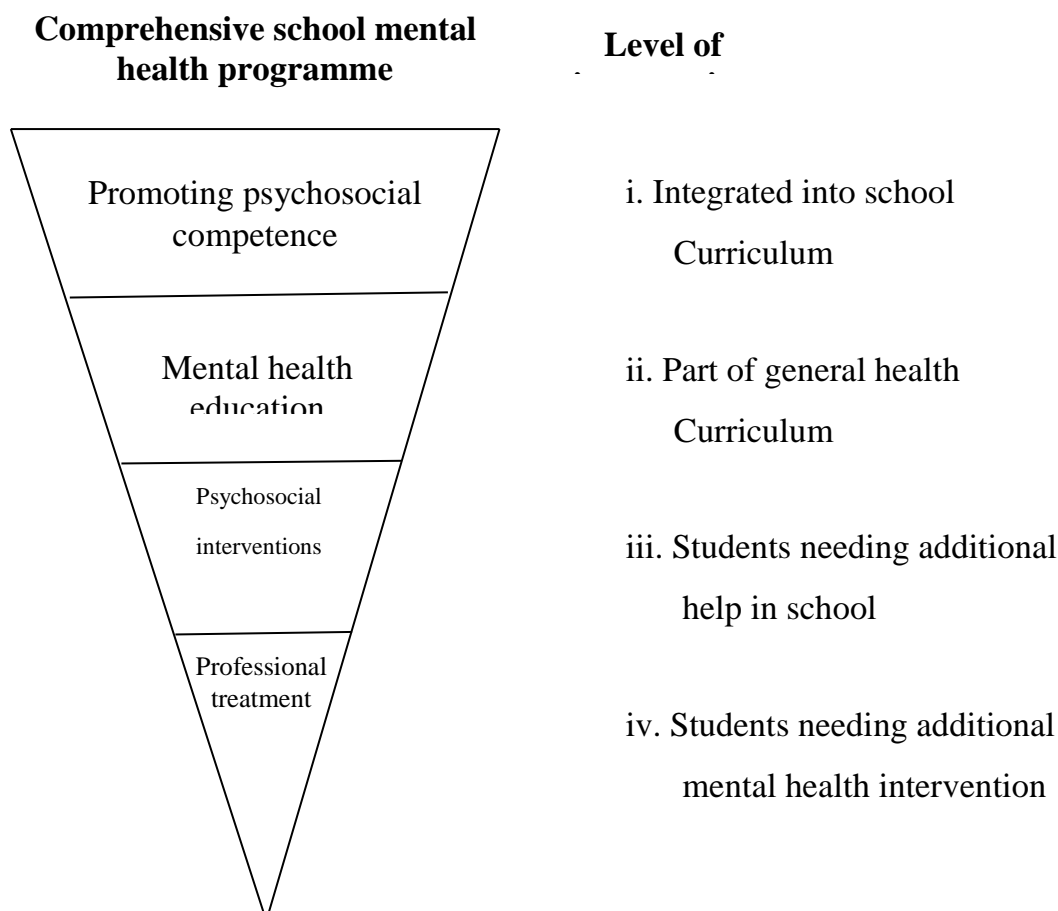


Figure 3: Showing Intervention Model (Source: Hendren, Weisen&Orley, 1994)

A comprehensive mental health program has four levels. As psychosocial competence is the concern of all school communities, it must be made integrated into the school curriculum. This psychosocial competence is “a person’s ability to deal effectively with the demands and challenges of everyday life” (Hendren, Weisen&Orley, 1994). The psychosocial competence of students must be promoted. It can be achieved through life skill education. Level II, concerning mental health education, should also be made part of the general health curriculum. At level III, students need additional school support and at level IV, students need additional mental health intervention and professional treatment. People with mental disorders need full social participation, human rights, avoidance of stigma and associated discrimination, skills for care, financial and crisis support, education, social and psychological support, vocational support, early recognition, medical care, information about illness and treatment, etc. (The World Health Report, 2001). In schools, teachers occupy an important place not as transmitters of knowledge but as facilitators and guides. Teachers should try to encourage social

time among students. Mental health issues must be talked about in classrooms and should be made an integral part of the curriculum. So that students feel safe to talk about those issues to their teachers if they encounter any. Schools should provide information related to mental health and mental illness to all students. Teachers need to pay attention to the issues concerning the mental health and well-being of students through “life skill education, mental health education, school-based health interventions” that can be proved beneficial for helping students live their life more productively and meaningfully (Hendren, Weisen&Orley, 1994). Life skill education will be proved beneficial in this context. Students must be taught to deal with life’s challenges in effective ways that can be developed through abilities or skills such as decision making, problem-solving, creative thinking, critical thinking, communication, self-awareness, coping with emotions and stressful situation, self-confidence, etc. These skills can be fostered through a school environment that is conducive and safe for the learning of students. Teacher preparation should be done keeping in mind mental health issues. In teacher training programs, mental health, stress, anxiety, life skill education, mental disorders, psychosocial problems, mental health interventions, etc, must be include and proper training must be given to them to cope with the difficult circumstances of life. After receiving training, teachers become well qualified to identify and provide remedies for mental health problems of school-going children (Hendren, Weisen&Orley, 1994).

4. REMOVING STIGMA RELATED TO MENTAL HEALTH:

The less amount of talks or discussion on the issues of mental health is due to the stigma associated with it. “Stigma can be defined as a mark of shame, disgrace or disapproval which results in an individual being rejected, discriminated against, and excluded from participating in a number of different areas of society” (The World Health Report, 2001). The United States Surgeon General’s Report on Mental Health (DHHS 1999) elaborated on the severe impact of stigma on people with mental illness as “Stigma erodes confidence that mental disorders are valid, treatable health conditions. It leads people to avoid socializing, employing or working with, or renting to or living near persons who have a mental disorder.” Further, it was added that “stigma deters the public from wanting to pay for care and, thus, reduces consumers’ access to resources and opportunities for treatment and social services. A consequent inability or failure to obtain treatment reinforces destructive patterns of low self-esteem, isolation, and hopelessness. Stigma tragically deprives people of their dignity and interferes with their full participation in society.” (As quoted in The World Health Report, 2001). There are public, institutional, family, and self-stigma. One of the most important issues is to remove the stigma related to mental health from schools. “From cultural perspective, mental disorders are associated with a considerable amount of stigma in Indian society, leading to neglect and marginalization. Such families face numerous challenges in daily life, both for managing the condition as well as for making them productive due to prevailing attitudes, media portrayals, societal discrimination and deprived opportunities” (National Mental Health Survey of India, 2015-16). Mental health stigma can be minimized by developing a positive attitude, behaviour, and speech. School personnel must understand the issues concerning mental health. It must be communicated to the school community that talking about mental health is not wrong and about the fact that people can recover from mental health challenges if proper and timely intervention is provided. Schools should formulate their policies related to mental health programs, assure access to appropriate support and services to the needy, do proper monitoring and assessment, support social cohesion, aware community regarding mental health challenges, promote a healthy lifestyle, and promote healthy and safe school environment.

5. CONCLUSION:

To conclude, it can be stated that mental health issues and challenges are mostly identified and witnessed during childhood and adolescence. Therefore, schools play a vital role in promoting the mental health of students through proper planning, prevention, support, and intervention. School personnel including teachers, students, administration, and the surrounding community must be made aware of mental health challenges and its remedies to ensure the mental and psychosocial well-being of all. Mental health should be included in the core curriculum of schools. Mental health leads to productive learning. Students’ mental health and well-being affect their academic performance, social, and personal life. Healthy students are the result of a healthy school environment.

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**STRESS LEVEL OF URBAN AREAS AND RURAL AREAS OF
MANIPUR DURING LOCKDOWN OF COVID-19:A
COMPARATIVE STUDY**

**¹Dr.R. K. Chandrakumar Singh, ²Dr. Sorokhaibam Premananda Singh, ³Singh Kangabam Momo,
⁴Singh Keisham Narayan**

¹Associate Professor, ²Assistant Professor, ^{3,4}Master of Physical Education and Sports,
^{1,3,4}Department of Physical Education and Sports Science, Dhanamanjuri University, Manipur, India.

²Department of Physical Education and Sports, National Sports University (A Central University), Govt. of
India, Imphal.

Abstract:

*To compare the stress level between urban areas and rural areas of state of Manipur. **Methods:** For fulfilling the purpose of the study a total of three hundred (n=300) people were selected. One Hundred Fifty (n=150) from rural areas and One Hundred Fifty (n=150) from urban areas of Manipur were selected. The data was collected through the administration administration of the Perceived Stress Scale (PSS) developed by Sheldon Cohen (1983) containing 10 items was given to the subject for the collection of data. **Statistical analysis:** To find out the significant differences in stress level between urban areas and rural areas of state of Manipur, the descriptive statistics and independent t-test was used and levels of significance was 0.05. **Results:** The result of the study reveals that there was no significant difference of stress level between the people of Urban and Rural Ares of Manipur. **Conclusion:** Result of the study indicates that there was no significant difference of stress level between the people of Urban and Rural Ares of Manipur.*

Key Words: Coronavirus, Stress, Urban and Rural.

1. INTRODUCTION:

Coronavirus or COVID-19 is a disease that is pandemic across the globe right now. It is a communicable disease which is caused by several acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In Wuhan, China in December 2019 for the first time it was identified. After, that is has become a pandemic. Fever, Cough, fatigue, shortness of breath, and loss of smell and test are common symptoms of this disease. While the bulk of cases end in mild symptoms, some reach acute respiratory distress syndrome (ARDS) likely precipitated by a cytokine storm, multi-organ failure, septic shock, and blood clots. It may take two - fourteen days to show the symptoms. The primary means of spread of this virus is when they have close contact, most often via small droplets produce by sneezing, talking and coughing. The virus doesn't travel long-distance through the air, they fall to the ground or surface and make the surface or ground contaminated. When a person touches the contaminated surface, and then touches their face, they get infected. This virus is commonly spread during the first three days after the onset of symptoms. It is also possible to spread before the symptoms appear and also from those people who do not show symptoms. Frequent hand washing, keeping unwashed hands away from the face, maintaining physical distance from others (especially from those with symptoms), covering coughs, and quarantine (especially for those with symptoms) are some recommended preventive measures to avoid infection from this disease. Using a mask or covering our face using a scarf is recommended in a public setting to minimize the risk of transmission. According to the World Health Organization (WHO), there are no vaccines or specific antiviral treatments for COVID-19. On 11 March 2020 the World Health Organization (WHO) declared the COVIC-19 as a Pandemic before that on 30 January 2020 the organization had already declared the COVID 19 outbreak a public health emergency of international concern (PHEIC). On 30 January 2020, the first case of COVIC-19 was reported in India which originated from China. A 14-hour voluntary public curfew was observed on 22 March. In COVIC-19 hotspots and

major cities of India, Prime Minister Narendra Modi announced mandatory lockdowns. From 24 March nationwide lockdown for 21 days was started, affecting the entire 1.3 billion population of India. Further, on 14 April the nationwide lockdown was extended till 3 May which was followed by two-week extensions starting 3 and 17 May with substantial relaxations. The government has started unlocking the country from 1 June. As COVID-19 was rising in India day by day, the state government of Manipur was also taken up many steps to fight with COVID-19. On 12th March 2020, the state government announced all the Schools and Colleges of state will be close as precaution measures. On 23rd March 2020 the state government of Manipur has announced total lockdown in the state. The first case of COVID-19 was confirmed on 24th March 2020. As soon as the case of covid19 was confirmed the state government implement curfew in the capital of the state. After some days one more person who travelled from Delhi was confirm again. On 12th and 19th, April 2020 both the patient was a cure and send back to their respective home. On 20 April the C.M of Manipur announced the state as Green Zone. But soon after state Govt. start to bring back the people of Manipur who are stranded outside the state with the help from Central Govt., the Green Zone was turned to Red Zone and now the total active cases are cross over 500. The lockdown is still implemented on the state with some relaxation of movement and activity. Those active cases in Manipur are all from those people which are bring back from other states of India and are all in the Quarantine centres.

Due to the lockdown of the pandemic, the people got stress due to many reasons. Stress is “a state of affair involving demand on physical or mental energy” (Oxford Dictionary). It is the reaction of the body, physically, mentally, or chemically to circumstances that frighten, excite, confuse, challenge, surprise, anger, endanger or irritate. Stress is understood to be a condition or circumstance, which can disturb the normal physiological and psychological functioning of an individual. A “stress” condition is often considered as, “relative” in nature. Extreme stress conditions say the psychologists, are detrimental to human health and happiness but in moderation, i.e. it being normal, proves useful in many cases. Some people really work extremely well and give out their best regarding performance under optimal stress conditions. From good to bad, stress is a spectrum, and unavoidable even under the most comfortable atmosphere. During this lockdown due to COVID-19, the people of Manipur face certain stress in their daily life. In this study, we will measure with the stress level between the urban and rural people of Manipur.

2. METHODOLOGY:

Subjects:

In this study a total of three hundred (n=300) people were selected. One Hundred Fifty (n=150) from rural areas and One Hundred Fifty (n=150) from urban areas of Manipur.

2.1 Selection of Test Items:

The data was collected through the administration of the Perceived Stress Scale(PSS) developed by Sheldon Cohen (1983) containing 10 items was given to the subject for the collection of data. The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives.

2.2 Collection of Data:

The data was collected by administering the questionnaire by the scholars with the co-operation of all the authors and subjects. Consent of subjects was obtained prior to the administration of the questionnaire.

2.3 Statistical Analysis:

To find out the significant difference of stress level between urban areas and rural areas of state of Manipur, the descriptive statistics and independent t-test was employed and levels of significance was set at 0.05.

3. RESULTS AND DISCUSSION:

The independent t-test was employed to find out the significant difference in the stress level between urban areas and rural areas of state of Manipur. The findings pertaining to this have been shown in table 1.

Table-1.Descriptive Analysis of stress level between urban areas and rural areas of state of Manipur

Groups	N	Mean	Std. Dv.	Std. Error
Urban	150	19	5.98	0.49
Rural	150	16.15	5.25	0.43

Table 1 reveals the descriptive analysis in terms of mean and standard deviation stress level of urban area was 19 ± 5.98 and the rural areas of state of Manipur was 16.15 ± 5.25 respectively. The descriptive mean scores of urban areas and rural areas of state of Manipur are revealed in figure 1.

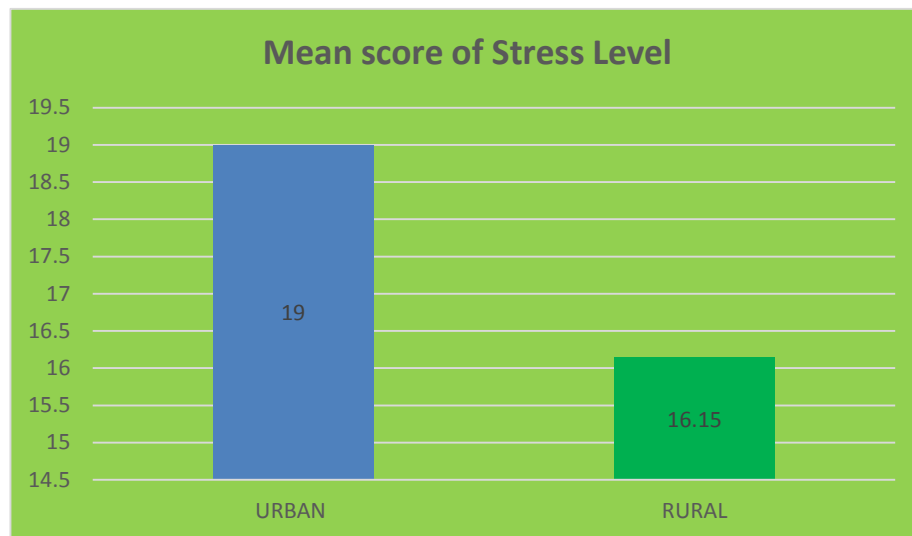


Figure 1. Means Scores of stress level between urban areas and rural areas of state of Manipur

Table 2. One way ANOVA on Psychological Skill among High Performer and Low Performer Soccer Teams

Groups	n	Mean	Std. Dv.	t-cal	t-crit	df	p
Urban	150	19	5.98	1.65	1.96	295	1.66
Rural	150	16.15	5.25				

*significant at 0.05 level [p value (295) = 1.66]

Table-2 reveals that there was no significant difference in stress level between Urban and rural areas of Manipur as p -value was greater than the tabulated value at .05 level of significance with 295 degree of freedom respectively.

4. DISCUSSION:

The study was mainly concerned in the comparison of stress level between urban and rural areas of Manipur during the lockdown of Covid-19 Pandemic by using PSS Questionnaire developed by Sheldon Cohen (1983) containing 10 items to the people of Hiyanglam (Rural) and Thangmeiband (Urban). After the statistical analysis of the data responded by the subjects, it was found that there was no significant difference ($p=1.65$) of stress level between the people of Urban and Rural Areas of Manipur. The reason may be because of Green zone in the state during the time of the data collection. Thus, there were no much tension and panic about the Disease in spite of some inconvenience in the daily work routine and restriction of the movement due to the lockdown in both Rural and Urban areas. The result of the present study was found similar in the study which was conducted by Jyoti Ahuja, Nidhi Kakkar and Preeti Dahiya (2015) and J L Bigbee (1987). But, the mean of the data of Urban and Rural areas reveals that the stress level of Urban areas are partially higher than the Rural areas. There may be various reasons of this differences. One of the reason may be due to the difference in the living style of the people of Urban and Rural areas, that is, the people of the rural areas are mainly engaged with Primary sector activities whereas, the people of the Urban are mostly engaged with Secondary and Tertiary Sector activities. As the people of Rural areas are engaged with the Primary Sector, there was no such tension of the food scarcities except some inconvenience of movement freely. But, in urban areas most of the people are dependent on the market and thus have more inconvenience above the restriction in movement. Other reason may be due to the difference of population density. Urban area has more population density than rural area and if any person is infected, the chances of spreading will be more in urban areas. Moreover, the first infected person of the state before becoming a Green Zone was found in the Urban area and thus there were

more panic in urban areas comparing to rural areas. Another reason may be that the people of urban areas are mostly confined in their home as there was more restriction of movement compared to the rural areas.

5. CONCLUSIONS:

Research scholar had taken this study with a consideration that there might be a difference in the stress level between urban areas and rural areas of state of Manipur. Result of the study indicates that there was no significant difference ($p=1.65$) of stress level between the people of Urban and Rural Areas of Manipur. The reason may be because of Green zone in the state during the time of the data collection. Thus, there were no much tension and panic about the Disease inspite of some inconvenience in the daily work routine and restriction of the movement due to the lockdown in both Rural and Urban areas. The result of the present study was found similar in the study which was conducted by Jyoti Ahuja, Nidhi Kakkar and Preeti Dahiya (2015) and J L Bigbee (1987).

6. PRACTICAL APPLICATION:

The findings of the study will help to understand the stress level between the people of Urban and Rural Areas of Manipur during the Coronavirus or COVID- 19 pandemic. The result of this study will be of immense support to the sports scientists, physician, teachers, and coaches, scholars to frame or modify the existing study.

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**EFFECT OF YOGA AND PRANAYAMA PRACTICE ON VITAL
CAPACITY AND BLOOD PRESSURE AMONG MIDDLE AGED MEN**

Dr. Deepak Ram Bairy

Deputy Director of Physical Education, MAHE Manipal-576104, Karnataka State.,

Email - deepak.bairy@manipal.edu

Abstract:

Yoga and physical education may be compared to two bullocks hitched to shaft as they are for the judicious blending of the education of the body and mind. There is no denial of the fact that yoga and physical education attach importance by gaining the benefits of physical health, mental health, physical fitness and peace of mind through their regular practices. Middle aged men having more health risk factors like cardio, low or high blood pressure etc., because majority of them become sedentary after attaining 40 years of age. The purpose of this study was to find out the effect of selected yoga and pranayama practice on vital capacity and blood pressure among middle aged men. Twenty middle aged male teaching and non-teaching staffs were selected from various departments of MAHE, except physical education. They are divided into two equal groups, in which Group – I (n=10) underwent yoga and pranayama practice, weekly six days (i.e. Monday to Saturday), for nine weeks between 6.00 am and 8.00 am and Group – II (N=10) control, which did not participate any training during the period of study. Vital capacity was assessed by using the wet spirometer and blood pressure was assessed by using sphygmomanometer. The Analysis of Covariance (ANCOVA) was used as statistical tool for the present study. The result of the study indicated that the vital capacity was increased and both systolic and diastolic blood pressure was decreased significantly for the yoga and pranayama practice group. Moreover, the result of the study was also shows that there was a significant difference was Occurred between the yoga and pranayama practice group and control group on selected criterion variables. It was concluded from the results of the study that the yoga practice with pranayama is better tool to increase the vital capacity and reduce the blood pressure for middle aged sedentary men.

Key Words: *Yogasana, Pranayama. Middle aged men, Vital capacity and Blood pressure.*

1. INTRODUCTION:

Yogasanas and Pranayama are India's unique contribution to Physical Education. Yoga and Physical Education may be compared to two bullocks hitched to shaft as they are for the judicious blending of the education of the body and mind. There is no denial of the fact that yoga and Physical Education attach importance by gaining the benefits of physical health, mental health, physical fitness and peace of mind through their regular practices. The ultimate aim of which is to enjoy a good health and optimum fitness. Yoga is providing a multidimensional development and it has now become an adjunct to physical education. Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inspiration. It is equal to the inspiratory reserve volume plus the tidal volume plus the expiratory reserve volume. A person's vital capacity can be measured by a spirometer which can be wet or regular spirometer. In combination with other physiological measurements, the vital capacity can help make a diagnosis of underlying lung disease. The unit that is used to determine this vital capacity is the milliliter. Blood is carried from the heart to all parts of your body in vessels called arteries. Blood pressure is the force of the blood pushing against the walls of the arteries. Each time the hearts beats (about 60-70 times a minute at rest), it pumps out blood into the arteries. Blood pressure is at its highest when the heart beats, pumping the blood. This is called systolic pressure. When the heart is at rest, between beats, blood pressure falls. This is the diastolic pressure.

2. METHODS:

This study under investigation involves the experimentation of the influence of yoga and pranayama practices on vital capacity and blood pressure among male teaching and non-teaching staff from various departments of MAHE. The study as confined to the male staff of various departments of MAHE during the year 2018-2019. Totally 20 subjects were selected and they were not familiar with yoga and pranayama. The subjects selected were in the age group between 30 and 35 years. The subjects were further divided into two equal groups such as yoga and pranayama practice group (n=10) and control group (n=10). The experimental group practiced yoga Sana and pranayama weekly six days. I.e. Monday to Saturday, between 6.00 a.m. and 8.00 a.m., for a period of nine weeks, which was considered adequate to indicate changes on selected criterion variables, if any. Vital capacity was measured by using respirometer and sphygmomanometer was used to assess the blood pressure (systolic and diastolic) of the subjects. The analysis of covariance (ANCOVA) was applied to find out the variance in each criterion variables. The level of significance to test and 'F' – ratio, obtained by the Analysis of Co-variance was fixed at 05 level of confidence.

3. RESULTS OF THE STUDY:

The data of blood pressure and vital capacity before and after the training of yoga practice and control groups were analyzed and presented in table –I.

Table - I. ANALYSIS OF COVARIANCE OF YOGA PRACTICE GROUP ON VITAL CAPACITY AND BLOOD PRESSURE.

Variable Name	Group Name	Yoga and Pranayama Practice Group	Control Group	'F' ration
Vital capacity (Lit.)	Pre – test mean S. D	3.25 + 0.112	3.36 + 0.186	0.136
	Post – test Mean S.D.	3.99 + 0.156	3.39 + 0.128	12.58*
	Adj. Post – test Mean	3.91	3.35	22.69*
Systolic Blood Pressure (mmHg)	Pre – test mean S. D	138.26+2.29	139.22 + 3.19	1.21
	Post – test Mean S.D.	136.18+1.22	138.15 + 2.19	5.23*
	Adj. Post – test Mean	135.11	138.26	8.99*
Diastolic Blood Pressure (mmHg)	Pre – test mean S. D	96.28 + 2.86	97.27 + 2.257	1.01
	Post – test Mean S.D.	94.16 + 3.87	97.01 + 2.165	5.27*
	Adj. Post – test Mean	94.71	97.16	15.27*

* Significant at .05 level of confidence (The value for significance at .05 with df 1 and 18 and 1 and 17 are 4.41 and 4.43 respectively)

3. RESULTS:

The above table shows that the pre, post and adjusted post-test means of yoga and pranayama practice group on vital capacity, were 3.25 + 0.112, 3.99 + 0.156 and 3.91 and control group were 3.36 + 0.186, 3.39 + 0.128 and 3.35 respectively. The adjusted post-test means 'F' ratio of 22.69 shows that there was a significant improvement in vital capacity after yoga and pranayama practice period. The pre, post and adjusted post-test means of yoga and pranayama practice group on systolic blood pressure, were 138.26 + 2.29, 136.18 + 1.22 and 135.11 and control group were 139.22 + 3.19, 138.15 + 2.19 and 138.26 respectively. The adjusted post - test means 'F' ratio of .99 shows that there was a significant decrease in systolic blood pressure after the yoga and pranayama practice period. The pre, post and adjusted post – test means of yoga and pranayama practice group on diastolic blood pressure were 96.28 + 2.86, 94.16 3.87 and 94.71 and control group were 97.27 + 2.257, 97.01 = 2.165

and 97.16 respectively. The adjusted post-test means 'F' ratio of 15.27 shows that there was a significant decrease in diastolic blood pressure after the yoga and pranayama practice period.

4. CONCLUSIONS:

- It was concluded from the results of the study, the vital capacity was improved and blood pressure (both systolic and diastolic) was decreased significantly after the yoga and pranayama practice period.
- When compared with the group, the yoga and pranayama practice group has significantly differ in both the criterion variables, such as, vital capacity and blood pressure (systolic and diastolic).

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Description of Yoga and Pranayama Practices

Weeks	Prescription of Asanas		Timing
I - III	<ol style="list-style-type: none"> 1. Padmasana 2. Suptavajrasana 3. Gomukasana 4. Bhujangasana 5. Dhanurasana 6. Chakrasana 7. Anuloma – Viloma 8. Ujjaiyi 9. Sitkari 		6.00 am to 8.00 am

	<ol style="list-style-type: none"> 1. Halasana 		
IV -VI	<ol style="list-style-type: none"> 2. Sarvangasana 3. Paschimottasana 4. Salabhasana 5. Padahastasana 6. Savasana 7. Sitali 8. Kapalabati 		6.00 am to 8.00 am
VII - IX	All Combination of Asanas and pranayama		6. 00 am to 8.00 am

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**COMPARATIVE STUDY OF THE SPORTS ACHIEVEMENT
MOTIVATION BETWEEN MALE AND FEMALE THANG-TA
NATIONAL PLAYERS**

¹Phairembam Jiteshwor Singh, ²Dr. R.K. Chandrakumar, ³Keisham Satyaranjan

¹Research Scholar, ²Associate Professor, ³Research Scholar,

^{1,3}Department of Physical Education and Sports Science, Manipur University

²Department of Physical Education, Health Education and Sports Science, D.M University, Imphal

Abstract:

Thang-Ta is an indigenous martial art of Manipur, a small state in the north-eastern part of India. It is also traditionally known as Huyel Langlon. Huyel means war Langlon means Knowledge of Art. It imparts physical, moral and spiritual education besides giving bodily exercise and training in the form of martial arts that aims at implanting habits which will be beneficial through life and useful both individual as well as the nation. Thang-Ta covers the integral part of Thang (sword), Ta (spear), Sharit-Sharak (defensive and Offensive techniques of fighting with or without weapons), Sajen Kanglon (physical exercise), Thengouron (spiritual arts), Ningsha Kanglon (breathing exercise), LayengKanglon (natural medical education), Hirikonba (meditation), and other vital arts of warfare. It was a compulsory subject in the military training while Manipur was a princely state. Thang-Ta competition and games were conducted before the king of Manipur.

Like physical fitness, the psychological status of male and female Thang-Ta players is different. However, such a comparative study of sex-wise difference on sports achievement motivation in Thang-Ta is measure. Thus the purpose of the present study was to compare the Sports Achievement Motivation between Male and Female National Thang-Ta players of Manipur. SAMT consist of 20 Multiple Choice Questions of 40 marks. Each Question carries two (2) marks for correct answer and zero (0) mark for wrong answer. The question measured the extent to which student were motivated towards sports achievement. Considering the population of the study, stratified random sampling technique has been employed and the sample size has been targeted in this investigation to 40 male and 40 female Thang-Ta players (age group: 14-17 years) who participated in the national level tournament. Statistical tool was used for accurate and systematic results. Independent t-test was use as Statistical Technique for comparative analysis. And the level of significant was set at 0.05 level. The result indicated that there is no difference on achievement motivation between male and female National Thang-Ta players of Manipur. Achievement Motivation between male and female National Thang-Ta players of Manipur is found same.

Key Words: *Sport Achievement Motivation, National male and female, Thang-Ta Players, Independent t-test, stratified random sampling, Manipur.*

1. INTRODUCTION:

Where there are human beings, there is behavior; and where there is a behavior whether individual or social-there is bound to be psychology, in one some form.¹The behavioral effects of motivation are vital to all achievement-oriented tasks, whether the situation is the laboratory, classroom, or playing field. How motivation functions in achievement setting is an important question for parents, teachers, coaches, and scientists alike. It is not surprising, then, that a common goal in social psychology and sports psychology is to develop knowledge to the extent that motivation can be optimized for all individuals facing achievement tasks. If this goal is achieved and equality of motivations and achievement striving is obtained, each individual will have the opportunity of reaching his or her athletic potential. Although it could never be said with certainty that an individual was fully developing this potential, those occasions when development was definitely halted could be recognized.²Within sports psychology, motivation is of central importance as research attempt to understand and explain human behavior within the realm of physical activity via participation and discontinuation motives, intrinsic and

extrinsic orientation and achievement goals. Motivation sustains life; it acts as a catalyst for our growth and development from a mere zygote state to adult stage. It inspires and empowers us to accomplish and achieve incredible things. It is a directing agent for our actions that aim at something higher, better and greater. All life-activity can be explained on the basis of motivation that we exhibit in greater or lesser degree in one situation or the other, and for one thing or the other.³No two individuals are alike in everything that goes to construct personality. This very well explains the individual differences that exist among people to do or achieve things in life. Achievement motivation remains a central issue within sport psychology as researchers continue to examine an individual's choice, effort, and persistence related to physical activity participation. Much research conducted in the area of achievement motivation has been based on Nicholls's (1984, 1989) goal perspective theory. The theoretical perspective states that individuals strive to display high ability and to avoid demonstrating low ability. In addition, definition of success and failure are based on two goal orientations. A task goal orientation is characterized by self-referenced perception of competence and emphasizes effort, task mastery, and performance improvement. An ego orientation includes norm-referenced perception of competence and an emphasis on winning and positive social comparison with others. Several factors influence the selection of the specific sports participation of the current study. Like physical fitness, the psychologist status of male and female Thang-Ta players is different. However, such a comparative study of sex-wise difference on sports achievement motivation in Thang-Ta is measure.

Many researchers have done research related to sports achievement motivation. It attempts to measure what an individual has learned – his or her present level of performance. Sport achievement tests are particularly helpful in determining individual or group status in sports settings. **Thakur et al.⁴ (2008)** studied to assess the personality traits, anxiety and achievement motivation level of volleyball players and non-sportsmen. The result of the study indicated that higher level performance groups were more extrovert than the low performance group and non-sportsmen, whereas, non-sportsmen were more neurotic than those of high and low performance groups. Cognitive anxiety and somatic anxiety of non-sportsmen was higher than intervarsity level of performance groups, was also better than non-sportsmen. Achievement motivation level of high performance groups was also better than non-sportsmen. **Tammy A. Schilling⁵ (2001)** investigates achievement Motivation among high school Basketball and Cross-Country Athletes. This research presents implications for practice and research, particularly in terms of situational factors (e.g., motivational climate) related to goal perspectives. The athletes in this study, particularly the basketball players indicated the importance of social factors in achievement motivation. They suggested that Cross-country Athletes have highest Motivational level than High School Basketball Players. In this study it was hypothesized that there would be no significant difference in Sports achievement motivation between male and female basketball players. Thus the purpose of the present study was to compare the Sports Achievement Motivation between 14 to 17 age group Male and Female National Thang-Ta Players of Manipur.

Singh et al. (2010)⁶ studied to compare the sports achievement motivation of male and female north zone badminton players. Results indicated that no significant difference was found between male and female north zone badminton players in their sports achievement motivation at 0.05 level of confidence. **Pooja, Durehaet al⁷ (2010)** studied on comparative study of incentive motivation, achievement motivation and anxiety level between national and international hockey players. As shown by the result of the study there was no significant difference found in incentive motivation, achievement motivation, state anxiety and trait anxiety between national and international hockey players and significant difference was found in sports competition anxiety. In order to test t test was used and 0.05 level of significance was used. The hypothesis that international and national players would not differ was accepted in achievement motivation and rejected in the case of achievement motivation, state, trait and sport competition anxiety. **Kauret al. (2007)⁸** purposed a study to find out the relationship between achievement motivation and pre-competition anxiety among inter university hockey players. Finding of the results reveals that there was a significant relationship between achievement motivation and pre-competition anxiety of interuniversity level male hockey players and there was a significant difference in the level of achievement motivation of high pre-competition anxiety group and low pre-competition anxiety group of interuniversity level male hockey players.

2. METHOD:

The data was collected on all the subjects by administering the M.L. Kamlesh Sports Achievement Motivation Questionnaire (SAMT).⁹ SAMT consists of 20 Multiple Choice Questions of 40 marks. Each Question carries two (2) marks for correct answer and zero (0) mark for wrong answer. The question measured the extent to which students were motivated towards sports achievement. The SAMT carrying a test retest reliability as 0.70, in a test of twenty statements the response value of which ranges between 0 – 40. The validity SAMT with the actual performance of the athletes had been worked out to be 0.55 which is marked.

Considering the population of the study, stratified random sampling technique has been employed and the sample size has been targeted in this investigation to 40 male and 40 female Thang-Ta players (age group: 14-17 years) who participated in the National level tournament. Statistical tool was used for accurate and systematic results. Independent t-test was use as Statistical Technique for comparative analysis. And the level of significant was set at 0.05 level.

3. RESULT:

Researcher selected and identified appropriate raw data group wise. Mean score, Standard Deviation of each group was calculated. After Calculating the Mean, Standard Deviation the researcher applied Independent 't' test or Student 't' test. The mean score of male Thang-Ta player and female Thang-Ta player are 30.99 and 29.8 respectively. And Standard deviation for male Thang-Ta player is 3.39 and for female Thang-Ta player is 3.21. shown in table no. 1. Figure below indicate the mean difference scores of male and female National Thang-Ta Players of Manipur.

Table 2, it reveals that 't' value is 1.50 smaller than table value is 2.6 ($1.50 < \text{table value} = 2.6$). It shows that 't' value (1.50) is less than table value (2.6), which is not statistically significant at 0.05 level. Hence from the above analysis, it is known that there is no difference on achievement motivation between male and female National Thang-Ta players of Manipur. Achievement Motivation between male and female National Thang-Ta Players of Manipur is same.

Table 1. Mean and standard deviation of male and female National Thang-Ta Players of Manipur

Groups	Numbers of players	Mean	Std. Deviation
Male	40	30.99	3.39
Female	40	29.8	3.21

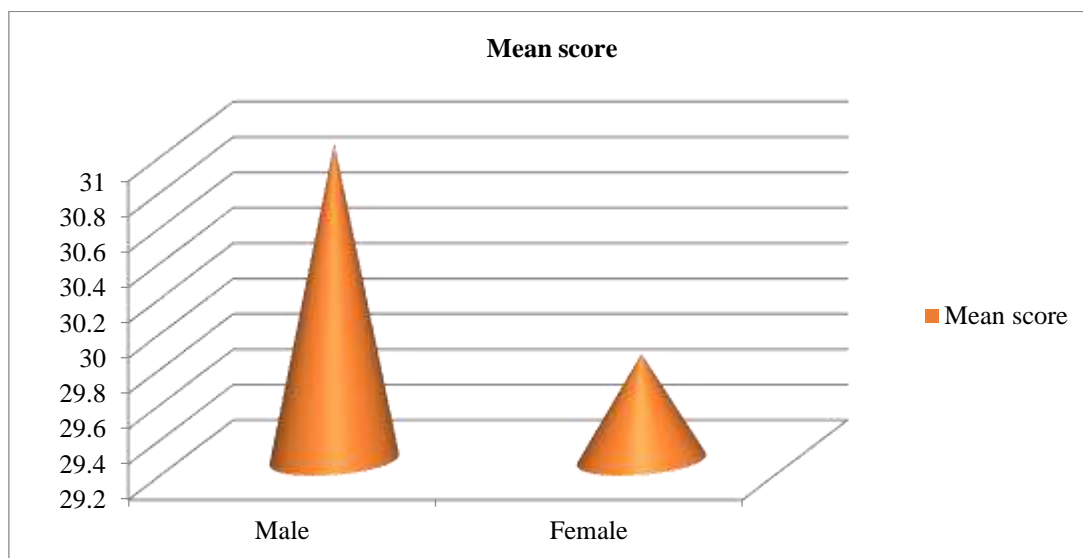


Figure 1. Means Score of male and female National Thang-Ta Players

Table 2. Independent "t" test on sports achievement motivation level between male and female National Thang-Ta Players of Manipur.

Group	N	Mean	M.D	S.D	df	"t" value	Table Value
Male	40	30.9	1	3.39	78	1.50	2.6
Female	40	29.8		3.21			

*Significant at 0.05 level of confidence

4. DISCUSSION:

Till few decades back it was believed that females possess a lower intelligence than the male. It was also a belief that overall psychological states of female are lower than the males. **Khan et al. (2010)**¹⁰ studied to find out the level of achievement motivation of Asian players. Results of the study revealed that maximum

Asian players have high and moderate level of achievement motivation. Dureha et al. (2010)¹¹ studied to compare the status of national and international hockey players on the selected psychological variables. As shown by the result of the study there was insignificant difference was found in incentive motivation, achievement motivation, state anxiety and trait anxiety between national and international hockey players and significant difference was found in sports competition anxiety. In order to test 't' test was used and 0.05 level of significance was used.

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DEMOGRAPHIC PROFILE OF SPORTS PERSON

¹**Dr. Suresh Patil,** ²**Mr. Hanamanth .M Talawar**
¹Assistant Professor, ²Physical Education Director,
¹Physical Education, College Of Horticulture Bagalkot, Karnataka, ²BGMIT, Mudhol,
Corresponding Author Email - ¹sureshbp.1985@gmail.com, ²talwarrahul11@gmail.com

Abstract:

Sports have been on the world map from time immemorial. The importance and recognition, which sports have received from government, press and public indicates that sports are no more taken up for mere recreation or prestige purpose but also for mental and physical health of an individual. The participation in sports rather influence all aspects of athlete's personality and help in gaining poise, and balance, refreshing the spirits, renewing the inner springs of faith and courage, mastering the skills and meeting the strains of modern life with ease and calmness. At the same time the participation in modern sports is influenced by various physical, physiological, sociological and psychological factors. Until recently, the coaches have been paying inadequate attention to the social and psychological factors which although have been proved to contribute to performance in events in the higher competitive sports. So now the sports trainers and coaches have started giving more importance to the impact of sociological factors on the psychological conditioning or building the mental make-up of the players and its resultant influences on their performance in the national and international competitions.

Key Words: *Demographic Profile of Sports Person, modern sports is influenced by various physical, physiological, sociological and psychological factors.*

1. INTRODUCTION:

The participation in modern sports is influenced by various physical, physiological, sociological and psychological factors. During training, besides good physique and fitness of the athlete, main emphasis is laid on the development of various types of skills involved in the game as well as on teaching the strategies, techniques and tactics of the game. Until recently, the coaches have been paying inadequate attention to the social and psychological factors which although have been proved to contribute to performance in events in the higher competitive sports. It is only recently that sports administrators and coaches have realized the importance of the psychological preparation and training of players to enable them to bear the strain and stresses inherent in sports participation. So, now the sports trainer and coaches have started giving more importance to the psychological conditioning or the building the mental make-up of the players before their contests in the national and international competitions. The aim of higher sports in this age of competition is to win in international meets or to attain peak performance in competition. And it is on this factor that the coaches try to concentrate. In order to reach the target and accomplish the social expectation; the players also work hard, ignoring their comforts in their daily lives and practice for many hours a day. Unless the players are prepared mentally and psychologically for the contest, they are not able to achieve the desired results. The psychological training has to be provided to the players by the coaches to face stressful situation occurring during the competition. In modern competitive sports, psychological preparation of a team is as important as teaching them the different skills of a game with scientific methods. In these days, the teams are prepared not only to play, but to win the games. And for winning the games, it is not only the proficiency in the skills, which matters, but also the spirit and attitude of the players with which they play. The mental attitude of each individual player as well as of the team can help or hinder their performance. Most of the coaches agree that the physical characteristics, skills and training of the players are extremely important, but they also feel that good mental or psychological preparation for competition is a necessary component for success.

The present investigation pertaining to “**Socio-Economic Status and Sex on Psychological variables of the sportsperson**” is in the framework of ex-post-facto research. The particulars of samples, tools, collection of data and statistical techniques are given as under;

Sample are selected from all India interuniversity players representing from different university of India

1. **Sample:** The total sample consists of 400 sportsperson belonging to high socioeconomic status and low socioeconomic status. The age levels ranging from 19-25 were selected randomly. The sample design is given below:

The Variables:

The Socio Economic Status and nature of participation are independent variables.

The dependent variables are,

- a) Aggressive Behavior
- b) Anxiety
- c) Locus of control
- d) Will to win

2. COLLECTION OF DATA:

To meet the objectives of the present study the data was collected at UHS, Bagalkot administering personal-bio-data schedule, SES Scale, Emotional Intelligence Scale and Will to Win Scale. The testing was done in two Stages. At the first stage SES Scale was administered to the total 400 respondents to categorize them into the Low Socioeconomic Groups and High Socioeconomic Groups, taking the first and the third quartile as cut off points respectively. At the second stage the emotional intelligence scale, will to win scale, were administered on the groups of high socioeconomic status, and low socioeconomic status. The responses were scored and terminated.

Tools:

1. Personal Data Schedule:

This is framed to collect information regarding the personal and socio demographic status of the sample.

2. Socio-economic Status Scale:

The Socio economic status scale developed by Hardwar and Chauvin (1984) has been used in the present study to measure social, educational, professional and economic perspectives of the participants scoring was done according to scoring key given in the manual.

Scoring: Scoring of the test is very easy and of a quantitative type. Scoring key provides the weight age score for each item. Every alternative of any of the item has only one weighted score which will serve to provide the score if any ticked mark is present in the horizontal plane for father, mother and case (i.e., the tested). The scoring key is to be placed vertically between the two assigned points on the test. The separate scores for each area are then to be totaled vertically. These totals of the scores for each separate area are thereafter to be put in big boxes provided at the vertical end of each area for father, mother and case. The same process of scoring has to be followed in respect of each page of the scale. It has to be borne in mind very clearly that there are separate scoring keys for each page of the test and the keys have been numbered accordingly.

3. INTERPRETATION:

Interpretation of any status or all the nine types of statuses can be made with the help of t-scores. Categories of any status can be ascertained with the help of Table I given below:

Category	Range of Scores
1. Upper class	70 and above
2. Upper middle class	60-69
3. Middle class	40-59
4. Upper lower class	30-39
5. lower class	29 and above

Scoring (Aggressive Behavior)

Sports Aggression inventory consists of 25 items in which 13 items are keyed “Yes” and rest of 12 items are keyed “No”. For each item score 1 is given to the following responses. Maximum score on the inventory may be 25 on this test and minimum score being 0.

ITEM NO	RESPONSES	ITEM NO.	RESPONSE
1.	Yes	14.	Yes
2.	No	15.	No
3.	No	16.	Yes

4.	Yes	17.	No
5.	Yes	18.	Yes
6.	Yes	19.	No
7.	No	20.	No
8.	No	21.	Yes
9.	Yes	22.	Yes
10.	No	23.	No
11.	No	24.	Yes
12.	Yes	25.	Yes

.The will to win and sport aggression questionnaire developed and standardized by A. Kumar have been used.

Scoring (Will to Win)

Will to win questionnaire consists of 14 items, in which 7 items are keyed true and rest of 7 falls. For each item 1 score should be given for following responses so that maximum score may be 14 on this questionnaire and minimum being 0 :

ITEM NO	RESPONSES	ITEM NO.	RESPONSES
1	Yes	8	No
2	Yes	9	Yes
3	Yes	10	No
4	No	11	No
5	Yes	12	Yes
6	No	13	No
7	No	14	Yes

Will to win is defined as the extent to which a person desires to reach some standard of excellence or to defeat an opponent. People with high will to win feel that winning is extremely important and that it is the main reason for competing. The athlete high in Will to Win competes mainly to be first and may have something of a “Win at all Costs” attitude. Low will to win indicates that the competition cares less about winning parse or competes for other reasons. Further, the outcome of the contest is seen as less consequential to self-esteem or personal identity.

The Locus of Control Scale developed by Romapal has been used in the present study. The scoring procedure of the present scale is very simple. One has to give 2 marks to all those items, which are related to external (i.e. to all B statements of item No. 1,4,5,6,7,8,10,13,14,15,17,18,19,20, 22,23,24,25,27, 30,31,32,33, and all the A statements of items No. 2,3,9,11,12,16,21,26,28, 29,33,34,35) and 1 marks to all those items which are related to internal (i.e., to all the A, statements of item no. 1,4,5,6,7,8,10,13,14,15,17,18,19,20,22,23, 24,25,27,30,31,32,33 and to all the B. statements of item no. 2,3,9,11,12,16, 21,28,29,32,34,and 35). Later one has to add all the scores and makes interpretation of the total obtained scores of the subjects according to interpretation procedure.

Anxiety scale: In present study after verifying the merits and demerits of the test Sinha’s comprehensive anxiety test (SCAT) was used as a measure of trait anxiety. The test has been developed by A.K.P. Sinha and L.N.K. Sinha. Though other anxiety scales were also available for use in the Indian Setting (viz. S.D. Kapoor’s adaptation of Cattells IPAT anxiety scales questionnaire; Durganand Sinha’s W.A. Sinha Anxiety Scale based on Tylor’s Manifest Anxiety Scale. Hindi adoption of Tylor’s MAS by B.N. Sinha and R.C. Thakur: Hindi adoption of Spielberger’s state trait anxiety inventory by Silberberg, Sagar Sharma etd., This is one of the original scale develop in this country. The test developer says that: “The disagreement and confusion entering around the concept of anxiety during the past three decades led the present author to develop a comprehensive test of anxiety covering a variety of anxiety increase by different investigators from time to time (1976)”. This test measures anxiety as an enduring personality trait. Sinha’s comprehensive anxiety scale is self-administrating inventory consisting of 90 items. There is no time limit for completing the test. The teste responds by choosing either the ‘Yes’ or ‘No’ response to each item. No item is left unanswered. Reliability and validity: Test-retest and split half reliabilities of the test have been found to be 0.85 and 0.92, respectively. The validity of the test has been established by correlating the test with Taylor’s MAS ($r=0.62$) with Kapoor’s adaptation of Cattells’ IPAT anxiety scale questionnaire ($r=0.59$)

SCORING: For every 'No' answer (positive) to negative question 1 mark and (zero) to every yes to negative question was given.

4. STATISTICAL ANALYSIS:

Keeping the objectives of the study in view, the following statistical techniques were applied.

- The Mean Sd and t-test was used to assess the significant differences between SES and sex and Sportsperson non-Sportsperson with dependent variables.
- The product movement correlation to assess the inter correlation between SES and other psychological variables.

It is clear that SES, which is a composite variable, including higher income, higher education, higher occupational status of parents, higher standard of living, high social status, undoubtedly played a major role in determining their aggressive behavior, anxiety behavior. It was also examined in the study that high SES provides the sportsperson and non-sportsperson all the required ingredients to excel in any competitive events. It prepares skills and techniques that are necessary for achieving success. It also provides basic amenities for the development of athletic qualities. Therefore, the high SES sportsperson and non-sportsperson are expected to perform in higher ratio than those who are of low SES. The greater avenues for sports facilities certainly improve the performance of those who belong to that level of SES. The study reveals that SES is not only a potential contributor to the performance of sportsperson and non-sportsperson but would be also determining their behaviors like aggression, locus of control, will to win and emotional intelligence. The high SES, with all the amenities, like higher income, higher education, and prestigious occupation of parent's lays groundwork for preparation of effective and successful sportsperson and non-sportsperson. Obviously, an athlete of high SES is found to exhibit more sports talents in any competitive event than the low SES sportsperson and non-sportsperson but also would be influenced to adopt the positive personality traits.

For example, the low SES sportsperson and non-sportsperson fail to perceive any causal relationship between their actions and the reinforcement that follow. The low SES sportsperson and non-sportsperson tend to hold responsible their luck, stars, fate or chance, for both failures and successes. They seldom believe in their capabilities or shortcomings. Such people believe that they have little or no control over the occurrence of reinforcements. Thus, people with external locus of control perceive no causal relationship between action and reinforcement. On the contrary, the high SES sportsperson and non-sportsperson feel that they are responsible for all happenings in their life and other factors like fate, chance, luck or stars have little or nothing to do in their life. Such internal controllers perceive their behaviors as a major determinant of the reinforcements received in any situation. On the other hand the low SES sportsperson and non-sportsperson would be in constant trouble with their disadvantages like poverty, low income, low standard of living, low social prestige, pessimism, low aspirations and frustration would make him to lose his control over their emotions and as a result he may gain very less level of emotional intelligence due to their inherent problems. But the finding of the present study reveals some exceptions in which the low SES sportsperson and non-sportsperson have shown the emotional intelligence on par with the high SES sportsperson and non-sportsperson. The present study has also found the significant relation between SES and aggression of sportsperson and non-sportsperson as aggression, which is also a component of psychological factor has been viewed from different perspective by different people. Aggression is not considered to be synonym for motivated performance or assertiveness or dominance. Rather it is viewed as injurious and destructive behavior that is socially defined as aggressive on the basis of variety of factors, some of which reside in evaluators rather than in the performer. As such it is closely analogous to the term violence. It is believed that the low SES sportsperson and non-sportsperson will have high aggressive behavior due to their perceived injustice, inequality, low social prestige and lack of opportunities. As a result low SES sportsperson and non-sportsperson will lose control over their emotions and become more aggressive though it is not conducive but harmful for their performance. On the other hand, the high SES sportsperson and non-sportsperson will be adequately or moderately aggressive in their behavior due to their proper training and rich exposure and experience of participating in different sports competitions would help them to gain control over their anxiety and will not adopt the aggressive behavior which is not good for performance.

5. CONCLUSION:

Sports have been on the world map from time immemorial. The importance and recognition, which sports have received from government, press and public indicates that sports are no more taken up for mere recreation or prestige purpose but also for mental and physical health of an individual. The participation in sports rather influence all aspects of athlete's personality and help in gaining poise, and balance, refreshing the

spirits, renewing the inner springs of faith and courage, mastering the skills and meeting the strains of modern life with ease and calmness. At the same time the participation in modern sports is influenced by various physical, physiological, sociological and psychological factors. Until recently, the coaches have been paying inadequate attention to the social and psychological factors which although have been proved to contribute to performance in events in the higher competitive sports. So now the sports trainers and coaches have started giving more importance to the impact of sociological factors on the psychological conditioning or building the mental make-up of the players and its resultant influences on their performance in the national and international competitions. Since last few decades several scholars have laid importance on probing the relation between sociological and psychological factors and their impact on the individuals. It has also been proved beyond doubt that there is a strong link between the socio-psychological factors having their impact on the individuals. For this reason, the changes in the behavior of the individuals are attributed to the changes in their sociological as well as psychological factors. In Indian context, till recently not much interest has been devoted to understand the influence of sociological factors on the psychological well-being or of the sportsperson and non-sportsperson. As very large-scale socio-cultural and economical inequalities exist in India, many studies tried to understand the close relationship between sociological and psychological factors, gains much importance and relevance. It is in this background that the present study was undertaken to probe the socio-psychological correlation between aggressive behaviors, Anxiety, locus of control, will to win and emotional intelligence of sportsperson and non-Sportsperson.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

DIFFERENCE IN SELECTED MOTOR FITNESS COMPONENTS AMONG YOUNG SWIMMERS AND GYMNASTS OF SAI, IMPHAL

Loitongbam Baby Sujata Devi

Research scholar

Department of Physical Education and Sports Science
Manipur University, Canchipur, Imphal west, 795003.

Abstract

Objective: Limited study on young athletes and motor fitness had been reported in India but so far in Manipur this area of study has very least exploited. Hence, my study aims to bring out the differences in the selected motor fitness components (speed and flexibility) among the Swimmers and Gymnast of SAI. Khuman Lampak, Imphal

Materials and Method: For the study a total 30 male players, 15 each Swimming and Gymnastics, with age ranging from 15 to 18 years were randomly selected. The speed was measure using 30m sprints test recorded in seconds and flexibility was measured by sit and reach test recorded in centimeter. The data was analyze using ms excel analysis toolpak by running “t” test, significance at 0.05.

Conclusion: Significant difference was observed between the selected motor fitness of the Swimmers and Gymnasts. The statistical finding reveal that Gymnast has higher speed and better flexibility than Swimmers.

Key Word: Motor fitness, Swimming, Gymnastic, Speed, Flexibility, Young, 30m sprint, sit and Reach.

1. INTRODUCTION:

Motor fitness is a general criterion that measures all the components of physical fitness. The physiology and various functioning of our organs are not known by the person but can certainly measure their strength, powers, speed, etc. (Brock *et al.*, 1941). Motor fitness is the athletic ability that measures our performance in sports. Training may indirectly improve their fitness attributes and may assure the best performance. Athletes must be aware of the various need of their fitness and training and work on the area needed, Motor fitness refers to how athletes do in his / her sports and is a blend of speed, balance, agility, coordination, time of reaction, and power (Paul, 2020). Individual needs and factors should be the foremost priority in training as the same training is ineffective for all trainers and as everyone has different biological time and hence demands the need for indifferent trainings. So personalized training probably plays a rigid role in enhancing performance. Motor fitness is often used interchangeably with physical fitness. Motor fitness is the efficiency of our movement's embracing all the aspect of our physical fitness component, health related component and motor performance components (Sumia, 2018). Speed is the determining factors of players performance, essential to response to a stimulus or to process information to execute motor action specifically to sports (Sportsnova, 2016). Speed can be accelerative speed, pure speed and speed endurance. Accelerative speed, can be is seen in sprints of up to 30 meters. Pure speed can be seen in sprints of up to 60 meters. Speed endurance can be seen in sprint with short recovery periods (BTEC, n.d). Flexibility is the ability to move the joints effectively through complete range of motion. It is vital for independency in movement, providing better elasticity of our muscles rendering us pain free movement. It works by Increasing Range of Motion. Flexibility training can ease soreness and stiffness among high performance athletes, To achieve peak performance our muscle need to display the power and speed at great extent, this require the muscle stretchiness, very tight muscles may not exhibit muscles explosiveness and hence impaired performance (Gummelt, 2015). Flexibility can be static and dynamic stretching, static while stretching with no movements and dynamic stretching while movement (Rettner, 2016). Swimming and Gymnastic both being competitive sport, require high demand of motor fitness and athletes ability to skillfully execution of movements, any error in the motor fitness profile drastically drop the performance. Swimmers and Gymnast of Manipur lag behind the race of top form competition. It get less recognition in international competition, this may be due to limitation in related study and analysis. To optimize

the performance it need to study the different area related to the sports .It need to study the various factors that enhance the performance physiologically, biomechanically, kinesiology. With the very limited numbers of study on sports in Manipur, researcher intended to study on Differences of selected motor fitness components among Young Swimmers and Gymnasts of SAI, Imphal.

2. METHODOLOGY:

2.1 Subjects:

Total 30 male subjects were randomly selected for this study. 15 Swimmers and 15 Gymnast from Sports Authority India ,Khuman Lampak of age group 15-18 years and are regularly practicing.

2.2 Variables:

1. Speed
2. Flexibility

2.3 Tests: Following test were administrated for the present study

1. 30 m sprint test: Speed
2. Sit and Reach test: Flexibility

2.4 Data collection:

Data were collected in the month of March 2017 when they were attending their regular classes. Necessary instruction were given to the subject before administration of test. Data were collected during evening training session. Speed was measure using 30 m sprint test and the subjects was asked to sprint from the starting line and run as fast as they could to reach the 30 m marked end point. Two trials are recorded, best time was recorded in nearest decimal while Flexibility was assessed with sit and reach test. With both bare feet against the Flexomeasure box, the subject was asked to glide forward placing both hands on top of each other, the score was recorded to the farthest point where the finger tip reach. Average measurement of three attempts was recorded.

2.5 Tools and Technique:

1. 30 m fly: Measuring tape, stopwatch, cone markers.
2. Sit and reach test: Flexomeasure Case

2.6 Statistical Method:

1. To obtain data were analyze by applying independent “t” test in order to determine the differences in speed and flexibility.
2. The level of significance was set up at 0.05.
3. The data was analyzing using ms excel data analysis toolpak software to obtain more reliable result.

3. RESULTS:

The mean speed and standard deviation of swimmers and gymnasts were 3.88 ± 0.64 and 4.55 ± 0.56 respectively. The mean flexibility of swimmers and gymnasts were 20.8 ± 4.3 and 24.1 ± 3.2 respectively.

As shown in the table1, the mean difference of speed for gymnasts is greater than swimmers i.e. $4.55 > 3.88$ with SD of 0.64 and 0.56 respectively .The test for significance, by ‘t’ test reveal that tabulated ‘t’ is 3.00 which is greater than 2.02 at 0.05 level of significance and even, $P < 0.01$ This shows that Gymnasts have higher speed than the Swimmers. Hence reject null hypothesis.

Table 1. Comparison of Means of speed and flexibility of swimmers and gymnasts.

Group	Mean	SD	T value	P value
Swimmers	3.88	0.64	3.00	0.002*
Gymnasts	4.55	0.56		

*Statistically significant

SD: Standard Deviation

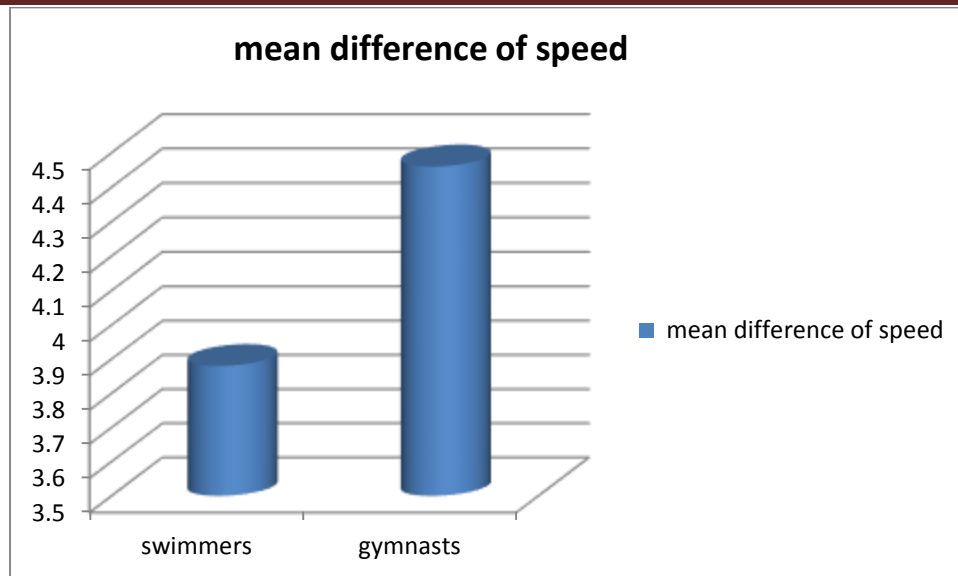


Figure 1. Mean Difference in speed for Swimmers and Gymnasts.

As shown in the table 2, the mean difference of flexibility for gymnasts is greater than swimmers i.e. $24.1 > 20.8$ with SD of 3.2 and 4.3 respectively. The test for significance, by 't' test reveal that tabulated 't' is 2.40 which is greater than 2.02 at 0.05 level of significance and $P < 0.05$. This shows that Gymnasts have better flexibility than the Swimmers. Hence reject null hypothesis.

Table 2: Mean difference of flexibility for swimmers and gymnasts

Group	Mean	SD	T value	P value
Swimmers	20.8	4.3	2.40	0.011*
Gymnasts	24.1	3.2		

*Statistically significant
SD: Standard Deviation

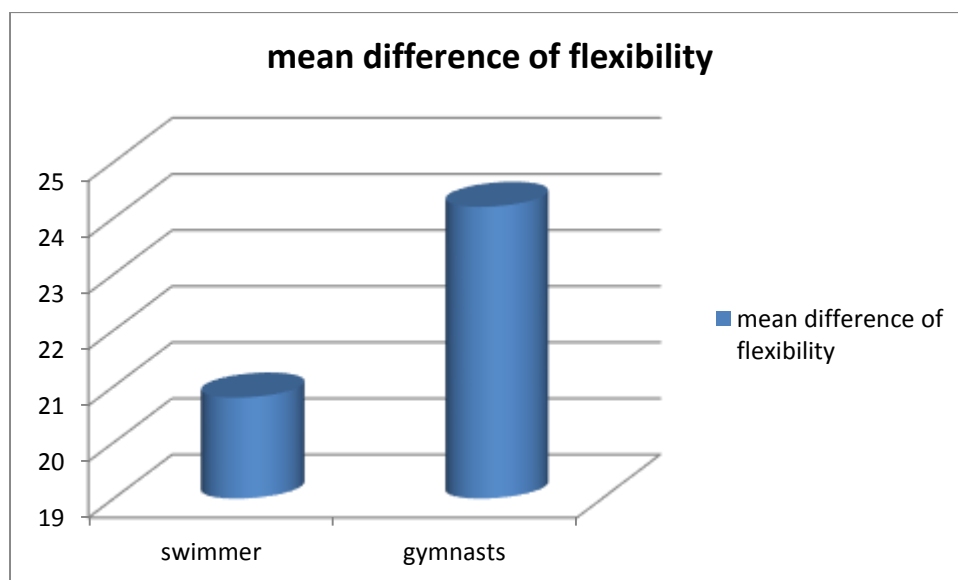


Figure 2. Mean difference of flexibility for swimmers and gymnasts

4. DISCUSSIONS AND FINDINGS:

Major finding of this study is that Gymnasts have higher speed and better flexibility than Swimmers. Several researchers conducted the study and analyze the effect of various motor fitness components on sports and performance, but the studies are very rare or is not seen in Manipur context. Sumia(2016)in her study found that intercollegiate swimmer have higher speed than football player however present study found that gymnast has higher speed than swimmers. Majumdar(2014) comparison between dancer and gymnast reveal that

gymnast has satisfactory flexibility than dancer, this study can be supportive to presents study. Bhowmick (2002) studies on physical fitness profile between gymnastic, boxing, swimming, track and field found that Gymnastic have highest in speed while Swimmer lowest in the test score, this support the present study of Gymnast having higher speed than Swimmers. Many factors may affect the findings; it may be due to type of training program, frequency of training, intensity and dietary habits etc.

5. CONCLUSIONS:

The researcher compares the selected motor fitness components among young Swimmers and Gymnasts. On the basis of findings and limitation of study, there is significant difference among the Swimmers and Gymnast on the selected motor fitness variables. The Gymnast have higher speed than Swimmers, they also reveal better in Flexibility than Swimmers. Therefore, reject the null hypothesis and accept the research's hypothesis.

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STUDENTS EVALUATION ABOUT THEIR FITNESS TRAINER IN THE COLLEGE GYMS OF PUNE CITY

Dr. M. R. Gaikwad
Director of Physical Education
M. M. College of Commerce, Pune

Abstract:

Physical inactivity remains a serious issue in colleges. The purpose of the research was to study the students' evaluation about their fitness trainer in the college gyms of Pune city. 50 students aged between 18 to 22 years, who have taken fitness training for last six months, were selected as sample for the study by using purposive sampling technique. Close ended questionnaire which was consisted of 12 questions pertaining to motivation, training, behavior and goals developed by the researcher was administered on students who responded to each question by selecting either Yes or No option. If the student responds Yes to all the questions then the instructors gets maximum 12 points and vice versa. On analyzing the data using descriptive statistics it is observed that the mean score of fitness trainer's evaluation by the students is 17.10 (+/- 5.57). From the above observation it was concluded that on an average fitness trainer perform 68% of the activities that he is supposed to perform to the satisfaction of his students.

Key Words: Fitness trainers, students 'evaluation, college gym

1. INTRODUCTION:

Physical Education is a part of educational system. It is related to multi-cell process or mutual co-operation. The development of nation depends on the existing education system in that country. Sport is an important element in education. To provide experience for the development of the students is significant function of education. Health is wealth for the happy life. The man that enjoys a sound health is hardly tired by physical or mental activity. So sport and the Gym activities related to sport are beneficial to physical and mental condition. The development of a sportsman depends on his strength, endurance, work power, speed, agility, elasticity and skills. For the development of these qualities, proper training, science and bio-technique science is referred. For the development of physical fitness, the study of development of cardio pulsing and heart work, muscles and other institutions of body is considered very important.

Today many people are striving for optimum health. They are changing their diets, getting more exercise and having their blood pressure and cholesterol level checked regularly. They have realized that medical science can prolong their lives but that their own choice and behaviors determine how healthy and full those live well to be healthy throughout their entire lives. Today students have realized the importance of health and fitness and are attracted towards the College Gym. Trainer may specialize in a certain training type, philosophy, performance type, exercise modality. In general most trainers develop exercise prescription plan for aerobic exercise, resistance exercise and or flexibility training with aerobic exercise prescription. Trainer determines the type of exercise, duration of exercise, frequency of exercise. For resistance exercise prescription, the type of exercise, total sessions, volume, rest period, frequency and intensity are determined. Trainer may also be involved in prescription of starching routines or other approaches while some discuss nutrition. Students since have lack of knowledge about exercise, completely rely and depend upon the fitness instructors to keep their health and fitness. Now the question arises –“Are these professionals possessing the appropriate and adequate knowledge regarding the fitness requirement?” Keeping all this in mind the researcher has taken up this study to assess the student views towards the fitness trainer in the College Gym of Pune city.

2. METHODOLOGY: Methodology is the description of procedure or technique adopted in research study. For this research, researcher had undertaken descriptive survey method. This study deals with the survey of Students Evaluation of their Fitness Trainer working in the College Gyms of Pune city.

2.1. Sample: 10 college gyms were selected by using purposive sampling technique for the Pune city. Further, from these selected college gyms 5 students each who were taking training for six months were selected. (50 students) For the collection of data, researcher has developed a questionnaire on Students Evaluation of Fitness Trainer containing 12 questions based on the major areas of physical fitness viz. gym activity, principles of training, diet and nutrition and behavior of trainer with students.

3. ANALYSIS AND INTERPRETATION: After collection of data, it was processed through a series of statistical analysis. The results of data analysis along with scientific as well as logical interpretations have been presented and discussed.

Test statistic for question

Table 1. Before joining the Gym did the Trainer conducts a preliminary personal fitness test?

Yes	No	Chi square	Sig
37	13	11.52	0.0006

Table 1 shows that out of 50 students, 37 students answered 'Yes' and 13 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 11.52 which was significant at 0.05 significance level ($p=0.0006$). Hence it was concluded that most of the students were assessed by their trainers at their training program.

Table 2. Fitness trainer takes a scientific warm up at the beginning and cooling down/stretching at the end?

Yes	No	Chi square	Sig
38	12	13.52	0.0002

Table 2 shows that out of 50 students, 38 students responded Yes and 12 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 13.52 which was significant at 0.05 significance level ($p=0.0002$). Hence it can be concluded that most of the trainers were taking a scientific warm up at the beginning and cooling down/stretching at the end.

Table 3. Fitness trainer target the weak areas identified?

Yes	No	Chi square	Sig
28	22	0.72	0.396

Table 3 shows that out of 50 students, 28 students responded Yes and 22 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 0.72 which was not significant at 0.05 significance level ($p=0.396$). This indicates that the most of the fitness trainers were lacking in identifying and targeting the weak areas of their students.

Table 4. Fitness trainer explained how important it is to do as well as exercise and the importance of lower back exercise?

Yes	No	Chi square	Sig
32	18	3.92	0.0477

Table 4 shows that out of 50 students, 32 students responded Yes and 18 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 3.92 which was significant at 0.05 significance level ($p=0.0477$). Hence it is observed that most of the fitness trainers understand that a core routine is not a series of floor exercise.

Table 5. Fitness trainer explains the Cardio alone is an inefficient workout?

Yes	No	Chi square	Sig
32	18	3.92	0.0477

Table 5 shows that out of 50 students, 32 students responded Yes and 18 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 3.92 which was significant at 0.05 significance level ($p=0.0477$). It indicates that most of the fitness trainers do not explain to their students that Cardio alone is an inefficient workout.

Table 6. The Fitness trainer changes the exercise routine periodically?

Yes	No	Chi square	Sig
38	12	13.52	0.0002

Table 6 shows that out of 50 students, 38 students responded Yes and 12 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 13.52 which was significant at 0.05 significance level ($p=0.0002$). This shows that Fitness trainer changes the exercise routine of the students periodically.

Table 7. The Fitness trainer has a basic understanding of nutrition?

Yes	No	Chi square	Sig
32	18	3.92	0.0477

Table 7 shows that out of 50 students, 32 students responded Yes and 18 responded No. When above responses were analyzed with chi square test the calculated value of chi square value was found 3.92 which was significant at 0.05 significance level ($p=0.0477$). This indicates that most of the fitness trainers have a basic understanding of nutrition.

Table 8. Does your Fitness trainer motivates you to exercise regularly?

Yes	No	Chi square	Sig
37	13	11.52	0.0006

Table 8 shows that out of 50 students, 37 students answered 'Yes' and 13 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 11.52 which was not significant at 0.05 significance level ($p=0.0006$). This indicates that Fitness trainers motivate their students to exercise regularly.

Table 9. Is your Fitness trainer punctual in the gym?

Yes	No	Chi square	Sig
31	19	2.88	0.0896

Table 9 shows that out of 50 students, 31 students answered 'Yes' and 19 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 2.88 which was not

significant at 0.05 significance level ($p=0.0896$). Hence it can be concluded that most of the students say that their Fitness trainers are not punctual in the Gym.

Table 10. Does your Fitness trainer tell you benefits of exercise?

Yes	No	Chi square	Sig
35	15	8.00	0.0046

Table 10 shows that out of 50 students, 35 students answered 'Yes' and 15 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 8.00 which was not significant at 0.05 significance level ($p=0.0046$). This indicates that most of the Fitness trainers mention the benefits of exercise to their students.

Table 11. Does your Fitness trainer give a variety in the training?

Yes	No	Chi square	Sig
31	19	2.88	0.0896

Table 11 shows that out of 50 students, 31 students answered 'Yes' and 19 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 2.88 which was not significant at 0.05 significance level ($p=0.0896$). This indicates that most of the Fitness trainers give variety in their training program.

Table 12. Does your Fitness trainer review your goals with you regularly?

Yes	No	Chi square	Sig
35	15	8.00	0.0046

Table 12 shows that out of 50 students, 35 students answered 'Yes' and 15 responded 'No'. When above responses were analyzed with chi-square test, the calculated chi square value was found 8.00 which was significant at 0.05 significance level ($p=0.0046$). This indicates that most of the Fitness trainers review their student's goals with them regularly.

4. RESULTS:

To know the students evaluation about their Fitness trainer in the college gyms of Pune city, questions were asked findings of those questions are given below:

- 37 students answered 'Yes' that their trainers conduct the preliminary personal fitness test before joining the gym.
- In college gyms from Pune city 38 answered 'Yes' that their trainers are taking a scientific warm up at the beginning and cooling down/stretching at the end.
- Most of the fitness trainers were lacking in identifying and targeting the weak areas of their students.
- 32 Fitness trainers understand that a core routine is not a series of floor exercise.
- 32 fitness trainers do not explain that cardio alone is an inefficient workout to their students.
- 12 Fitness trainers do not change the exercise routine of their students periodically.
- 32 Fitness trainers have a basic understanding of nutrition.
- 37 students think that Fitness trainers motivate to exercise regularly.
- Most of the Fitness trainers are not punctual in the Gym.
- 35 students answered 'Yes' that their Fitness trainer tells benefits of exercises.
- Most of the Fitness trainers give variety in their training program.
- Fitness trainer reviews students' goals with them regularly.

5. DISCUSSION OF FINDINGS:

The purpose of this study was to examine the student evaluation about Fitness trainer in college gym in Pune city. The researcher administered questionnaire on the samples. The questions were taken into consideration based on knowledge, training variety, nutritional knowledge and trainers' behavior. The result of study shows that most of the Fitness trainers have good knowledge regarding physical training. Very few reported with less knowledge. The study also shows that most of the trainers give variety of training programmes to their students. In the nutritional knowledge students believe that their Fitness trainers have very good knowledge. Regarding the behavior of Fitness trainers, most of the students believe that trainers have an ideal personality and also they use to motivate their students.

6. CONCLUSION:

On analyzing the data using descriptive statistics it is observed that the mean score of fitness trainers' evaluation by the students is 17.10 (+/- 5.57). From the above observations it was concluded that on an average Fitness trainer performs 68.1% of the activities that he is supposed to perform to the satisfaction of his student.

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A COMPARATIVE STUDY OF DIFFERENT ENERGY DRINKS ON PHYSICAL FITNESS VARIABLE OF HANDBALL PLAYERS

¹Dr. Priya Baghel, ²Neha Baghel

¹Sports Officer, Govt. C.M.D College Chhatarpur

²Sports Officer, M.P.R.C.G.D. College Dewas

Abstract:

The purpose of the study was to see the comparison of different energy drinks on physical variable of handball players. The subjects selected for the study was 30 male AIU handball players with age ranged between 20-25 years from lovely professional university phagwara. The subjects were performed Quadrant jump test for measuring the Agility four days apart from each other. In each session, in a randomized, placebo-controlled, counterbalanced and double-blind design was applied 250ml of Gatorade, red bull and water was consumed 40 min before an exercise test. All analyses were performed by SPSS version 20, the analysis of variance and Least Significant Difference (LSD), was applied. The significant difference was found in between Water and Gatorade, as the p-value for this mean difference is 0.03 which is less than 0.05. And the significant difference was also found in between Gatorade and red bull energy drinks as the p-value for this mean difference is 0.016 which is also less than 0.05. But there is insignificant difference was found in between Water and Red bull as the p value for this mean difference is 0.503 is greater than 0.05

In conclusion, two commercially available energy drinks had ergogenic effects on endurance performance.

Key Words: Energy drinks, Gatorade, red bull Endurance performance, Handball players.

1. INTRODUCTION:

Sports drinks have been shown to influence running performance, however, the best methods of hydration are still unclear (Julie A. Branes, et.al. 1999). The energy drinks replenish the exhausted energy in the body, it also provides the amount of electrolytes required to the body. The fulfillment of the nutrients by the energy drinks done by the athletes and players. There are many athletes or players who endorse the energy drinks. The rate of recovery increased by these drinks (energy/sports drinks). The requirement of lost energy is fulfilled by these drinks, these drinks are quick source of energy, it enhance the level of electrolytes in the muscles and level of sugar in the blood (it increases the level of blood glucose) very quickly. The energy drinks are use-full to the late night workers who works for the long duration of time and don't have time to eat they can use these drinks and get some energy to do work. These drinks consist of high calories. Some people use these drinks as meal replacements.

The energy drinks have worst effect on the heart. These drinks become toxic in body after some chemical reaction. Because it consist of stimulants, anti depressants, anti anxiety and many more things. There are number of cases registered of cardiac arrest, heart attack, cardio vascular diseases and the thickness of blood increases so it will increase the risk of stroke or pluck. Hence, the purpose of the study was to see the comparison of different energy drinks on physical variables of handball players

2. MATERIALS AND METHODS:

Subject: The subjects for this study were selected from the LPU phagwara. The study was conducted on 30 male AIU handball players with the age ranged in between 20-25 years. Agility was tested by Quadrant jump test the and recorded in meters. To see the comparison of different energy drinks on physical variables of handball players ANOVA test was employed at 0.05 level of significance using SPSS version 20.

3. FINDINGS:

TABLE 1. DESCRIPTIVE STATISTICS FOR AGILITY

Energy drinks	N	Mean	Std. deviation
Water	10	19.9	1.79
Red bull	10	20.4	1.89
Gatorade	10	22.3	1.15
Total	30	20.866	1.90

Table 1: Showed the mean and standard deviation values of the different energy drinks in water the value is 19.9 ± 1.79 , in red bull 20.4 ± 1.89 in Gatorade 22.3 ± 1.15 .

TABLE 2. ANALYSIS OF VARIANCE OF AGILITY

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32.067	2	16.033	5.898	0.007
Within Groups	73.4	27	2.719		
Total	105.467	29			

Table 2 Revealed that there was insignificant difference occur in the agility variables in different Energy Drinks as the calculated F-value is 5.898 which is greater than the tabulated F-value which is 3.59 at .05 level of significance, with (2,27) degree of freedom. And the P-value is 0.007 which is also greater than 0.05. so, it seems that there was significant relationship was found in between agility variables with respect of different Energy Drinks i.e. Red bull, Gatorade and water.

TABLE 3. LSD POST HOC COMPARISON OF MEANS OF AGILITY

(I) energy_	(J) energy_	Mean Difference (I-J)	Sig.	95% Confidence Interval	
Drinks	drinks			Lower Bound	Upper Bound
Water	Red bull	-0.5	0.503	-2.012	1.012
	Gatorade	-2.400*	0.003	-3.912	-0.887
Red bull	Water	0.5	0.503	-1.012	2.012
	Gatorade	-1.900*	0.016	-3.412	-0.387
Gatorade	water	2.400*	0.003	0.887	3.912
	Red bull	1.900*	0.016	0.387	3.412

*. The mean difference is significant at the 0.05 level.

In **Table 3**, it can be seen that mean difference in Agility variable is found to be significant in between Water and Gatorade, as the p-value for this mean difference is 0.03 which is less than 0.05. It is also found that significant difference was seen in between Gatorade and red bull energy drinks as the p-value for this mean difference is 0.016 which is also less than 0.05.

But there is no significant difference was found in between Water and Red bull as the p value for this mean difference is 0.503 is greater than 0.05.

4. DISCUSSION AND CONCLUSION:

Analysis of data revealed that there was a significant difference occur in the Agility variables in different Energy Drinks as calculated value of 'F' i.e. 5.89 which is greater than the tabulated value at .05 level of significance, with (2, 27) degree of freedom. It can be seen that the mean difference in Agility is found to be significant in between Water and Gatorade as the p-value is 0.03 which is less than 0.05, it is also found that significant difference was seen in between Gatorade and Red bull as the p-value is 0.016 which is also less than 0.05. But the insignificant difference was found in between water & Red bull as the p-value is 0.503 which is greater than 0.05. The Gatorade is preferably found to be better than red bull because red bull contains caffeine, which boost up the body for long duration activities instead of that Gatorade contain but it the body while the Gatorade rehydrate the body, it contains the minerals and electrolytes.

Kim Stewart Feb 2001, This extra amount of work may have caused more depletion of glycogen stores allowing the Gatorade to have an effect. The number of jumps decreasing for both treatments suggests a 40-minute scrimmage effect without a Gatorade effect. The jumping exercise was quite exhaustive and required more energy than some of the other tests; therefore, more of an increase in lactate production may have accumulated. This increase lactate may have significantly affected the number of jumps the subject's were able to perform. Therefore, the decrease in the number of jumps both treatments suggest that either the 32

ounces of Gatorade did not provide sufficient CHO to improve performance or that the production of lactate was the cause for the decrease, not the depletion of glycogen stores. Linda Tarr Kent Oct 3, 2017 (Medical Association Council on Scientific Affairs report). The report states that a drink that provides carbs and electrolyte replacement along with fluid leads to better carbs consumption in the body and thus better exercise intensity throughout prolonged exercise time when compared to water. The council also concluded that using an electrolyte replacement makes for better hydration than water during prolonged exercise. The insignificant difference between the water and red bull is due to the caffeine in the red bull, the red bull replenishes the electrolytes but increased the heart rate due to caffeine and also increases the level of blood sugar. There are 56g of sugar in each regular sized bottle of Gatorade.

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**ANALYSIS ON THE EFFECTS OF ENDURANCE EXERCISE
TRAINING ON PLASMA HDL CHOLESTEROL LEVELS DEPEND
ON LEVELS OF TRIGLYCERIDES**

¹Dr. G. Dhanunjaya Rao, ²Dr. M. Anjaneyulu

¹Physical Director, DS Government Degree College for Women, Ongole, Andhra Pradesh, India.

²Physical Director, TRR Government Degree College, Kandukur, Prakasam, Andhra Pradesh, India.

Abstract:

The present examination thought about the reactions of various lipoprotein-lipid factors to a 16-week perseverance practice preparing program in men arranged based on benchmark TG and HDL cholesterol focuses: (1) low TG and high HDL cholesterol (normolipidemia), (2) low TG and low HDL cholesterol (segregated low HDL cholesterol), (3) high TG and high HDL cholesterol (separated high TGs), and (4) high TGs and low HDL cholesterol (high TG/low HDL cholesterol). A progression of physical and metabolic factors was estimated when the preparation program in an example of 200 men selected the Health, Risk Factors, Exercise Training. At pattern, men with high TG/low HDL cholesterol had more instinctive fat tissue than did men with segregated low HDL cholesterol and men with normolipidemia. The 0.4% (not huge) work out actuated increment in HDL cholesterol levels in men with secluded low HDL cholesterol recommends that they didn't profit by the "HDL-raising" impact of activity. Interestingly, men with high TG/low HDL cholesterol indicated a critical increment in HDL cholesterol levels (4.9%, $P < 0.005$). Though the two subgroups of men with raised TG levels demonstrated decreases in plasma TGs ($\approx -15.0\%$, $P < 0.005$), just those with high TG/low HDL cholesterol indicated altogether diminished apolipoprotein B levels toward the finish of the examination (-6.0% , $P < 0.005$). Various relapse investigations uncovered that the activity actuated change in stomach subcutaneous fat tissue (10.6%, $P < 0.01$) was the main noteworthy connect of the expansion in plasma HDL cholesterol with preparing in men with high TG/low HDL cholesterol. Aftereffects of the present examination propose that normal continuance practice preparing might be especially useful in men with low HDL cholesterol, raised TGs, what's more, stomach stoutness.

1. INTRODUCTION:

Regular continuance practice is a broadly perceived methodology to raise plasma HDL cholesterol levels,^{1,2,3} which is one of the metabolic adjustments adding to the diminished danger of coronary illness (CHD) saw among physically dynamic and fit individuals.^{4,5,6} Although a low plasma HDL cholesterol fixation is frequently joined by a raised triglyceride (TG) level related with stomach corpulence and an insulin obstruction hyperinsulinemic state,^{7,8} a few people are described by low HDL cholesterol levels without heftiness or hypertriglyceridemia, a condition that has been alluded to as disengaged hypoalphalipoproteinemia.^{9,10,11} Previous investigations from our research center have demonstrated that subjects with separated low HDL cholesterol were neither portrayed by hyperinsulinemia nor by instinctive obesity.¹² Although examines have recommended that patients with disconnected low HDL cholesterol disorder might be at expanded CHD risk,^{9,10} it shows up extremely hard to build HDL cholesterol levels in these people by diet, weight reduction, or pharmacotherapy. Since subjects with secluded low HDL cholesterol have ordinary body weight and fat substance, we have conjectured that they might be less receptive to perseverance work out incited enhancements of the lipoprotein-lipid profile than are subjects with low HDL cholesterol, raised TG focuses, stomach stoutness, and hyperinsulinemia. In this way, the point of the present examination was to contrast the lipoprotein-lipid reactions with a 20-week perseverance practice preparing program in men with low HDL cholesterol levels however with or without high TG fixation.

2. METHGODOLOGY:

2.1. Endurance Exercise Training Program:

The preparation program has just been widely depicted. Members prepared undersupervision in the clinical focuses on a cycle hence meter (Universal Aerobic cycle) for 60 sessions by utilizing the equivalent institutionalized preparing convention. They were required to finish the 60 sessions inside 21 weeks. They couldn't practice >1 session every day, >4 sessions every week, or <1 session every week. Also, they couldn't excel by >2 sessions or fall behind by >2 sessions. Members who realized that they may miss a couple of sessions were urged to prepare 4 times each week for about fourteen days to develop a save. Program adherence was observed a few times each week. Members were reached when they gave off an impression of being falling behind, and an arrangement was created to bring them back on plan at the earliest opportunity. To decide every individual's preparation force, pulse (HR), control yield, and oxygen admission (VO₂) got during the 3 benchmark cycle hence meter tests were plotted to decide the normal HR and power yield related with 55%, 65%, 70%, and 75% of his/her greatest VO₂ (VO₂max) before preparing. These HR and power yield esteems were then utilized all through the preparation program. Instructional courses during the initial 2 weeks started at a HR related with 55% VO₂max for 30 minutes. Either length or force was then expanded every 2 weeks until the fourteenth seven day stretch of preparing, when members practiced at the HR related with 75% of their underlying VO₂max for 50 minutes. This was then kept up for the following a month and a half.

2.2. Statistical Analysis:

Pearson product moment correlation coefficients were utilized to measure relationship between factors. Men were separated into 4 subgroups as indicated by benchmark fasting plasma TG and HDL cholesterol focuses: (1) normolipidemia (n=62), (2) disengaged low HDL cholesterol (n=38), (3) confined high TGs (n=38), and (4) high TG/low HDL cholesterol (n=62). Cutoff esteems were 1.34 and 0.92 mmol/L for TG and HDL cholesterol, individually, which compared to the 50th percentiles of their separate disseminations. Contrasts among men with different gauge fasting lipoprotein-lipid phenotypes were tried for importance by utilizing ANOVA with the Duncan various range test. Combined t tests were utilized to inspect the centrality of the progressions in physical and metabolic factors inside every subgroup of men. In all investigations, P<0.05 was viewed as noteworthy. Investigations were directed with the SAS factual bundle.

3. RESULT AND ANALYSIS:

Variables	Normolipidemia Isolated Low	HDL Cholesterol	Isolated High	TGs
Subjects	62	38	38	62
TGs,mmol/L	0.94±0.22	0.93±0.22	1.77±0.39	2.45±1.09
HDL C mmol/L	1.12±0.14	0.81±0.07**	1.05±0.21	0.75±0.10
Apo A-1 g/L	1.23±0.12	1.01±0.10	1.28±0.12	1.07±0.12
ApoB,g/L	0.77±0.20	0.73±0.19	1.05±0.20	1.06±0.22

Table shows the gauge pre preparing plasma lipoprotein profile of the 4 subgroups of men. Despite the fact that men with high TG/low HDL cholesterol had higher plasma TG (by plan), cholesterol, and apo B focuses than did normolipidemic men, men with separated low HDL cholesterol levels had lower plasma cholesterol and apoA-I levels however comparative apoB levels contrasted and the levels in normolipidemic men. In this manner, the higher all out cholesterol/HDL cholesterol proportion noted among subjects with disconnected low HDL cholesterol came about exclusively from the exceptionally low HDL cholesterol focuses. In any case, high plasma cholesterol and low HDL cholesterol levels added to the high all out cholesterol/HDL cholesterol proportion saw in men with high TG/low HDL cholesterol contrasted and normolipidemic men. Men with high TG/low HDL cholesterol were likewise obviously hyperinsulinemic and, apparently, more insulin safe at pattern than were different subgroups of subjects.

4. DISCUSSION:

It is settled that low plasma HDL cholesterol levels are related with an expanded danger of CHD. Without a doubt, a low HDL cholesterol fixation has been demonstrated to be the most pervasive variation from the norm of the Lipoprotein-lipid profile revealed among men with recorded CHD.²¹ In such manner, the as of late distributed aftereffects of the Veterans Affairs High-Density Lipoprotein Intervention Trail (VAHIT) Study³⁶ plainly show that pharmacotherapy planned for expanding plasma HDL cholesterol levels decreases the danger of CHD, even without any adjustment in plasma LDL cholesterol levels; this last discovering is regularly seen when CHD patients with low HDL cholesterol levels are treated with a fibrate, for example, gemfibrozil.

5. SUMMARY:

In synopsis, consequences of the present investigation propose that normal perseverance practice is especially useful to improve the lipid lipoprotein profile of men with low HDL cholesterol levels alongside stomach weight and raised TG fixations. In any case, apparently subjects with low HDL cholesterol levels as a separated characteristic are substantially less receptive to perseverance practice preparing; in any event to the extent their plasma lipoprotein profile is concerned. This discovering is concordant with the regular perception that it is troublesome in clinical practice to expand the cholesterol substance of HDL among subjects with low HDL cholesterol fixations, when the last is a separated lipoprotein trademark.

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**TO STUDY THE EFFECT OF WATER EXERCISE ON THE
HEALTH RELATED PHYSICAL FITNESS FACTORSON MALE
AGED 35 TO 40 YEARS**

¹Neetin Madhukar Walke, ²Dr.Balaji Pote

¹Director of Physical Education, ²Associate Professor

¹Zulal Bhialajirao Patil College, Dhule-02, Maharashtra, India

²Chandrasekhar Aagashe College of Physical Education, Pune 37, Maharashtra, India

Email - ¹nitinwalkedd@rediffmail.com

Abstract:

Obesity is a serious problem facing human society at present and various methods of reducing obesity are being adopted by people. Effects of water pressure on the muscles and joints to reduce it has been used for exercise. Present Research has studied the effects of water exercise training effect on Health related physical Fitness of aged 35 to 40 years Male obese. In Study researcher selected 20 Obese Male subjects for research. Deliberately subject selection Method used in research study. Training programme conducted for 18 weeks. For analysis of collected information Health Related physical fitness factor Pre and Post tests was taken. For interpreting collected data Paired Sample 'T' Test Mean, std. Deviation, Correlating, Error. Mean tool used for analysis. The Conclusions have been reached though research studies is water exercise training program has showed significant improvement in selected Health related physical Fitness Factors i.e. Endurance, Strength, Muscular Strength, Body Composition, Flexibility of aged 35 to 40 years Mail obese.

Key Words: Water Exercise, Obesity, Health Related physical fitness

1. INTRODUCTION:

Extensive research work going on obesity. Obesity is a serious problem facing by the society and obesity can be measured on a variety of basis ex. BMI, Body Fat Percentage, Body Circumferences, NIR, BIA, DEXA, Weight in water, WholeBody Air Displacement etc. There are various ways to reduce obesity and we know that like jogging Running, Cycling, Swimming, Fat reducing Medicine and other weigh traditional exercises. Obesity increases the amount of fat in the body and thus leads to weigh gain. As the body weight increases, the muscles in the joints become tense to perform various movements or exercise the person becomes detached from exercising. But doing exercise in water reduces the weight of the human body on the muscles in the joints and thus reduces stress. Water creates pressure on the body 10% of the weight of the earth is felt in the water, which causes the person to perform his movements at full efficiency. Due to this presented research study done on effect of Water exercise on the physical fitness factors on Male aged 35 to 40 years

1.1. OBJECTIVE:

The objectives of the study were to examine the effect of water exercise training programme on Health related physical Fitness Factors of aged 35 to 40 years Male obese.

- To Measure obesity of Male age 35 to 40
- To Measure the Health related physical Fitness Factors
- Createthe water exercise training programme
- To study the effects of water exercise training programme on Health Related Physical Fitness

2. METHODS:

Presented research Effect of Water tanning exercise on agedon aged 35 to 40 years Male on the Healthrelatedphysical fitness factors. Researcher selects 20 obese Male subjectsfor research. Deliberately

subject selection Method used in research study. The selected Male was given water training exercise. The training programme conducted for 18 weeks. Collection of data conducted Pre and post-test of health related physical fitness factor. The SPSS Package was used for interpret information collected by first week and last week test results. To determine the effect of Watertanning programme on Health Related Physical Fitness Factor, SPSS tool used for analysis of collected information of pre- tanning and post training programme Paired Sample 'T' Test Mean, std. Deviation, Correlating, Error. Mean tool used for analysis & Interpretation of data

Table No. 01

Paired Samples Statistics of Pre & Post Test Health Related Physical fitness on Water Exercise Training Group

HRPF fitness factors	Mean	N	Std. Deviation	Std. Error Mean
12 Min Run & Walk Pre-test	1071	20	192.625	43.072
12 Min Run & Walk Post-test	1444	20	178.219	39.851
Push-ups Pre-test	20.50	20	8.281	1.852
Push-ups Post-test	29.45	20	7.451	1.666
Sit-ups Pre-test	20.45	20	7.674	1.716
Sit-ups Post-test	28.90	20	6.069	1.357
BMI Pre-test	28.04	20	1.661	0.372
BMI Post-test	25.19	20	1.668	0.373
Sit & Rich Pre-test	21.10	20	5.170	1.156
Sit & Rich Post-test	27.45	20	5.463	1.221

Table No 01 shows that paired sample statistics of Pre and Post Test of Health Related Physical fitness on Water Exercise Training Group. The Mean of Pre-test of 12 Min Run & Walk, Push-ups, Sit-ups, BMI, Sit & Rich is 1071, 20.50, 20.45, 28.04, 21.10 respectively & S.D is 192.625, 8.281, 7.674, 1.661, 5.170. The Mean of Post Test of 12 Min Run & Walk, Push-ups, Sit-ups, BMI, Sit & Rich is 1444, 29.45, 28.90, 25.19, 27.45 respectively with S.D. is 178.219, 7.451, 6.069, 1.668, 5.463.

Table No. 02

Paired Samples Correlation of Pre & Post-Test Health Related Physical Fitness on Water Exercise Training Group

Pre & Post test	N	Correlation	Sig.
12 Min Run & Walk	20	0.745	0.0
Push-ups	20	0.969	0.0
Sit-ups	20	0.886	0.0
BMI	20	0.941	0.0
Sit & Rich	20	0.956	0.0

Table No. 02 shows that correlation between Pre Test and Post Test of Health Related Physical Fitness factors 12 Min Run & Walk, Push-ups, Sit-ups, BMI, Sit & Rich of Water Exercise Training Group was respectively 0.745, 0.969, 0.886, 0.941, 0.956 which was statistically significant at 0.05 level of significance ($p=0.0$), ($p=0.0$), ($p=0.0$), ($p=0.0$), ($p=0.0$).

Table No. 03

Paired Samples 't' test of Pre & Post-Test Health Related Physical Fitness on Water Exercise Training Group
Paired Differences

Pre & Post test	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig.(2-tailed)
				Lower	Upper			
12 Min Run & Walk	-373	133.065	29.754	-435.276	-310.724	-12.536	19	0.0
Push-ups	-8.950	2.114	0.473	-9.940	-7.960	-18.929	19	0.0
Sit-ups	-8.450	3.634	0.813	-10.151	-6.749	-10.398	19	0.0
BMI	2.848	0.573	0.128	2.580	3.116	22.229	19	0.0
Sit & Rich	-6.350	1.599	0.357	-7.098	-5.602	-17.765	19	0.0

It can be seen from Table No 03 that the value of Health Related Physical Fitness factors pre & Post test difference between the Mean is -373, -8.950, -8.450, 2.848, -6.350. When this difference was checked

through the Paired Samples 't' test the values were found to be -12.536, -18.929, -10.398, 22.229, -17.765 respectively. This t-value is significant as the p-value is 0.0, 0.0, 0.0, 0.0, 0.0 which is less than 0.05. This shows that Water Exercise training Program on Obese Male Pre test score was found to be higher than the Pre test Score. Conclusion is Endurance, Strength, Muscular Strength, Body Composition, Flexibility is improved than Pre training Program.

3. CONCLUSION:

The Conclusions have been reached though research studies in water exercise training program has showed significant improvement in selected Health related physical Fitness Factors i.e. Endurance, Strength, Muscular Strength, Body Composition, Flexibility of 35 to 40 years Male obese.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

LIFE SKILLS ACQUIRED THROUGH BADMINTON COULD ASSIST PARTICIPANTS IN COPING WITH COVID-19 RELATED STRESS

Lt. Sam Joseph Braganza

College Director of Physical Education
S.S.A. Govt. College of Arts & Commerce,
Virnoda, Pernem, Goa – India

Abstract:

COVID-19 pandemic has spread to almost all countries of the world. To safeguard the health of athletes and others involved, most sporting events at international, regional and national levels have been cancelled or postponed. Apart from the current COVID-19 pandemic the youth of today face many emerging issues such as poverty, suicide, alcoholism, drug abuse, sexual abuse, smoking, juvenile delinquency, anti-social acts, etc. that have an adverse effect on them. Life skills are important in helping us shape our world, not just cope with it. The sports field is a place which brings people together and this facilitates interaction. This interaction enables them to learn and display life skills such as respect, honesty, trust, leadership etc. knowingly or unknowingly. The purpose of this study is to provide Life skill training to participants through the mean of Badminton and evaluate its outcome to signify its ability to overcome COVID-19 related stress and anxiety. 50 underprivileged children were provided with six-week beginners' Life Skill Development Program (LSDP) in Badminton to imparting life skills along with teaching the basic skills required to play the Sport. The Strength and Difficulties Questionnaire (SDQ) was administered pre and post to the LSDP to suggest if there was any change in the emotional or behavioural pattern among the beneficiaries. It's clearly seen that the values imparted by the six-week LSDP in Badminton are similar to those required to counter the anxiety and stress brought about by COVID-19 pandemic. From the results, it was concluded that sports i.e. Badminton in this context, provides a platform for teaching and acquiring life skills. It was clear that there was an improvement in the emotional and behavioural needs of the beneficiaries after conducting the six-week LSDP.

1. INTRODUCTION:

The corona virus outbreak has been labeled a pandemic by the World Health Organization (WHO) and due to this pandemic, countries all over the world including India are facing crisis in different aspects. One of the major concerns among others is the economic crisis affecting the entire country. Sport is one of the major contributors to economic and social development. Its responsibility is well accepted by Governments. They recognize the contribution of Sports towards the empowerment of women, youth, individuals and communities, health, education and for achieving the objectives of social inclusion.

Since its arrival, the Corona virus has spread to almost all countries of the world. Social and physical distancing norms, lockdowns of workplace, schools and overall social life have become a need to curtail the spread of the virus. However, this has disrupted most aspects of life, including sport and physical activity. To safeguard the health of athletes and others involved, most sporting events at international, regional and national levels have been cancelled or postponed.

Apart from the current COVID-19 pandemic the youth of today face many emerging issues such as poverty, suicide, alcoholism, drug abuse, sexual abuse, smoking, juvenile delinquency, anti-social acts, etc. that have an adverse effect on them, to a large extent. Cut-throat competition, unemployment, lack of job security, etc. are some of the major concerns for the educated. These challenges require immediate and effective responses from a socially responsible system of education. 'Education' is important, but education to support and live life better is more important. It has been felt that life skills education bridges the gap between basic functioning and capabilities. It strengthens the ability of an individual to meet the needs and demands of the present society and helps in dealing with the above issues. The term 'Life Skills' refers to the skills that are

associated with managing and living a better quality of life. Any skill that is useful in your life can be considered a life skill. Life skills are important in helping us shape our world, not just cope with it. Perhaps the most important life skill is the ability and willingness to learn.

Sports has been an integral part of education. Today, the field has merely expanded, encompassing even more competitive options. While many students get involved for love of the game, there are significant benefits also. Sports helps with the social and physical development as these activities get children exercising and interacting with their peers. Determination, preparedness, character, perseverance and attitude, along with other virtues are the characteristics of success in sports. These same characteristics offer an opportunity for success in all aspects of life. The sports field is a place which brings people together and this facilitates interaction. This interaction enables them to learn and display life skills such as respect, honesty, trust, leadership etc. knowingly or unknowingly. It is important to recognize these positive outcomes and encourage them. Badminton as a sports activity is a great way to keep fit. It's relatively inexpensive and is a great leisure activity catering to all ages. It helps in improved concentration and focus as one has to consistently try and outplay/outwit the opponent. It helps boost self-confidence and works as a stress buster. Not all children in India are privileged to enjoy formal education. Underprivileged children like those whose parents do not afford sending them to school, those coming from broken homes, orphans, children of migrant workers or those belonging to dalit and tribal communities do not go to school or are most vulnerable to dropping out due to lengthy absences while searching for work with their parents. As they move, they encounter various risks such as exploitation, trafficking, abuse, etc. As an outcome of this, they are confronted with difficulties and various psychological problems. Many children have no place to live, suffer from malnutrition and have no means to get education or medical help. Quality and formal education, nutritional support, residential facilities, vocational skills training, health care and medical aid, recreational activities and proper counseling programmes are being provided to the beneficiaries which will help prepare them for a self dependent and brighter tomorrow.

"The five S's of sports training are: stamina, speed, strength, skill, and spirit; but the greatest of these is spirit." The purpose of this study is to provide Life skill training to participants through the mean of Badminton and evaluate its outcome to signify its ability to overcome COVID-19 related stress and anxiety.

1.1. OBJECTIVE:

- Bring people together through sports to develop life skills
- Educate every child for success by imparting moral values through sports
- Develop a Life Skills Development Programme through the game of Badminton and help the participants to retain it for the rest of their lives.

2. METHODOLOGY:

The following procedure/method was used to impart life skills through the medium of Sports (Badminton) to 50 underprivileged children residing at Asro, a home for HIV positive children, at Thivim, Goa. The entire procedure could be broadly classified under six heads.

- **Forming a core team "CLAN" to conduct the programme:** A core team was identified and was named CLAN, with a motive to Conduct oneself with matured life skills, Learn life skills that one lacks and to Nurture one's own life skills and that of others.
- **Administering Goodman's Strengths and Difficulties Questionnaire (SDQ):** The 25 items SDQ was administered to give an indication of whether the children were having any emotional or behavioural problems/disorder. The children had to indicate whether each statement was not true, somewhat true or certainly true with reference to themselves. The purpose of collecting this data was to identify the level of strength and difficulty that the beneficiaries possessed before participating in the Life Skills Development Programme.
- **Identifying basic skills required to learn Badminton:** To develop a life skills programme for beginners, the Clan first identified the basic skills that are required to play the game of Badminton. These basic sports skills must have characteristics that will enable the Clan to demonstrate and impart life skills. The sports skills identified were Forehand high serve, Backhand low serve, Lunging, Net play, Drives, Scissor Jump, Forehand overhead clear and Footwork.
- **Developing life skills sessions for every basic skill:** Sessions were developed for the eight basic sports skills identified in Badminton. The programme also included three fun game-based sessions. The six-week beginners' development programme in Badminton consisted of a total of eleven sessions. The table below displays the type of sessions developed and values imparted through them.

Session	Name of session	Value imparted
1	Orientation & Briefing	Value of life and Interpersonal relationship
2	Forehand high serve	To acknowledge
3	Backhand low serve	Talking softly
4	Lunging	Punctuality
5	Net Play	Gentleness
6	The right gate	Truthfulness
7	Drives	Willpower
8	Scissor Jump	Quick Recovery
9	Forehand overhead clear	Dedication
10	Footwork	Health consciousness
11	Up or Down Cones	Diligent

- **Conducting the six-week Life Skills Development Programme (LSDP):** The six-week beginners' LSDP in Badminton was conducted with the purpose of imparting life skills to the participants along with teaching the basic skills required to play the Sport. The introductory session was to brief the participants about the programme, to get them involved in physical activity and exercise and also make them realize the gift of life. Eight sports skill-based sessions were held. Every four skill-based sessions were followed by one game-based session. Each session was 75 minutes long followed by group discussion and playing the sport for 30 minutes.
- **Feedback and follow-up:** The sessions involved group discussion which encouraged every child to speak and exchange views on what they learned and how they can put this learning into practice as they go about their day-to-day lives. The children were monitored while training and playing during sessions. They were encouraged and applauded when they displayed life skills. The SDQ was administered for the second time after undergoing eleven sessions in the six-week LSDP in Badminton to suggest if there was any change in the emotional or behavioural pattern among the beneficiaries. The children's carers were also involved and interviewed to check any behavioural improvement in the child. The institution was also informed about the notes made by the Clan during the monitoring process.

3. RESULTS:

Administering the Strengths and Difficulties questionnaire (SDQ) before the beginning of the LSDP revealed that the children had a High need in Conduct and Hyperactivity problems. Difficulty in controlling temper, tendency of getting into quarrels, lying, robbing or finding it difficult to do as told contributed to a High conduct problems score. Characteristics of children having a High Hyperactivity score included being fidgety, agitated and easily distracted. The children displayed Some need in Emotional symptoms, Peer problems and Pro-social behaviour. They complained of having headaches, feeling unhappy, anxious, scared or worried. They had issues with their peers and felt lonely. Some of them had few friends and felt unliked by others. They also found it difficult to be thoughtful and kind towards others and had a hard time helping or sharing with their peers. They rarely took the initiative to volunteer. The average total difficulties score at this point showed that the children had a High need. In order to reduce the difficulties faced by the children and improve their strengths, a LSDP using Sports (Badminton) was developed to inculcate Life Skills amongst the beneficiaries. The CLAN identified that the Forehand high serve, Backhand low serve, Lunging, Net play, Drives, Scissor Jump, Forehand overhead clear and Footwork were the basic skills required for a beginner to learn Badminton. The programme was for six weeks for children between the ages of 10-18 years. Sessions were developed to impart values like interpersonal relationship, to acknowledge, talking softly, punctuality, gentleness, truthfulness, building a strong willpower, quick recovery, dedication, health consciousness and being diligent. These life skills were imparted to the children while teaching the various badminton skills mentioned above.

Table displaying Data analysis for evaluating the six-week LSDP

Scores for various scales	Pre-training			Post-training		
	Mean	SD	Need	Mean	SD	Need
Conduct problems Score	5.26	1.95	High	4.56	2.23	High
Hyperactivity Score	6.64	2.13	High	5.3	2.6	Low
Emotional Symptoms Score	6.42	1.44	Some	3.86	2.39	Low
Peer Problems Score	5.1	1.64	Some	3.18	1.55	Low

Pro-social Behaviour Score	5.22	1.81	Some	6.62	1.81	Low
Total Difficulty score	23.42	4.5	High	16.9	5.69	Some

On conclusion of the six-week LSDP, the results of the SDQ administered disclosed that the beneficiaries showed considerable improvement in their emotional and behavioural needs. They showed a low need in Hyperactivity problems, Emotional symptoms, Peer problems and Pro-social behaviour. However, the continued to show High need in the conduct problems. The total difficulties score at the end of the LSDP through Badminton revealed that the beneficiaries now had Some need.

4. DISCUSSION, FINDINGS AND CONCLUSION:

We can say that sports provides a platform for teaching and acquiring life skills. The LSDP in Badminton made the children more interested in learning new skills and participating in sports. Sports skills and techniques learnt along with life skills could retain meaning even in the participants' adult lives. The programme not only helped the children but also spread the values of care, concern, sacrifices amongst the members of the CLAN. During the interaction with the children they disclosed that they would like to learn other sports skills too along with life skills training as the sessions not only taught sports skills but passed on moral values. It's clearly seen that the values imparted by the six-week LSDP in Badminton are similar to those required to counter the anxiety and stress brought about by COVID-19. These life skills acquired would not only help the participants to overcome the stress faced during the pandemic but, will offer an opportunity for success in all aspects of life. Similar to the current study (Wright & Burton, 2008) findings have shown that participants indicated that there was transfer of life skills through physical activity and how it benefits them at the present and for a lifetime, as there is an retention of this life skills learnt. From the results, it can be concluded that sports i.e. Badminton in this context, provides a platform for teaching and acquiring life skills. It is clear that there was an improvement in the emotional and behavioural needs of the beneficiaries after conducting the six-week LSDP for them. Hence conducting this kind of programme for a longer period by including additional skills or other disciplines of Sports, would positively benefit the sample group.

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SWOT ANALYSIS OF THANG TA, INDIGENOUS SPORT OF MANIPUR FOR STRATEGIC MANAGEMENT

¹Lourembam Sundeep Meitei, ²Dr. A Jolly Devi

¹Coach, ²Asst. Professor,

¹Thang Ta Federation of India, Manipur

²Dept. of FRM, College of CCS, CAU, Tura, Meghalaya

Abstract:

This analysis aimed to bring forward the significance of Strength, Weakness, Opportunity and Threat (SWOT) in the planning of sports management. To serve the objectives of the study, the researchers interviewed learned teachers of Thang Ta in the districts of Manipur. The secondary data were consulted online from Google scholar, Research Gate, Science Direct etc. for research articles in the related journals and books. The official publication of Government of India report of related Departments were also referred. SWOT analysis approach is considered necessary to develop a strategy for the development of sport organizations. Preliminary information was taken from president of World Thang Ta Federation, learned teachers, and students to have an idea of formulating the SWOT components. The study focuses on the development of Strategic Planning based on SWOT analysis for effective and efficient management by utilizing optimal resources of the region. Above this, to date, limited or no scholarly attention has been given to strategy, strategic management and innovation in sports especially Thang Ta of Manipur. It is the indigenous sport of Manipur having its unique styles, exercises, code of conduct as well as prospects in sports sector, health, education and cultural tourism. It is the only sports where meiteilon language (Manipuri language) is spoken as a rules and code of conduct in the game all over the world. In the Thang Ta tournament held at national and international level the dress/uniforms and equipment worn and used are manufactured in Manipur. Such can be a good avenue in the sports industry sector. The outcomes of the survey disclosed that in the Thang Ta sport, there are Strengths which can be utilized to avail the opportunities and to minimize threats by overcoming weaknesses by the concerned person, organization, stakeholders, and government systematically. The study will be useful in the policy making and programmes of the agencies and government at the state as well as the central level.

1. INTRODUCTION

It is everybody's inspiration to be healthy. According to World Health Organisation 'Health is defined as the state of physical, mental and social well-being in which disease and infirmity are absent'. Harmonious development of mind and body is required that's call for the values of games and sports. **Vijay Kumar Singh (2009)** Sports, games and physical fitness have been a vital component of our civilization, as is evident from the existence of the highly evolved system of yoga and a vast range of highly developed indigenous games, including martial arts. **Laura Wood (2019)** Sport is considered an important part for the overall growth of an individual. As a result, numerous schools, colleges and other public institutions in India are encouraging students to opt for physical education as well as other curricular activities. Besides this, growing awareness about personal health among the Indian population has led them to join health clubs and gyms or actively participate in different sports.

Vijay Kumar Singh (2009) The Internal Olympic Committee was created on 23 June 1894 and the 1st Olympic Games of the modern era opened in Athens on 6 April 1896. The goal of the Olympic Movement is to contribute to building a peaceful and better world by educating youth through sport practiced without discrimination or any kind, in a spirit of friendship, solidarity and fair play. **Kalidasan R (2016)** mentioned a study on Skill gap in the sports sector by National Skill Development Centre (NSDC) and found that by the year 2022, India would need the following professionals: 366,533 with skills (Physiotherapy, Medicine etc.) for player development & 78291 with skills (Commentator, Referees, Team Managers) for Matches. In the light of physical and mental fitness, employment opportunity and potential growth in goods and service sector, sports is no longer an amateur event, it is entirely an industry. **Suntharalingam Thanuraj (2018)** Sports can employ

thousands and sustain the livelihood of millions across the globe. To successfully accomplish this, sports have to be managed. Many sports researchers and experts believe that one of the most important sectors and priorities in high-level sports is to launch an integrated and organized system for sport management. **Rashid Lamir Amin (2018)** So strategies should be directed towards developing the activities of the federation. Strategic planning is a way to help an organization be more productive by helping guide the allocation of resources in order to achieve goals. **Emet Gurel (2017)** Strategic management is the continuous process of creating, implementing and evaluating decisions that enable an organization to achieve its objectives. Strategic management allows an organization to be more proactive than reactive in shaping its own future; it allows an organization to initiate and influence - rather than just respond to- activities -and thus to exert control over its own destiny. **Vasiliki Avgerinou (2017)** noted that the sport sector has begun to recognize the value of strategic planning as well. Many sport researchers have claimed that without the betterment of strategic planning activities, sport will not survive to the turbulent and competitive environment of the sport industry. According to Comprehensive National Sport Policy (2007) there was a need for a fresh look at the constitutional provision for sport. The policy intended to implement a holistic approach to sport development and considered the multidimensional benefits of sport that can be listed as health benefits, recreational benefits, educational benefits, social benefits, economic benefits and source of national pride that it offers.

1.1. SWOT analysis:

SWOT analysis is a strategy which is commonly used in strategic planning. The characters are for "Strengths, Weaknesses, Opportunities, and Threats.". SWOT analysis has been a fundamental method in strategic planning and is widely used. It is used to evaluate the 'strengths', 'weaknesses', 'opportunities' and 'threats' involved in an organization, a plan, a project, a person or a business activity. **Iftikhar Ahmed Wani (2020)**, mentioned that "Strengths and weaknesses" are perceived as interior features that can be managed and implemented. "Opportunities and threats" are exterior features that are uncontrollable and shape the external context in which the organization's success depends. In SWOT Analysis, strong and weak aspects of an organization are identified by examining the elements in its environment while environmental opportunities and threats which are determined by examining the elements outside its environment (Figure 1). In this sense SWOT Analysis is a strategic planning tool used to evaluate the strengths, weaknesses, opportunities and threats of an organization. It provides information that is helpful in matching the organization's resources and capabilities to the competitive environment in which it operates.

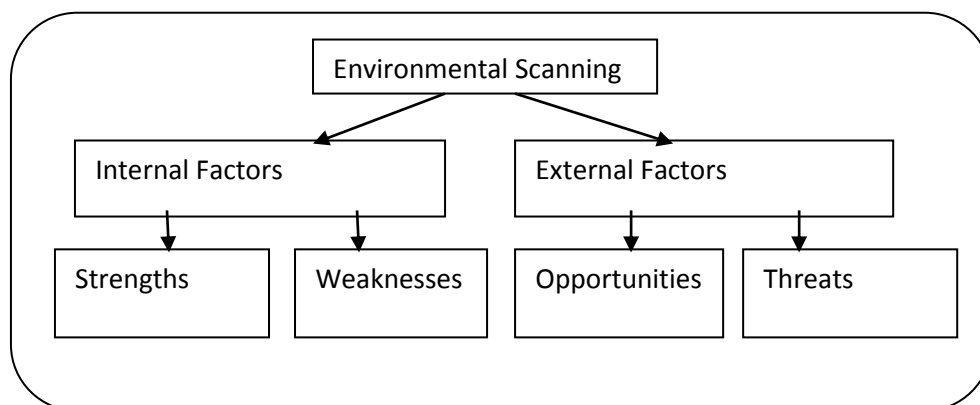


Figure 1. Structure for SWOT Analysis

Alpna Garg 2015, SWOT analysis is elaborative enough to describe the organization's position against the contender. It identifies best future opportunities. It highlights current and future threats.

1.2. SWOT FOR STRATEGIC MANAGEMENT:

Organisations that develop a realistic strategy are likely to bring concrete benefits and will pay major attention to selecting and promoting strategic managers. **Gheorghe Jinga (2015)** expressed that a SWOT analysis is one of the types of strategic management frameworks used by organizations to build and test their business strategy. The SWOT analysis clarifies the internal and external and other factors that can have an impact on an organization's goal and objectives. **Jim Cowan (2011)** Fundamentally, strategy is a plan: it is the way an organisation identifies what it aims to do, be and/or go, and how it will achieve its goal(s). Your strategy is, or should be, about identifying where you wish to get to and planning your route to get there. A strategy is also a communication document and, like all communications, the easier it is for the reader to understand, the more likely it is to succeed. **Radoran Ilıc (2013)** SWOT general purpose is to improve the

compatibility of the sport organization using the chances provided by the environment and by internal potential as it avoids dangers from external environment and as it removes internal weaknesses and disadvantages.

1.3. SWOT ANALYSIS IN SPORTS FOR STRATEGIC MANAGEMENT:

R Kalidasan (2016) In India, Sports industry is growing rapidly in the past few years and very many global events in sports have been organised recently. Sports Management is a field of education concerning the business aspect of Sport. Sports Management is still at a nascent stage in India and is mostly unorganized. No doubt the sports sector in India is emerging in the area of coaching, medicine, psychology, biomechanics, physiology, photography, goods and service sector etc. To make the sector flourished in the field one need to analyze its own SWOT to know the competitors in the area, to have an insight of the future, to utilize the potential human resources as well as non human resources effectively and efficiently, to have a strategic plan to meet the set objectives which calls for management. **Shahin Soltanpour (2019)** in their study found that the development of infrastructure and martial arts facilities in Iran is one of the main strategies of the federation, which should be provided by providing required funds and facilities. **Iftikhar Ahmed Wani (2020)** found that the potential opportunities and challenges is specifically aimed at determining how a sports organization can take advantage of opportunities and escape risks while facing an uncontrollable outside setting. A review of internal strengths and weaknesses primarily aims at determining how a sports organization conducts its interior work, such as management. **Financial Express (2018)** Increasing private investment in the sport also made the list of threats. “Uncontrolled private investment into sports by commercial operators whose interests are aligned with short term financial gains rather than long term health and growth of sports,” **Obonyo Mark Ouche (2016)** expressed that the overall low annual income among National Sports Federation, Kenya could be attributed to weak strategic planning. There is need for the management of NSF in Kenya to be more committed to strategic planning in order to improve their annual income. **Vasiliki Avgerinou (2017)** in their paper mentioned that a sport managers should follow step by step the whole process, in order to deal with the intricate sport business environment in which the sport organization operates, to adapt effectively to it and consequently to deliver high economic profits. The sports sector is highly profitable sector and contributes to the socio-economic development of the region. Its main aspect is the health benefit which is the need of the hour. To know other culture and tradition we need to know our own culture and tradition first. In Manipur, gaining parents interest and youth started inclination towards Thang Ta enthusiastically, may prevents them from anti social activity too. Thang Ta can give lots of positive impact on individual physical and mental health, personality development, economy enhancement etc. These are explained in the result and discussion with the help of SWOT analysis which is the objectives of the study.

2. METHODOLOGY:

The study is an empirical study, aims to bring out the Strengths, weaknesses, opportunities and threats of Thang Ta sport in Manipur. The study is based on the findings of primary and secondary data. The primary data were collected from those Thang Ta teachers/*Gurus/Sintakpas* having experienced for more than 10 years in the field.

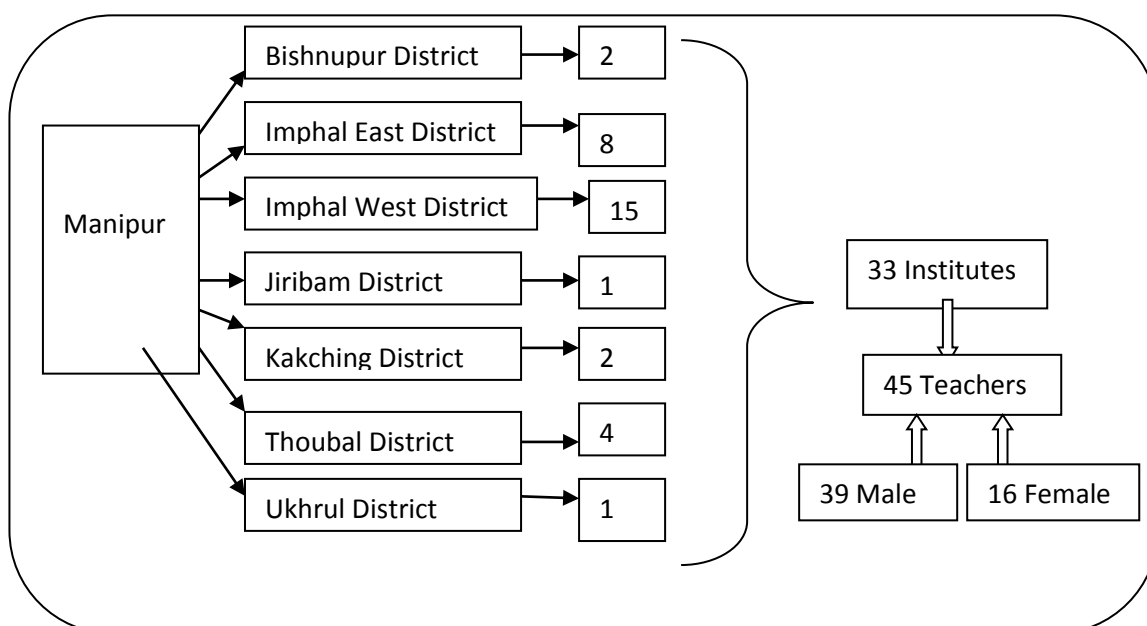


Figure 2. Sampling Design

The idea is to know the past and present trend of Thang Ta in Manipur and institutions management. The secondary data were collected from websites of related Journals and publications of Government and others reports. For collecting the primary data, interview schedule based on SWOT of Thang Ta comprising of both close ended and open ended questions, was used to collect data from the *sintakpas*. World Thang Ta Federation (WTTF), office at Yumnam Huidrom, Manipur was contacted to get the contact number of the teachers. 33 Thang Ta institutes whose students are competing in the said sport at the national and international level were taken for the study. 45 teachers/*sintakpas* both male and female of Thang Ta institutes in districts of Manipur were interviewed over the phone because of the inconvenience of visiting and travelling in COVID19 pandemic. The sampling design is given in the Figure 2.

2. RESULT AND DISCUSSION:

The United Nations adopted the theme ‘Sport for Development and Peace’ in its Agenda in 2001 and in 2005 the United Nations General Assembly celebrated the year 2005 as the Year of Sport and Physical Education there by emphasizing the need to integrate sport and physical education into the overall development agenda. **Wilfried Lemke (2016)** Sport has proven to be a cost-effective and flexible tool for promoting peace and development objectives. Since the inception of the Millennium Development Goals in 2000, sport has played a vital role in enhancing each of the eight Goals, a fact that has been recognized in numerous resolutions of the General Assembly. In resolution “Transforming our world: the 2030 Agenda for Sustainable Development”, adopted in 2015, sport’s role in advancing social progress is further acknowledged. Keeping in view, the government of India revises some policies, programmes and schemes for the overall development of the region. Table 1, explains the objectives of the scheme under each policy. The question arises here ‘whether these schemes are implemented fairly and to what extend at the grassroot level’. Some of the institutions especially Thang Ta academies may face difficulty in availing the benefit of the schemes. The accessibility for those who are not aware about the schemes as well as the lack of soft skill makes them more vulnerable.

Table 1: India Government Policies and Schemes in the area of Sports

Sl. No.	Policies and schemes	Objectives of the scheme
1	National Sports Policy 2014	- Raising the standard of sports in the country. -Promoting the development of adequate sports infrastructure across the country
2	Revised Khelo India, National Programme for Development of Sports Scheme.2016	-The Urban Sports Infrastructure Scheme (USIS) has been merged under ‘Khelo India - Sports Infrastructure’ as a central sector scheme. -In the recently launched Khelo India app, a user can search an exhaustive database for sporting facilities across the nation. The database includes SAI facilities, SAI-supported facilities, and private facilities.
3	SAI Training Centre Scheme (STC)	-Providing in-house training and coaching, along with nutritional assistance to sportspersons.
4	Come and Play Scheme	-Ensuring optimum utilisation of five stadiums in Delhi. -Opening designated areas in SAI stadiums for community sports.
5	Panchayati Yuva Krida Aur Khel Abhiyan (PYKKA) Scheme	-Providing funds for sports infrastructure development and maintenance in villages and block panchayats.
6	National Playing Fields Association of India (NPFAI)	-Spreading awareness on fitness and encouraging Indian children to play sports by building more playing fields and spaces in the country. -Establishing playing fields associations at the state level so that NPFAI can sanction funds to these states for the development of playing grounds and parks.

Source: ASSOCCHAM, India, 2019

Deb Burman 2007 Manipur has managed to gain international fame by preserving her traditional dance forms. Important amongst these are Lai Haraoba (Spring Festival), Yaosang which is Manipur’s biggest festival, Ta Khousural and Thang Yannaba (Martial dances), Raas Leela, Khamba Thoibi as well as traditional Polo (Sagol

Kangjei), Yubi- Lakpi (traditional rugby and wrestling hockey (Mukna Kangjei). **Barun H, 2011.** The Indian Olympic Association (IOA) in its Annual General Body Meeting held on 20th dec. 2006, gave recognition to the Thang Ta Federation of India. The fame of the Thang Ta sport also started spreading outside India. Starting with Bangladesh (in 2003) Thang Ta sport movement has already spread to many countries- Burma (Myanmar), Nepal, Bhutan, Sri-Lanka, Afghanistan, Indonesia, Malaysia, Singapore, Philippines, China, Canada, Japan, USA etc, the number is increasing day by day. Table 2, highlights the competition and federation cup held on Thang Ta in different states of India and countries abroad.

Table 2: Competition Organised by Thang Ta Federation of India in India and Abroad

Sl. No.	Level of Competition	Held at	Year
1	1 st to 25 th National Thang Ta Championship/ Competition/ Federation Cup	Manipur, Delhi, Maharastra, Haryana, Madhya Pradesh, Assam, Gujarat, Goa, Uttar Pradesh, Himachal Pradesh, Rajasthan, Tamil Nadu, Jharkand, Jammu Kashmir; Pondicherry; Telangana, Karnataka, Tripura, Chandigarh, Punjab	1993 -2019
2	International 1 st – 10 th Championship	India, Iran, Korea,	2011 -2019

Source: Primary Data

Many students of Manipur represented their Thang centre/ academy/ institute/ *maheikol* in the National and international championship held in different states of India. Most of the time, Manipur state would able to achieve overall 'Team championship'. The students of Thang Ta bought laurel and pride to the nation at the international level too. The sport is not fully appraised yet as compared to other sports namely Football, boxing, Fencing, Taekwondo, Wushu etc. It is in the above context that SWOT analysis is required for the strategic management of Thang Ta in the sport sector. In the survey questions broad areas of Thang Ta SWOT items are developed and coded for the convenience. Table 3(a), 3(b), 3(c) and 3(d) explain the items included in the Strengths, weaknesses, opportunities and threats. These are formulated after a preliminary survey and review of secondary data from different applicable sources.

Table 3(a): Items of SWOT developed (Strengths of Thang Ta in Manipur)

Strengths (Internal Factor /Positive)
Teachers are skilled/expertise and trained in the Thang Ta Sports.(S1) (45, 100%) Students participated at the national/international level.(S2) (37, 82%) Benefits on physical & mental health.(S3) (45,100%) Increasing number of students because many parents prefer their ward to learn own tradition and culture.(S4) (38, 84%) Female participants are increasing.(S5) (39, 87%) Teachers created learning and interesting environment.(S6) (41,91%) Teachers have whole heartedly given to the sport.(S7) (43, 96%) Equipments such as Thang, Ta, cheibi, shield used in the tournament are manufactured in Manipur which can be traded (S8) (45,100%) Dress/uniform having cultural identity of Manipur. (S9) (45, 100%) Meiteilon is spoken during the game as rules and conduct. (S10) (45, 100%) Discipline, respect, morality are the values of the sport.(S11) (45,100%)

Table 3(b): Items of SWOT developed (Weaknesses of Thang Ta in Manipur)

Weaknesses (Internal Factor /Negative)
Need to improve Centre's infrastructure overall.(W1) (41, 91%) Land requirement for constructing the centre.(W2) (35, 78%) Many teachers are using community hall and field for teaching the students. (W3) (25, 56%) Registration of the centre under Society registration act is a tedious task.(W4) (26,58%) Necessary sports equipments are lacking such as mattress kick bag, punch bag etc.(W5) (40,89%) Lacking Adequate cash flow for running the centre.(W6) (45, 100%) Not having adequate income from the centre.(W7) (37, 82%)

Many students of Thang Ta belongs the BPL families.(W8) (40, 89%)
Many Thang Ta centres are not flourishing in Manipur because of the lack of Government intervention and scholarly research.(W9) (42,93%)

Table 3(c): Items of SWOT developed (Opportunities of Thang Ta in Manipur)

Opportunities (External Factor /Positive)
IOA recognized Thang Ta sport in 2006.(O1) (45, 100%)
WTTF is a member of WMAU.(O2) (45, 100%)
Almost all states of India and many countries are playing the sport.(O3) (45,100%)
People preference on mental and physical health fitness.(O4) (45, 100%)
As a self defense skill especially for women.(O5) (45,100%)
Coming up of National Sports University in Manipur.(O6) (43, 96%)
Sports, health and cultural tourism.(O7) (44, 98%)
Equipment, Uniform can be manufactured in Manipur and traded.(O8) (45, 100%)
Packaged customized product and generate income/revenue such as Designing short & long term courses, Self defense classes for women, Both classroom and Distance learning facility, Personal trainer (Home visit).(O9) (45, 100%)

Table 3(d): Items of SWOT developed (Threats of Thang Ta in Manipur)

Threats (External Factor /Negative)
Funding agencies not fully accessible.(T1) (39, 87%)
Main competitors in the field of Thang Ta are Fencing, Taekwondo, Wushu, karate etc. which are appraised already.(T2) (45, 100%)
Growth of internet/gaming makes many youth to be in mobile phone for many hours rather practicing any sports.(T3) (30, 67%)
Many Students/youth doesn't see future prospect of Thang Ta.(T4) (37, 82%)
State and centre not fully appraising the sport.(T5) (42, 93%)

The above items in SWOT are analysed and ranking scales is given as per the information from the teachers. Table 4, expressed the ranking of those items as per the information from the primary data. The most preferred opinion is given rank first, second, third and so on.

Table 4: Distribution of SWOT's Items and Ranking

Strengths	Ranking	No. of respondent (%)	Weaknesses	Ranking	No. of respondent (%)
S1,S3,S8,S9,S10, S11	First	45 (100%)	W6	First	45 (100%)
S7	Second	43 (96%)	W9	Second	42 (93%)
S6	Third	41 (91%)	W1	Third	41 (91%)
S5		39 (87%)	W8, W5	Fourth	40 (89%)
S4	Fourth	38 (84%)	W7	Fifth	37 (82%)
S2	Fifth	37 (82%)	W2	Sixth	35 (78%)
			W4	Seventh	26 (58%)
			W3	Eighth	25 (56%)
Opportunities	Ranking		Threats	Ranking	
O1, O2, O3, O4, O5,O8,O9	First	45 (100%)	T2	First	45 (100%)
O7	Second	44 (98%)	T5	Second	42 (93%)
O6	Third	43 (96%)	T1	Third	39 (87%)
			T4	Fourth	37 (82%)
			T3	Fifth	30 (67%)

2.1. STRENGTHS OF THANG TA:

In table 4, it is coded that the strengths of Thang Ta especially for the teachers are their knowledge and skills in the field. It is worth mentioning that one of the respondent said 'there are more than 100 different style of exercise in Thang Ta'. Many researchers already proved that practicing any sport gives fitness to mind and

body. Many Thang Ta students from Manipur brought laurel and pride by achieving gold, silver and bronze medal at the national and international level. This is an asset for the concerned person as well as for the institute or state. All (100%) the teachers agreed that practicing Thang Ta regularly makes them physically and mentally fit. This statement correlate with the study done by **Lena Motallebi M S (2010)** that participating in sports activities regularly have caused physiological adaptations such as respiratory, musculoskeletal, cardiovascular and hormonal adaptations so will promote individual capabilities in physical and mental level and enhance the tolerant of the people versus oppressions of the environment and this point prevented of mental disorder. All the 45 respondents agreed that the equipments namely *cheibi*, *chungoi*, *leiteng thang*, *ta*, used in the tournament of Thang Ta at the national and international level are manufactured in Manipur. They are made manually by skilled persons in the field thereby an opportunity for the persons to generate income. **Mayur Basuk (2013)** in a study expressed that inflated balls produced in India are largely hand stitched and, therefore, have better bounce than the machine-stitched balls from China, this gives them an advantage over China in European markets where hand-stitched balls are preferred. **Laura Wood (2019)** The Indian sports and fitness goods market reached a value of US\$ 3,314 Million in 2017. The market value is further projected to reach US\$ 5,565 Million by 2023, at a CAGR of 9.0% during 2018-2023. **ASSOCCHAM (2019)** Manufacturing of sports goods also forms a major part of the sector. As it is closely linked with various other sectors like tourism, real estate and health education, the sports sector as a whole impact the global economy significantly. Such sports goods can be manufactured in a large scale and traded with trademark. Many unemployed in the region will get the job opportunity as well as those engaged in intermediate goods business will also be advantageous. Not only this, Meiteilon language is spoken as a rule and codes of conduct in Thang Ta all over the world.

Among the respondents, 39 teachers expressed that the number of female participant is increasing. This recommends that the Thang Ta is a skill which is required to be learnt from the fitness and safety point of view especially for the women. The Ministry of Youth Affairs and Sports also organized a conference on 'Women and Sports in India' in New Delhi on the occasion of International Women Day on 8th March, 2017 to deliberate upon various issues for encouraging more and more women to take up sports. It is also important to create an interesting, conducive and safe environment by the teachers at the centre to retain the students. **Colin G P (2017)** noted that youth coaches and physical educators should implement techniques based on prosocial behavior theory. These include personalization, rewards, punishments and promoting a positive attitude. Athletes and PE participants who experience competitive situations under quality leadership in healthy environments are more capable of coping with aggression-inducing situations than their peers. In Thang Ta institutes of Manipur many teachers (91%) created an interesting learning environment by organizing visit, picnic, New Year, birthday celebration etc. This is because the concerned teachers have a love, feelings, sacrificing spirit in the sport.

2.2. WEAKNESSES OF THANG TA:

93% respondents said that Thang Ta is not flourishing because of the lack of government intervention in appraising the sport. They also mentioned that those who used to play Thang Ta have shifted their interest in Fencing and other sports. It may be because they don't see any prospect in Thang Ta. Some of them got Job after joining fencing which would not have been possible in Thang Ta. **Lunghar Jajo (2016)** The Government of India has been taking various steps and initiatives to promote good governance practices in the management of sports at the national level in pursuance of successive National Sports Policies. But, the inaction on the part of the Government in implementing and enforcing its own guidelines contributes to the backwardness of the sports sector. **Ankan Banerjee, (2018)** reported that according to the Constitution of India, sport is a State subject. The state governments allocate funds for the development of sports and sports infrastructure as per their priority. There is no comprehensive approach for the development of sports infrastructure uniformly throughout the country. In Manipur the precious indigenous sport is not given the desirable importance, almost all the studied centers are lacking adequate cash flow and fund because many teachers are not taking fees from the students. Moreover many students who are interested in the sports belong to lower income group family. The situation is more vulnerable when some teachers are utilizing community facility such as community hall, open field because they don't have their own centre's land and build up basic infrastructure. 89% of the teachers are teaching Thang Ta without mattress, kick bag, punching bag. **Ankan Banerjee (2018)** The non-availability of land for building sports infrastructure is another major obstacle. Moreover, not much initiative has been observed till now in promoting sports-specific infrastructure by adopting Public Private Partnership model to ensure the sustainability of these facilities.

2.3. OPPORTUNITIES OF THANG TA:

Today Thang-Ta has emerged as very popular martial art game in India and attained recognition in the realm of national and international arena. In recent years Thang-Ta has been promoted as a sport all over India and also as a self-defense tactical subject. Every year Thang-Ta competitions are held at school, district, state

and national level. Manipur and Jammu & Kashmir are currently the strongest contenders at the national level. The inclusion of Thang Ta in World Martial Arts Union (WoMAU) and recognized by Indian Olympic Association (IOA) is an assets which is an opportunity. The award received by Thang Ta teachers speaks the importance of the Thang Ta skill. Shri N Khelchandra Singh, Shri Gurumayum Gourakishor Sharma, Shri R K Achoubisana are leading exponent who received the high Padma Shri honor award from the Indian Government for their skills, contributions, preservation and advancement of the Thang Ta. There are many more who received national and state level award in the field of Thang Ta. All the respondents agreed that Thang Ta skills can be taught online. Online learning or distance learning in India is commonly offered by some Universities and organizations in various areas of study. The module of the Thang Ta sport can be categorized and customized as per the convenience of the customer. **Shailendra Palvia (2018)** Online education is on track to become mainstream by 2025. The online education system in India currently stands at US \$247 million with an average of 1.6 million users; it is expected to grow to US \$1.96 billion with around 9.6 million users by 2021. Digital India and Skill India are among the several government initiatives launched to spread digital literacy in India. Thang Ta is being practiced in other states of India and countries in abroad. It may be an opportunity for those who are highly skilled and expertise in its history and culture. The required soft skill may be easily access because the region doesn't lack IT professional. All (45) the respondent agreed that Thang Ta is a self defense skill for woman. **Saravana Prabha R (2017)** Self defense and self-protection are an important priority for women in particular for college students. Self defense is important because statistics say that all women are good candidates to become victims of violent crime at any point in their lives. According to statistics, a woman who is only 21 years of age has a 25 percent risk of suffering violent crime in her life. The equipments and uniforms to be used in the Thang Ta tournament can be manufactured in a large scale and traded. To maintain its continuity trademark can be obtained. 100% of the respondents expressed interest and think that uniform and equipments can be a good business avenue which can be a profitable business. Not only this Thang Ta art comes under the domain of sports, education, performing art, indigenous game, cultural heritage which have a potential in the field of health, cultural and sports tourism. 96% of the studied samples have a high hope after the establishment of National Sports University in Manipur. They have a dream to see Thang Ta sport in the arena of NSU as a department of Indigenous Sports. The dream may soon be a reality only when the concerned included in their proposal and planning which again calls for all the stakeholders to involve in the decision making.

2.4. THREATS OF THANG TA:

Many Thang Ta players of Manipur have turned their face towards fencing, taekwondo because these games were included in Olympic and karate and wushu in the Asian game. Moreover they don't see any scope of playing Thang Ta in Manipur since the sport is still not fully appraised by the concerned. The present students as well as teachers doesn't have guaranteed hope that they will get the opportunity especially job in the field. The problem becomes more vulnerable when the skilled person in the field of Thang Ta doesn't have an access to funding agencies easily and timely. The growth of internet gaming and used of smart phone with internet access may also make the youth least interested in the physical activity sports. If we analyse the sport 'Fencing' it is a traditional martial art of European region. The 'Taekwondo' and 'Wushu' is the indigenous martial art of Korea and China respectively. 'Karate' is a Japanese martial art. All of these have become so famous that by the word itself one comes to know about the sport and the country. It is sad to hear people asking 'Is Manipur in Burma', 'Is your house on tree' and many more. It is the Thang Ta where the art will automatically tells the place, history, tradition of our state. The mentioned threat has to be overcome by minimizing the weaknesses and utilizing the identified strengths.

3. FINDINGS:

It was found that SWOT analysis is a useful technique to know the strength, weakness, opportunity and threats of a Thang Ta institute/centre under TTFI. Conducting SWOT analysis should make a huge impact on the part of the organization concerned. The information is to be utilized for making plans and policies. The major findings in the study are, Thang Ta can generate revenue for the state by creating health tourism, cultural tourism and sports tourism. The equipments used in Thang Ta tournaments can be manufactured and traded in a large scale thereby the local artisans are benefitted as well as the marketing distribution channels managers. To appraise the sport, one needs strategic planning such as customized the skill as per the convenience of the customer/students. Customers are king in the market, if there is limited choice they may not opt the product. Thang Ta as a product requires to be customized from the customer point of view. Offering packaged home visit for personal training, short term and long term courses in class room and online mode. Advertising the sport 'Skill for Self defense especially for women' so that woman participate without hesitation. Centre infrastructure is a major problem in almost all the studied centre, the concerned ministry and stakeholders need

to look into the matter. Funding agencies are not easily and timely accessible this may hamper the growth of the learning environment overall. Many students used their own money for conveyance and others while participating national and international outside Manipur. When the student achieved laurel and pride all kinds of media is swarming but hardly talks about the hurdle one faced to achieved the fame.

4. CONCLUSION:

SWOT Analysis is an important tool for strategic management. The strengths of the Thang Ta teacher to be utilized to generate more income by offering customized product. Better sports infrastructure lead to overall development of the centre, teachers and students. To become self sustain and reliance, systematic strategic management requires to be implemented from the grass root level.

5. ACKNOWLEDGEMENT:

The authors would like to pay respect and gratitude to Oja Huidrom Premkumar, President, World Thang Ta Federation. Oja Huidrom Kirankumar, International Coach, Thang Ta Federation of India for giving the contact numbers of Thang Ta teachers of Manipur. The authors would like to thank those teachers for their cooperation.

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A NORMATIVE STUDY OF PHYSICAL FITNESS FOR SCHOOL BOYS

¹Vijayavel T., ²Dr. Baliram D. Lad

¹Ph.D Research Scholar, ²Principal - Ph.D Research Guide

¹Department of Physical Education, ¹Swami Ramanand Teerth Marathwada University,

²College of Physical Education Kautha,

^{1,2} Nanded-431603 Maharashtra.

Email:-¹vijayveltheni@gmail.com, ²ladbaliram@gmail.com

1. INTRODUCTION:

Physical Fitness

Physical fitness plays an important role in our daily life and optimum level of physical fitness is essential for maintaining our daily life smoothly. A fit person obviously plays a significant role for his own daily life, his family and society. Physical fitness is defined as the capacity of the body to adopt and recover from strenuous exercises. The sports performance depends largely on physical fitness i.e. strength, endurance, agility, power, speed and cardio-respiratory endurance. Physical fitness is a matter of fundamental importance to the wellbeing of the every individual. Physical fitness is one of the main mottos of physical education programme.

1.1. STATEMENT OF THE PROBLEM

The Physical fitness test were used not only for grading purpose, but also for classification where students might be permitted either to choose their activities or participate in some types of sports activities instead of class work. Realizing the importance of evaluating the students in fitness there is a need for preparing the norms. The problem for research is therefore stated as follows.

2. A NORMATIVE STUDY OF PHYSICAL FITNESS FOR SCHOOL BOYS

2.1. HYPOTHESIS:

- According to hypothesis physical fitness level of school boys of 11 & 12 and 13 & 14 age's performance would not be the same.

2.2. DELIMITATIONS:

- The research work will be limited to the students who are studying from 6th to 9th Standard.
- It is proposed to study and compute the norms of physical fitness for 600 boys of SCISMMatriculation Higher Secondary School Bodinayakanur town Theni District Tamilnadu.
- The AAHPER Youth Fitness Test item is conducted.

2.3. LIMITATIONS:

- The study was conducted on sample drawn from different populations. So the motivation level of the subjects at the time of testing was not controlled.
- Certain factors like habits, life style, daily routine work, diet, etc, might have influenced the results which were not considered in this study.
- The conditions of the school ground and environmental factors have not been taken into consideration.
- The subjects for the study do not come from the same social, economical and cultural background.

3. METHODOLOGY:

3.1. Selection of subjects: The present study was conducted on 600 boys of SCISM Matriculation Higher Secondary School Bodinayakanur town Theni District Tamilnadu State and their age ranged from 11 to 14 years. The AAHPER Youth Fitness Test was administered on all the subjects. The age wise students is presented in Table -1

Table- 1

Sr. No.	Years (Age Group)	Number of Boys
1	11	150
2	12	150
3	13	150
4	14	150
Total Boys		600

3.2. Selection of Tests:

The AAHPER Youth fitness test was selected for the purpose of the study. This test measures most of the physical fitness components satisfactorily. Moreover the items were not complicated or difficult but it is simple and easy to be operated upon the subjects. The AAHPER Youth fitness test item is conducted as per the rules and regulations of AAHPER Youth fitness test manual.

3.3. Statistical Technique:

The performance of each test items was gathered for all the subjects separately. The age group 11 & 12 years combined together and age group 13 & 14 years combined together for preparing the norms of percentile scale. To find out the reliability of the test the coefficient of correlation (Pearson product) is used (Test and Re-Test method). For Calculating Percentile Scale MS-Excel and SPSS Package is used.

4. ANALYSIS OF DATA AND RESULTS OF THE STUDY:

4.1. Physical Fitness Norms of Percentile Scale:

Percentile Scale was constructed for the purpose of evolving physical fitness of boy sages of 11 & 12 and 13 & 14 years of SCISM Matriculation Higher Secondary School Bodinayakannur town Theni District Tamilnadu State. It helps to compare the students of his percentage and who score below or above of his score of the same age. Zero percentile is located at the lowest score in the data from which the percentile table is constructed and 100th percentile is placed at the highest score.

4.2. Percentile Norms:

The percentile scales for boys of ages 11 & 12 years as employed in this study for different items of AAHPER Youth Fitness Test have been presented in table -2.

Table 2. Percentile Norms for AAHPER Youth Fitness Test for 11 & 12 Years Boys

Percentile	50 Mts Dash (Seconds)	4x10 Mts Shuttle Run (Seconds)	600 Mts Run / Walk ((Min.Seconds)	Standing Broad Jump (Mts.Cm)	Pull Ups (Counts)	Sit Ups (Counts)
100	7.45	9.44	2:20	1.85	10	23
90	8.06	11.47	2:38	1.72	4	22
80	8.41	11.99	2:43	1.70	3	21
70	8.67	12.33	2:51	1.62	2	21
60	8.89	12.65	2:59	1.58	2	21
50	9.10	12.95	3:07	1.53	2	20
40	9.26	13.20	3:11	1.46	2	20
30	9.49	13.60	3:17	1.40	1	18
20	9.74	13.95	3:26	1.35	1	17
10	10.26	14.26	3:38	1.26	1	13
0	14.41	16.41	4:50	1.05	1	9

4.3. Percentile Norms:

The percentile scales for boys of ages 13&14 years as employed in this study for different items of AAHPER Youth Fitness Test have been presented in table -3.

Table-3: Percentile Norms for AAHPER Youth Fitness Test for 13 & 14 Years Boys

Percentile	50 Mts Dash (Seconds)	4x10 Mts Shuttle Run (Seconds)	600 Mts Run / Walk ((Min.Seconds)	Standing Broad Jump (Mts.Cm)	Pull Ups (Counts)	Sit Ups (Counts)
100	7.08	8.08	1:46	2.00	13	38
90	7.79	9.41	1:59	1.90	7	35
80	8.11	10.16	2:17	1.85	5	31
70	8.30	10.51	2:24	1.80	3	29
60	8.41	11.05	2:32	1.71	3	27
50	8.72	11.39	2:44	1.65	2	26
40	8.90	11.68	2:55	1.57	2	25
30	9.14	11.96	3:06	1.50	2	24
20	9.31	12.31	3:18	1.42	2	21

10	9.59	12.79	3:32	1.30	1	18
0	11.92	13.97	3:59	1.10	1	12

4.4. Reliability of Test:

For reliability of test 10 subjects were selected at random and retest were conducted at the same climatic condition, the same test but the retest were conducted by the another tester. The test score and retest score of 10 subjects were calculated by using pearson product moment correlation formula. The following correlation were obtained for the various test items mentioned in table-4

Table-4: Reliability Coefficient of Correlation of Test-Retest Scores

Sr.No	Test Items	Coefficient of Correlation
1	50 Mts Dash	0.96
2	4x10 Mts Shuttle Run	0.97
3	600 Mts Run/Walk	0.97
4	Standing Broad Jump	0.97
5	Pull Ups	0.96
6	Sit Ups	0.95

5. DISCUSSION OF FINDINGS:

Physical fitness norms for boys ages 11 & 12 years and 13 & 14 years of SCISM Matriculation Higher Secondary School Bodinaya kannur town Theni District Tamil nadu State were constructed in terms of percentile scale for measurement of physical fitness test. AAHPER Youth Fitness Test was selected and employed in this study.

50 meter dash:

In 50 meter dash the percentile scale the highest performance is **7.45** seconds for 11 & 12 ages and the lowest performance is **14.41** seconds for 11 & 12 ages. The highest performance for 13 & 14 ages is **7.08** seconds and the lowest performance is **11.92** seconds for 13 & 14 ages respectively.

4x10meter Shuttle run:

In 4x10 meter shuttle run the percentile scale the highest performance is **9.44** seconds for 11 & 12 ages and the lowest performance is **16.41**seconds for 11 & 12 ages. The highest performance for 13 & 14 ages is **8.08** seconds and the lowest performance is **13.97** seconds for 13 & 14 ages respectively.

600 meter Run/Walk:

In 600 meter Run/Walk the percentile scale the highest performance is **2.20**min.seconds for 11 & 12 ages and the lowest performance is **4.50**min.seconds for 11 & 12 ages. The highest performance for 13 & 14 ages is **1.46**min.seconds and the lowest performance is **3.59** min.seconds for 13 & 14 ages respectively.

Standing Broad Jump:

In standing broad jump the percentile scale the highest performance is **1.85** meter for 11 & 12 ages and the lowest performance is **1.05** meter for 11 & 12 ages. The highest performance for 13 & 14 ages is **2.00** meter and the lowest performance is **1.10** meter for 13 & 14 ages respectively.

Pull Ups:

In pull ups the percentile scale the highest performance is **10** counts for 11 & 12 ages and the lowest performance is **1** count for 11 & 12 ages. The highest performance for 13 & 14 ages is **13** counts and the lowest performance is **1** count for 13 & 14 ages respectively.

Sit Ups:

In sit ups the percentile scale the highest performance is **23** counts for 11 & 12 ages and the lowest performance is **9** counts for 11 & 12 ages. The highest performance for 13 & 14 ages is **38** counts and the lowest performance is **12** counts for 13 & 14 ages respectively.

6. CONCLUSION:

Based on the findings and within the limitation of the study, the following conclusions were drawn.

- Percentile scales were prepared for 11 & 12 age's boys and 13 & 14 age's boys separately of SCISM Matriculation Higher Secondary School Bodinayakannur town Theni District Tamilnadu State.
- AAHPER Youth Fitness Test was employed on 300 boys of ages 11 & 12 and 300 boys of ages 13 & 14.
- The norms were prepared by using percentile scale techniques analyzed through statistical package.

7. RECOMMENDATION:

- The normative scale constructed in this study may be used to evaluate the physical fitness of boys ages 11 & 12 and 13 & 14 in SCISM Matriculation Higher Secondary School Bodinayakannur town Theni District Tamil nadu .
- The percentile scale norms are more appropriate, hence percentile norms may be used for evaluating the physical fitness of the boys.
- The same study may be repeated by employing the boys of different ages of SCISM Matriculation Higher Secondary School Bodinaya kannur town Theni District Tamilnadu.
- The same study may be repeated by employing the girls students in the same school.
- The norms prepared may be utilized for comparing the standard of performance of boys from different schools in same city.

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**HORIZONS AND TRENS OF PEDAGOGY ON LEADERSHIP
QUALITIES OF KABADDI COACHING AMONG THE PHYSICAL
DIRECTORS IN TELANGANA STATE**

¹**RAMA RAO YASA, 1.,** ²**Prof. P. RAMESHREDDY**

¹Scholar, ²supervisor & Head,

^{1,2}Department of Physical Education & Dean, Administration

KAKATIYA Institute of Technology & Science, Warangal.

Email - ramaraoykabaddikmm@gmail.com

1. INTRODUCTION:

There is no adequate leadership and supervision in coaching it will be like ‘A ship without a suitable right captain’. ‘A factory without a Manager, ’A Guest house without A caretaker’ and A temple without A priest. The player within range areas that need improvement Leadership has ‘to lead’ shows the two type of senses (a) “to excel, to be in advance, to be prominent” (b) “to guide others, to be head of an organisation, to hold command”. Leadership helps utilising as a coach for Training and as a player for Good Captain to lead the Team of outstanding contribution. The main KABADDI Coach, raise level the individual being coached. Active communication and team involvement. KABADDI Coaching Leadership under takes with more than one style. What skills do KABADDI Coaches need to be successful qualities of a great coach? a player KABADDI responsible for and training players game motivation, knows players, consistency Effective Clear communication. Leadership and training refer to the activities that are designed and performed to produce a change in player’s behaviour. Horizon is the line in the far distance where the sky seems to meet the land (sky line) or that further point you can see... Horizon means the limit of a person’s knowledge, experience or interest and understanding, the limit of what is possible in particular field or activity. Horizon means Range of vision, experience, Field View. The limits of what one wants to do or of what one is interested or involved in new ideas can give a whole, new meaning to life. New visions and collaboration of Educational Physical Directors KABADDI Coaching on Pedagogical Leadership Training curriculum under existing D.P.ED, B.P.ED, M.P.ED courses. TELANGANA Physical Directors especial to confined specific education 3 groups concern Pedagogy on leadership qualities in school Games Federation of India, KHELO India KABADDI competitions coaches express their views independent Questionnaire survey applied LIKERT scale – Degree of Agreement. Ratings by 5 responses taken to enable further analysis and interpretation without losing details.

The Practical strategies, actions, teacher judgments and decisions, the function or work of a teacher. **ped.a.go.gy** – pedagogy is art, science of teaching and educational methods, profession of teaching. Science of Training method or Teaching and coaching Methodologies... The slave tutors who used to teach at home were called pedagogue. Pedagogy is the science and art of Education. Coaching is formal as well as informal Education faced challenges and solutions. Method is not static and there is no set pattern of teaching. The pattern should be changed according to the Varying conditions and needs. Physical Directors must have aim to improve academic growth and development with honesty and integrity. Physical Directors Men and Women confined KABADDI managers paired test , Educational and NIS certified coaches Independent sample Levine’s test of Equality of Variance of KABADDI Training categorical Leadership Role models at state and National competitions fair minded assessment of abilities are statistically significant at .05 level significance between the primary, Internal, Rational and Human Relation variable in TELANGANA state. Physical Directors confined Educational and sports Authority two groups of KABADDI coaches Analysis of Variance (ANOVA) / F-Test significant at .05 levels between the variables in TELANGANA state. Physical Directors KABADDI managers paired sample and Educational / Experience KABADDI coaches’ independent sample Men and Women at state and National level KABADDI competition categorical Leadership abilities coefficient of correlation (Karl Pearson) significant at .05 very high type of coefficient of Determination. Physical Directors pedagogical leadership Analysis of chi square test among Experience and Educational knowledge

homogeneity of KABADDI coaches Men and Women Leadership abilities categorical items test statistic with hypotheses of independence and Goodness of Fit and Linear Regression analysis between variables are contributed excellent significant. Physical Directors for Linear Regression between variables to confined KABADDI Managers, Educational and Experience among KABADDI coach prediction of Leadership Qualities of Primary, Internal, Rational and Human relation model at state and National KABADDI competitions at $p < .05$ level of significant. Physical Directors confined KABADDI Managers and coaches have internal validity as well as Reliability of categorical leadership qualities of 24 items statistic cronbach's Alpha (α) coefficient, is best objectivity i.e. Managers score .903 and coaches score .943. The study samples consisted of 3 groups was designed to assess their attitude towards Leadership competencies and their degree of involvement in decision made process in the State and national KABADDI competitions. The study was concluded that fundamental Leadership change has occurred in expected traditional way of efficiency. Physical Training Leadership competencies, physical fitness and KABADDI Training promoted training literacy by State council for Education, Research and Training collaboration with Association of Physical Directors positive contribution to curriculum development in Teacher training institutions in place of self -finance courses and cocurricular programme for play, age students in School Education. "Necessity is the mother of Invention". This Research original knowledge helped to society of Physical Educationist/ coach/ manager academic Training behaviour or aptitude make new horizons, trends speed and strength of the KABADDI teams on the play field. The correlation coefficient between variables viz. Physical Directors adjustment found Pearson r turned out to .70 - .90 respectively significant. The findings of the study Leadership role scores are reliable and valid, cronbatch alpha coaches.946 and managers .903.

2. MATERIAL, METHOD AND RELIABILITY:

Research problem was Trend studies are used to obtain and analyse Educational KABADDI Organizations conduct academic KABADDI players Training by physical Directors in order to plan effectively and to meet the demands that will be made on them in the future systematic scientific method of training, direction of change may combine Education and sports Education. Physical Directors trained adopted KABADDI certification from Sports authority instead of academic Diploma, bachelor, Master of Physical Education Degrees from University Education. Teacher versus Non-Teacher Certification of KABADDI qualified Trainer comparison problem was made in Educational Institution sports programs. Researcher selects the TELANGANA state and Educational experience. The Researcher must state the Problem clearly as it is done in case of other types of research. Educational and Experience involved in the study. Horizons, trends, pedagogy and Leadership categorical variables wish to study the progress conditions of teachers, Physical Directors towards school or pre university KABADDI Training Programmes in TELANGANA State. Researcher after defining the problem, all Physical Directors confined to KABADDI coaches and managers are Population. Physical Education KABADDI Players cum physical teachers/ Directors, B P Ed / M P Ed KABADDI specialization PE teacher/ directors and NS NIS KABADDI six week (academic) Sports Authority of India certification PE Teacher / Directors 3 groups Data , degree of agreement adopted, teacher made 4 role model 6 sub role Leadership 24 item and 42 in order to 14 model responses tool own attitude scales. The sample subjects are selected should adequately knowledge in training methods. The scholar must select the groups about which he wishes to seek information at state and National competitions. Descriptive correlation special type of Research design surveys study focussed as comparative, descriptive and Group case studies (Campbell & Stanley, 1963; Crowl, 1993) Physical Directors Men and Women categorical Leadership degree of Agreement; STRONGLY

AGREE-5, AGREE-4, NEITHER AGREE NOR DISAGREE-3, DISAGREE-2, STRONGLY DISAGREE-1.

Table: 1 Showing Leadership Role factors of KABADDI Coaches, Managers item Cronbach's Alpha coefficient of Reliability, Variable F value.

Factor Item	Item Loading	
Item	Self (Coaches)	Self (Managers)
INNOVATOR:	F (2.248)	F (3.520)
1. Comes Up With New Kabaddi Training Techniques-.	.940	.909
2. Applies Inventive Ideas and Technique in Scheduled	.850	.911
3. Searches for Innovation and Potential Improvements Plans	.939	.908
4. Creates New Skills and Strategies –Preparatory/Competition	.941	.850
BROKER:		F (7.070) F (4.569)
1. Exerts Upward Influence in the Organization/ Institutionalization	.872	.909
2. Influence People/ Players at Managerial Levels-Dist/ State/ National	.940	.908

3. Influence Decisions Made At Levels- Dist/ State/ National	.939	.907
4. Well Acquainted With People Of Influence ,Build up/ Main Competitions	.820	.832

DIRECTOR;	F (1.060)	F (3.712)
1. Defines the Areas of Responsibility of the Player	.841	.910
2. Assigns the Roles for the Player	.940	.909
3. Encourages Players to Achieve the Goal	.861	.910
4. Sets Clear Objective for the Team	.941	.909
CO-ORDINATOR;	F (3.184)	F (2.763)
1. Maintains Day- To – Day Training As Scheduled	.921	.910
2. Minimizes Disruptions to Training	.831	.909
3. Keeps Continuity in the Training as Planned	.940	.910
4. Avoid Disruption to Training	.870	.909
MONITOR:	F (1.36)	F (3.716)
1. Compares Record on Players / Teams to Detect Discrepancies	.942	.908
2. Reviews the Training Programs and Game Schedules	.941	.909
3. Examines Records and Game to Find Weaknesses	.933	.910
4. Trains Players Based On Data Obtained During Practice	.871	.911
FACILITATOR/ MENTOR:	F (1.313)	F (4.289)
1. Encourages Player to Offer Options	.941	.907
2. Shows Affection and Concern to Players	.940	.910
3. Treats Each Player as an Individual	.844	.882
4. Encourages to Participate in Decision Making	.944	.910

3. SELECTION OF VARIABLES:

KABADDI Managers, Coaches situational approach emphasized leadership in the organizational context and focussed on the corresponding leadership style and managerial role. I am sure that Effort of this Diagnose the orientation of the pedagogy on KABADI coaches to help KABADDI administration under the umbrella of academic Institutionalization in Physical Education. The selected Leadership qualities consist of four models of organization for effective management of the coaching and teaching (pedagogy) of Game KABADDI. In the primary system model, the **Primary Roles** for coaches are that of **INNOVATOR AND BROKER**. The **internal process** model endows **DIRECTOR AND COORDINATOR** roles; **human relations** model, **Mentor or Facilitator**; and the **rational goal** model, **Monitor** have access to information that could lead to positive changes exchanging the information and improvements affecting a great number of current and future participants

4. DISCUSSION AND FINDINGS:

There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Primary Role Model Innovator, Broker variables at state level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Internal Process Role Model Director, coordinator variables at state level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Rational Goal Model, Human Relation Model Monitor, Mentor variables at state level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Primary Role Model Innovator, Broker variables at National level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Internal Process Role Model Director, coordinator variables at National level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may be no significant difference between Physical Directors confined KABADDI Managers paired sample Rational Goal Model, Human Relation Model Monitor, Mentor variables at National level KABADDI Competitions in 2016 and in 2019 in TELANGANA State. There may not be significant difference between Physical Directors confined Specialization B P Ed/ M P Ed KABADDI coaches and SAI NS NIS six week KABADDI coaches Independent sample Men , Women Leadership Variables Primary Role Model, Internal Process Role Model, Rational Goal Model, Human Relation Model at state KABADDI Competitions in TELANAGANA State.(same Assumed M.D and Levine's Equality of Variance Test). There may not be significant difference between Physical Directors confined Specialization B P Ed/ M P Ed

KABADDI coaches and SAI NS NIS six week KABADDI coaches Independent sample Men , Women Leadership Variables Primary Role Model, Internal Process Role Model, Rational Goal Model, Human Relation Model at National KABADDI Competitions in TELANAGANA State.(same Assumed M.D, Levine's Equality of Variance). There is greater than or Equal significant difference between Physical Directors confined KABADDI Managers paired sample correlation in Leadership variables Innovator, Broker, Director, coordinator, Monitor, Mentor at State and National KABADDI Competitions in TELANGANA State. There is any statistical difference in organization of Physical Directors Test of Association / correlation item wise questionnaire between KABADDI Managers and coaches in TELANGANA State. There is no difference among Physical Directors Average, variation between survey Leadership variables between and within groups KABADDI Managers, coaches Men ,Women in KABADDI Training item Questionnaire in TELANGANA State.(ANOVA, F Test, p-value) There is a larger or equal significant test Reliability coefficient values of Questionnaire items between KABADDI Managers, Coaches in TELANGANA State. There is no relationship exists on the categorical variables between the Educational knowledge and Experience knowledge coaches Men, Women in TELANGANA State. (Goodness of Fit or Fishers exact test of Independence; chi square Test). There is any difference or equal percentage assumptions on Teacher made items Questionnaire survey KABADDI game skill performance between KABADDI Managers, Coaches Men, and Women in TELANGANA State

KABADDI was included in the curriculum of regular Diploma courses in coaching conducted by Sports Authority of India, National Institute of Sports. Thereafter, qualified coaches are being produced every year. Physical Directors was one who knows the way of Training shows the way of training in Educational sector. Physical Directors confined KABADDI Managers, Coaches was not an Exception as a Profession cannot progress without qualitative and strive Leadership at State, National competitions in new 33 districts in TELANGANA State. Horizons and trends of pedagogy on Leadership qualities must envision their practices not merely as product tradition but as a consequence of scientific academic growth and development. Physical Directors must initially start higher career from small events comes in to effect. They needed systematic coaching at school, college and University teams to perform duties properly. Absence of a fixed policy with regard to the allotment of training classes for the discipline of KABADDI Training time table for camping is a matter of serious concern in regular activities. Teacher / coach are a Ground Leader to be shaped the teams an Educational through exercise and curriculum contribute up to date to student's attainment, progress and achievement. Early systematic studies on Leadership focussed on psychological traits that are common among proven successful leaders. Now research focus of inquiry has shifted from trait to other Pedagogical Leadership of science and arts of Education Qualities for younger Physical Directors / coaches shared the social influence of Frame work requires a collaborate intended outcomes. Sports Training Programme should be according to one own Particular talents strength and weakness to KABADDI Trainees to attain higher pursuits of Excellence without reaching the burnout. There is no adequate Leadership and supervision in coaching it will be like a ship without a captain, a factory without a Manager, A Guest house without a caretaker and a temple without a priest. The Method and practice of teaching especially as an academic or theoretical concept, pedagogy is the discipline that deals with the theory and practical teaching strategies, actions and teacher judgements and decisions, the function or work of a teacher. Physical Education Managers and coaches are follows the **4F's** means **Fact's, Feelings, Findings and Future** significant standards in TELANGANA state. Generally, special training can produce seven helpful strategies are Log the daily Activity, List the responsibilities, Track participation, talk with other physical Directors, Welcome a shadow. Compare the competitions and Stay current

Table 2. Physical Directors Men, Women confined coaches and managers sample procedure

Kabaddi Pedagogy Leadership Area	Phy. End managers N=80(Group-A)		Physical Edn bped/mped coaches N=52 (Group-B)		Phy Edn six week Nis coaches N= 61(Group- C)	
	Men	Women	Men	Women	Men	Women
State competitions	28	18	16	6	21	10
National competitions	24	10	20	10	18	12
Sub total	52	38	36	16	39	22
Grand Total	80		52		61	

5. RESULT AND CONCLUSIONS:

In the Education system Physical Directors Assessment was a systematic process to gather meaningful information and evidence through standardized Questionnaire norm referenced Leadership abilities are effectively in the order of performance and teacher made questionnaire criterion was based on task analysis to individual group differences among the KABADDI Managers and Coaches. The Innovative proposal for promotion of Educational sports Education in TELANGANA and INDIA to plans to facilitate cooperation of LEADERSHIP skills development and recognition of qualifications for coaches and Managers. Physical Directors as a Ground leader Self Assessment measured work, concepts, ideas and demonstrated their knowledge, skill philosophies that can create a winning environment in the training programme in school games from school infrastructure catered National level KABADDI Teams. Physical Directors offers fully awareness and systematic age, weight and class participation in KHELO India KABADDI early stage 14 years assigned the talent identification and inculcating values to bring out the best in the teams in TELANGANA State. There are no shortcuts to success. Physical Directors can't assume larger responsibility without taking responsibility for the small things too. Researcher submit believed that the only way among Physical Directors effectively teach and coach their KABADDI Teams Take Responsibility was to Exemplify it. Responsibility equals accountability equals ownership and sense a sense of owner is the most powerful weapon a team or organizational Leadership in KABADDI career. Finally, Physical Director's confined Managers, Coaches effective performance of best academic holistic training Leadership competencies of professional Innovator, Broker, Director, coordinator, Monitor, Mentor role model structure and functions are promoted elite KABADDI training as well as state and National competitions in TELANGANA state. Physical Director's Faculty of Education Normative values of Physical Efficiency, KABADDI Skills practicality to begin with physical fitness components, coordinated abilities day to day great changes in professional training literacy eventually in educational sector Managers, coaches special qualities improvement work experience in training and competitions performance in TELANAGANA state.

Subsequently, Physical Director's positive role models influence, actions, motivates of KABADDI training strategies to provision of traditional school / college Coaches, Managers in TELANGANA state. Qualitative Research Physical Education and KABADDI Group survey Descriptive and Correlation study was focussed on the "HORIZONS AND TRENDS OF PEDAGOGY ON LEADERSHIP QUALITIES OF KABADDI COACHES AMONG THE PHYSICAL DIRECTORS IN TELANGANA STATE". KABADDI game was one of the sub discipline for trainer Physical Director's becomes more syllabus encourage the Leadership capacities and perform confined duties as manager and coach for the State and National competitions in TELANGANA KABADDI Teams. The main objective of the present study was Individual, social personality of KABADDI Physical Defensive and offensive skills, Pedagogy and leadership training and competition involves either enhancing current skills or acquire new skills. KABADDI specialization of Physical Director's B P Ed, M P Ed Trained and NS NIS academic Six-week coach certificate scientific significance of the research as well as contribution the quality of Physical Directors imparted in our Institutions. The aim to be delivered a Leadership development survey on state and National KABADDI competitions and critical aspect of enhancing capacities to be improved the normative tools, skills of the Game. Practice Knowledge. Effective Competencies and renewed approaches and systematic changes Self- Assessment Questionnaire on Leadership as well as Training Practical Field View of investigation Excellence in TELANAGANA state. Physical Directors area of kabaddi training programme, academic professional structure, content of Leadership abilities and talents, physical efficiency test, skill test of KABADDI coaching trends issues and development of Physical Education in Telangana state.

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ANALYSIS OF INTER-UNIVERSITY TOURNAMENTS IN WOMEN ORGANIZED FROM 1961 TO 1970

Dr. Apurba Biswas

Assistant Professor,

School of Education, Adamas University,
Kolkata, West Bengal, India,

Email: apurba.biswas.127@gmail.com

Abstract:

From 1961 to 1970 was the second decade of the Women's Inter-University Tournament. In that decade, the Inter-University Board of India organized a total of 90 tournaments in 12 different games. Games organized during the decade were Athletics, Badminton, Basketball, Hockey, Tennis, Volleyball, Swimming, Kho-kho, Table Tennis, Ball Badminton, Kabaddi and Shooting. In this research paper, the researcher has arranged the tournament organized in the second decade in the table format and simultaneously, interpreted the data. There has also been a brief comparative discussion with previous decades. Where the 2nd decade has improved or deteriorated compared to the 1st decade has been discussed.

Key Words: Inter-University Tournaments, Inter-University Sports Board, Championship, Second Decade

1. INTRODUCTION:

In addition to studies, sports are also an important factor that was realized by educators in ancient times. Bodybuilding is not the only purpose of sports; it also helps to refresh the mind. Through sports, students build understanding among themselves, learn to obey rules, learn to increase social communication, learn to know, and understand each other. That is to say, the extent to which sports contribute to the overall development of human beings is universally accepted. Student life is the time to prepare oneself, not only for the cognitive but also for the emotional, social, and character development. The Inter-University Board formed the Inter-University Sports Board to equally promote sports as well as study so that the most important human traits are not overshadowed by the cognitive advancement. And the Board continues to host inter-university tournaments for men from 1940-41.

The effects of sports apply to girls in the same way as boys, and the Inter-University Sports Board realized this and tried to organize tournaments for girls as well as boys in 1940-41. But for various reasons, it was a bit late to start, and finally from 1953-54, it was possible to introduce an inter-university tournament for women as well, which has been held every year as a rule. The researchers will discuss the women's inter-university tournament in the second decade. Inter-university Tournaments in women were organized from 1953-54, thus it was the first decade of the Inter-University Tournaments in women. So, as the next decade, “from 1960-61 to 1970-71” is the second decade of the Inter-University Tournaments in women. Hence, it was considered as the research period by the researcher.

1.1. Purpose:

The purpose of this study is to showcase, analyse, and interpret the data of the Inter-University Tournaments in women organized from 1961-62 to 1970-71.

2. METHODOLOGY:

This is a historical research paper. Primary and secondary sources have been used for data collection. Meeting proceedings, annual reports, files, etc. of the Inter-University Board and the Inter-University Sports Board, reports of the Inter-University Tournaments were considered as primary data sources. On the other hand, Journals, books, reports of different organizations, etc. were considered as secondary sources of data. After consolidating all the information, it has been showcased in an integrated manner and tried his best to make judicious interpretations on them.

Tournaments organized for women during 2nd decade

Table-1 Year wise tournaments organized for women from 1961-62 to 1965-66

Year	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
TOURNAMENTS ORGANIZED	Athletics	Athletics	Athletics	Athletics	Athletics	Athletics	Athletics	Athletics	Athletics	Athletics
	Badminton	Badminton	Badminton	Badminton	Badminton	Badminton	Badminton	Badminton	Badminton	Badminton
	Hockey	Hockey	Hockey	Hockey	Hockey	Hockey	Hockey	Hockey	Hockey	Hockey
	Tennis	Tennis	Tennis	Tennis	Tennis	Tennis	Tennis	Tennis	Tennis	Tennis
	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball	Volleyball
	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho	Kho-kho
	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis	Table Tennis
			Basketball	Basketball	Basketball	Basketball	Basketball	Basketball	Basketball	Basketball
			Swimming	Swimming			Swimming	Swimming	Swimming	Swimming
								Kabaddi	Kabaddi	Kabaddi
									Shooting	Shooting
										Ball Badminton
Total Tournaments	7	7	9	9	8	8	9	10	11	12

Inter-University Tournaments were introduced in the last decade in 1953-54, and only seven games were introduced. The number of games has increased to 12 in this decade. In the last decade Athletics, Badminton, Hockey, Kho-kho, Tennis, Volleyball, and Table Tennis was introduced, beside them, Basketball (1963-64), Swimming (1963-64), Kabaddi (1968-69), Shooting (1969-70) and Ball Badminton (1970-71) these 5 games were also introduced during the decade. Athletics, Badminton, Hockey, Kho-kho, Tennis, Volleyball and Table Tennis were organized in all the ten years. Basketball was organized in every year after its commencement in 1963-64 and held eight times in the decade. On the other hand, swimming was introduced in the same year with basketball but could not be organized in 1965-66 and 1966-67. So, it was organized six years in the decade. Kabaddi was introduced in 1968-69 and organized all the remaining three years of the decade. Shooting was introduced in 1969-70 and organized remaining both years. Ball Badminton was introduced at the end of the decade, so it was held only one year.

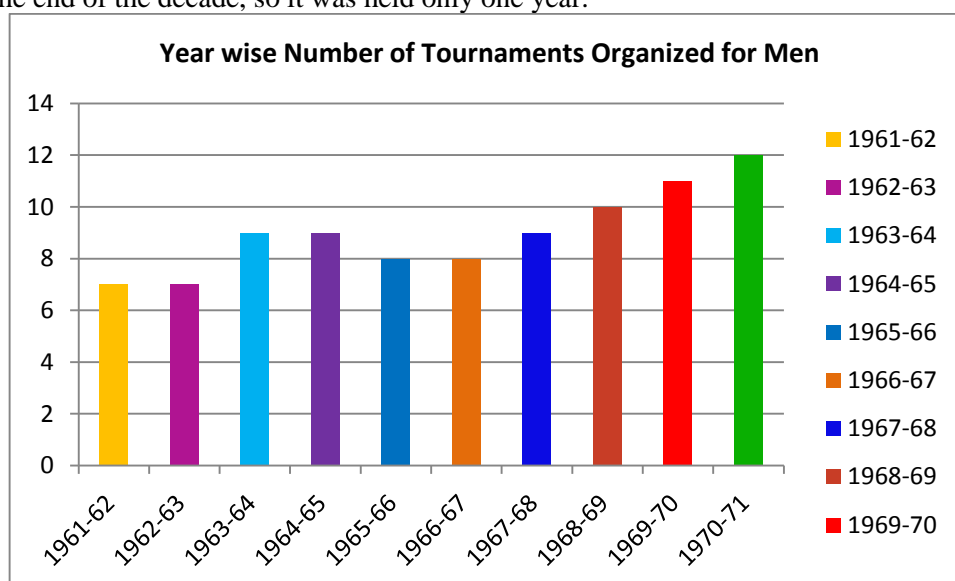


Figure-1: Year wise Graphical Presentation of 2nd decade of Tournaments organized for Women

The number of tournaments has increased a lot in this decade as compared to the previous decade. Increasing of 5 new tournaments in this decade was very promising. It should be kept in mind that it was the second decade of Inter-University Tournaments for Women. The above graphical representation creates a clear picture of the number of tournaments organized in every year throughout the decade. The last year of the previous decade ended with the organization of seven tournaments. In the first two years of this decade, seven tournaments were organized, maintaining the continuity of the previous decade. In the next two years, 1963-64 and 1964-65, basketball and swimming were included with the previous tournaments and a total of 9 tournaments were organized. As it was not possible to organize swimming in 1965-66 and 1966-67, the number of tournaments was reduced to 8. Again, in 1967-68 swimming was included and the number of tournaments became 9. For the next three years, one new tournament was introduced every year, and the number of tournaments increased each year. In the next year, kabaddi was introduced and the total number of tournaments became 10. Shooting was introduced in 1969-70, so, the total number of tournaments increased to 11. Ball Badminton was launched in 1970-71, and the total number of tournaments organized reached its height to 12 in this decade.

Table- 2 Results of the Tournaments organized for women from 1961-62 to 1965-66

Year & Tournament	Position	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
Athletics	Champion	Mysore	Vikram	Vikram	Bombay	Punjab	Kurukshetra	Kurukshetra	Punjab	Bangalore	Madras
	Runners up	Poona & Bombay	Delhi	Delhi	Kurukshetra	Kurukshetra	Punjab	Jiwaji	Bangalore	Punjab	Poona
Badminton	Champion	Bombay	Bombay	Bombay	Bombay	Bombay	Poona	Bombay	Poona	Kerala	Kerala
	Runners up	Agra	Punjab	Punjab	Allahabad	Ravi Shankar	Kerala	Kerala	Bangalore	Poona	Bombay
Basketball	Champion	-	-	Punjab	Bombay	Punjab	Kurukshetra	Punjab	Punjab	Bombay	Bombay
	Runners up	-	-	Kurukshetra	Kurukshetra	Calcutta	Bombay	Bombay	Bombay	Punjab	Delhi
Hockey	Champion	Delhi	Punjab & Jabalpur	Punjab	Punjab	Bombay	Punjab & Kurukshetra	Punjab	Punjab	Punjab	Guru Nanak Dev
	Runners up	Jabalpur	-	Gujarat	Punjab	Jabalpur	No Runners-up	Kurukshetra	Kurukshetra	Gujarat	Punjab
Tennis	Champion	Mysore	Mysore	Calcutta	Mysore	Bangalore	Bangalore	Bangalore	Punjab	Punjab	Guru Nanak

	pio n										Dev
	Ru nne rs up	Del hi	Del hi	Poona	Delhi	Madra s	Madra s	Andhr a	Banga lore	Banga lore	Poona
Volleyball	Ch am pio n	Ma dras	Del hi	Vikra m	Punja bi	Punja bi	Osma nia	Punja bi	Punja bi	Keral a	Kuruk shetra
	Ru nne rs up	Pun jab	Pun jab	Punja b	Osma nia	Jabalp ur	Kuruk shetra	Kuruk shetra	Kuruk shetra	Kuruk shetra	Keral a
Swimming	Ch am pio n	-	-	Calcut ta	Calcut ta	-	-	Rajast han	Rajast han	Bomb ay	Bomb ay
	Ru nne rs up			Poona	Poona			Gujar at	Calcut ta	Calcut ta	Poona
Kho-kho	Ch am pio n	Nag pur	Poo na	Vikra m	Indore	Bomb ay	Indore	Indore	Indore	Banga lore	Banga lore
	Ru nne rs up	Del hi	Guj arat	Barod a	Nagp ur	Nagp ur	Barod a	Nagp ur	Banga lore	Indore	Nagp ur
Table Tennis	Ch am pio n	Poo na	Bo mba y	Vikra m	Bomb ay	Shivaj i	Punja b	Bomb ay	Delhi	Bomb ay	Calcut ta
	Ru nne rs up	Del hi	Poo na	Bomb ay	Gujar at	Vikra m	Gujar at	Punja b	Bomb ay	Punja b	Bomb ay
Kabaddi	Ch am pio n								Poona	Bomb ay	Bomb ay
	Ru nne rs up								Bomb ay	Poona	Poona
Shooting	Ch am pio n									Punja b	Punja b
	Ru nne rs up									Calcut ta	Bhaga lpur
Ball Badm	Ch am pio										Banga lore

	n										
	Runners up										Mysore

3. GAME-WISE ANALYSIS:

Athletics:

Seven different universities were champion throughout the decade; it was eight for runners up positions. And a total of eleven Universities took the positions for either champion or runner up. Vikram, Punjab and Kurukshetra universities were champions two times each, and Mysore, Bombay, Bangalore and Madras universities were got the position once in the decade. On the other hand, Poona and Bombay were joint runners up in 1961-62. Delhi and Kurukshetra were runners up for two times each and Punjabi. Jiwaji, Bangalore and Punjab took the position for one time each. Poona was runners up one more time except joint runners up with Bombay University. The number of universities positioned in athletics is a clear indication of high quality competition. From which it is understood that various universities gave importance to athletics and encouraged the students to participate in this sport.

Badminton:

Bombay University dominated the Badminton Tournament in this decade as the men category. Bombay was six times champion and one time runners up, where Poona and Kerala won the title twice. In this decade Maharashtrian Universities were champion for eight times and runners up for two times. So, in this decade Maharashtrian Universities played a dominating role in Badminton. Punjab and Kerala were runners up twice; Agra Allahabad, Ravi Shankar, Bangalore, Poona and Bombay once in this decade.

Hockey:

Hockey was organized nine times in this decade. Among those in 1962-63, Punjab and Jabalpur, and in 1966-67, Punjab and Kurukshetra were joint champions. Except that, Punjab University was 4 times champion and Delhi, Punjabi, Bombay, and Guru Nanak Dev Universities were Champion once in this decade. Jabalpur, Gujarat and Kurukshetra were runners up twice, where; Punjabi and Punjab Universities were won the position once, and in 1962-63 and 1966-67 there were no runners up due to joint champion of the tournament.

Tennis:

In women Tennis, Universities from Karnataka took the key positions. Mysore & Bangalore Universities won the title thrice, which was maximum in this decade and both the Universities were from Karnataka. Bangalore was also runners up two times, which indicates the excellency of South Indian universities in women Tennis. Calcutta was the first non-Karnataka University who won the championship in this decade. Punjab was two times champion while Guru Nanak Dev University won it once. If we look at the runners up position we found Delhi three times, Poona, Madras & Bangalore were twice each and Andhra once took the position.

Volleyball:

Punjabi University was four times champion in the women Volleyball Tournament, while, Madras, Delhi, Vikram, Osmania, Kerala and Kurukshetra universities were champion once in this decade. Kurukshetra was four times, Punjab three times, and Osmania, Jabalpur and Kerala took the runners up position one time each.

Kho-Kho:

In women Kho-kho, Indore University won the title four times, which was maximum by a university. The title won two times by Bangalore and once each by Nagpur, Poona, Vikram and Bombay Universities. Nagpur and Baroda were runners up for four and two times respectively and Delhi, Gujarat, Bangalore and Indore were runners up for one time each.

Table Tennis:

Bombay was the dominant university in Table Tennis as some other women tournaments. They were four times champion and three times runners up, while, Poona, Vikram, Shivaji, Punjab, Delhi and Calcutta was champions once. Except Bombay, Gujarat and Punjab were runners up twice, while, Delhi, Poona and Vikram took the place once in the decade.

Basketball:

Basketball was started in 1963-64. Universities from Punjab were dominated the tournament. Punjab was four times champion, Bombay three times and another one year champion was Kurukshetra. Runners up position took by Bombay-three times, Kurukshetra two times and Calcutta, Punjab and Delhi were once in the decade.

Swimming:

Swimming started in 1963-64 and organized for six times in this decade. Calcutta, Rajasthan and Bombay won all six championships equally. While Poona, Calcutta and Gujarat Universities were runners up for three, two and one time respectively.

Kabaddi:

Kabaddi was introduced in 1968-69 and organized continuously to the end of the decade. Three times it was organized and all the positions were achieved by either Bombay or Poona Universities. They were champion for two and one year respectively and vice-versa for runners up position.

Shooting:

Shooting was started in 1969-70 and organized only two years. Punjab won the title both the times and Calcutta and Bhagalpur were the runners up Universities.

Ball Badminton:

Ball badminton was introduced at the end of the decade in which Bangalore and Mysore were the champions and runners up universities respectively. The consistently good results of certain universities in certain sports indicate its popularity in a particular region of that sport. In Maharashtra, for example, the popularity of playing Badminton, Table Tennis and Kabaddi fell in inter-university tournaments. On the other hand, the dominance of Punjab-Haryana universities in Basketball and Hockey indicates the popularity of the two sports in the region. Although, this did not happen in all cases, Kho-kho can be mentioned as an example. Kho-Kho was very popular in Maharashtra but the Indoor University from Madhya Pradesh suppressed the game.

Progress in the decade:

At the beginning of the discussion, let's say that a total of 90 tournaments were organized in 12 different games in this decade. Among them, Punjab and Jabalpur became joint champions in hockey in 1962-63 and Punjab and Kurukshetra University in 1966-67, as a result, there were no runners-up in hockey during these two years. On the other hand, in athletics, Poona and Bombay Universities were joint runners up in 1961-62. As a result, the total number of champion position holder universities has been 92 and the total number of runners-up position holder universities has been 89. This decade a total of 90 tournaments for women in 12 different sports were organized, which was much more advanced than the previous decade. A total of seven games were included in the first decade of the women's inter-university tournament. In this decade, 5 more games had been added and a total of 12 had been organized. The total numbers of tournaments in this decade were 90, which was quite good compared to 39 in the last decade. The decade has also seen a lot of improvement in the number of position holding universities. In the previous decade, the position of the championship was limited to only 7 universities, but in this decade, a total of 19 universities were able to achieve the championship position. In the case of runners-up, 8 more universities were able to join. The total number of universities in the last decade, which was limited to 13, has increased to 27 this decade, which can be considered as a good result or improvement.

Pre-concluding Analysis:

During this decade, Bombay became the champion in 20 inter-university tournaments and the runners-up in 9. Punjab became the champion in 17 and runners up in 10 and took the second place. While the rivalry for women's inter-university tournaments in this decade has been largely limited to these two universities. Other universities have also been able to earn considerable honours. Universities like Bangalore, Poona, Kurukshetra, Punjab, Vikram, Calcutta, Indore, Mysore, Delhi, Kerala, etc. were also able to make their mark in the women's inter-university tournaments.

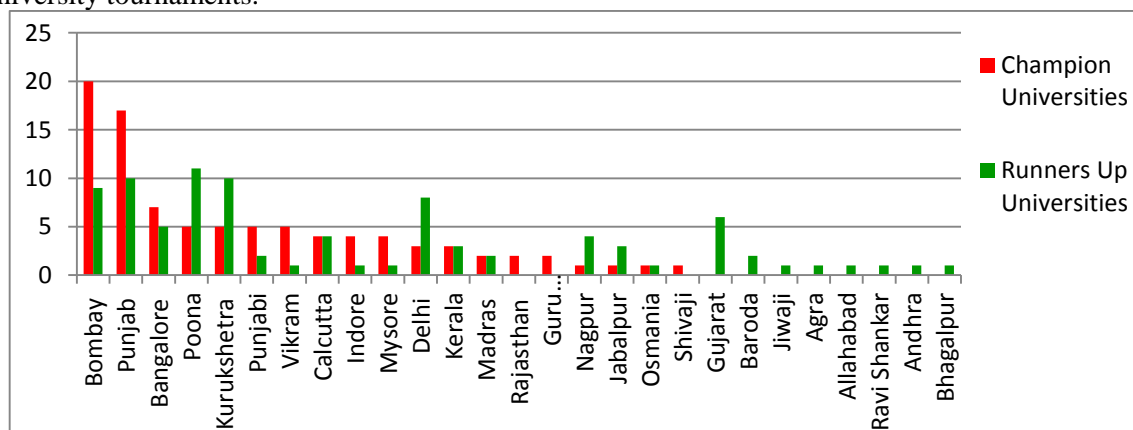


Figure-2: Graphical representation of the Universities with the number of Champion and Runners Up positions

Lots of new universities were established during this decade. The number of these newly established universities was about 40. During this decade the universities of Bangalore (1964), Punjabi (1962), Indore (1964), Guru Nanak Dev (1969), Shivaji (1962), Jiwaji (1964) and Pandit Ravi Shankar (1964) were established and took positions. In this case, 7 newly established universities have received the medal, which was quite encouraging. The first 5 of the above universities were able to take the champion position also. The results were very good for Bangalore, Punjab and Indoor Universities. Bangalore was the champion 7 times and runners-up 5 times, Punjabi was the champion for 5 times and runners-up for 2 times and Indoor was 4 times champion and 1-time runners-up. These successes were able to set a precedent among the newly established universities.

4. CONCLUSION:

The number of old and newly established universities rose to about 90 at the end of this decade. On the other hand, the numbers of champion universities were 19, with 8 more universities getting runners up positions. A total of 27 universities won the first and second places in all the tournaments in all games throughout the decade. In that case, the numbers of universities that did not get any position were about 63. Many of those universities may or may not have participated in any of the competitions. In this case, the challenge of the Inter-University Sports Board in the next decade was to get more universities to participate in Inter-University Women's Tournaments and increase the quality of the contestants so that more and more universities can take medals in this competition. All in all, this is the second decade of the Inter-University Women's Tournament, which has allowed a large number of universities to compete, including more sports. Thus, the second decade of the Inter-University Women's Tournament was a successful decade.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

**THE IMPACT OF AGGRESSION AND ANXIETY ON
BASKETBALL PLAYERS**

Dr. Pravin Shiledar

Head (Department of Physical Education),
JBSPM's Mahila College, Georai, Beed, Maharashtra, India

Abstract:

Excellence in sports require high level of ability to manage aggression and anxiety. There exists very limited study on the impact of aggression & anxiety on basketball players. Speed, endurance and strength were studied for this purpose. 20 male samples who participated in inter-university tournaments were obtained. Anxiety questionnaire developed by Sanjay Vohra's and Aggression Scale developed by Dr. (Mrs) G.P. Mathur & Dr. (Mrs) Raj Lumari were used for the study. 50 meter dash and Harvard step test were employed for assessment of strength, speed and endurance. To find out the relationship, simple linear correlation was deployed at 0.05 level of significance. The statistical findings of the study revealed almost similar trend of relationship in between psychological and motor abilities in total six correlations calculated. The results revealed that anxiety was negatively related to endurance and strength but has positive relationship with speed. Whereas aggression exhibited positive relationship when compared with strength, speed and endurance.

Key Words: Basketball, Aggression, Anxiety, Psychological ability, Motor ability

1. INTRODUCTION:

Sport is an area where the sports persons have to withstand different situations. If they are not appropriate to handle the situations meticulously; certainly the results would be unfavourable. There are various categories of sports being played around the world at different level. Every sport has its own set of rules and regulations prepared by their respective governing bodies. Every sport requires different level of fitness and motor abilities depending on the nature of sports. Sportsperson not only requires the physical abilities but simultaneously psychological skills are also substantial for them to perform better (Yadav, 2013). Basketball is among such sports which have been played globally, world's second fastest game after ice-hockey. Basketball was started by James Naismith way back in 1891. It is a team game where a lot of speed, agility, strength, endurance is required. It is physical in nature and that invites forceful contact among players such as shoving, grabbing, elbowing, and blocking. Actually these are the tactics being employed by teams to score points by indulging opponents to commit fouls and to shake their temper. This sometimes makes players lose their calm and get more aggressive and feel anxiety. Aggression is the desire to inflict harm on another individual, group, or entity (James, et al., 2005). Anxiety is uneasiness; fearful feeling which can make a person miserable and even upset their mental and physical aspects (Morgan, et al., 2004). It is only muscle contraction that results in all movements in sports. Hence, strength becomes an integral part of all motor abilities, technical skills and tactical actions (Singh, 1997). Strength training is of high importance for achieving good performance in basketball (Delextrat and Cohen, 2008). It improves the ability to run, jump and shoot by strengthening the muscles that are being used when playing basketball. Endurance assists sports persons to execute movements with desired quality even under the condition of fatigue (Singh, 1997). Speed performance appears in different form in various sports (Coleman and Amonette, 2012). In the game of basketball, great speed is considered as one of the most useful characteristics. Speed on the basketball court can help a team to employ a fast-break offense. When a power forward or centre can control a rebound and throw a lead pass to a fast guard consistently, it can set the team up for layups and dunks on a consistent basis.

1.1. OBJECTIVES OF THE STUDY: The objective of the present study was to study impact of aggression and anxiety on basketball players.

1.2. HYPOTHESES: For the purpose of current study, it was hypothesised that there will be a significant relationship between selected motor abilities and psychological variables among basketball players.

2. METHODOLOGY:

Various samples were identified among basketball players and were grouped in a single group. This group consisted of 20 subjects who all were male. The average age of subjects ranged from 18 to 22 years. Selection of subjects was made through purposive sampling. Psychological parameters i.e anxiety and aggression were assessed using Sanjay Vohra's anxiety questionnaire and Dr. (Mrs) G.P Mathur & Dr. (Mrs) Raj Lumari Aggression Scale respectively. However, strength, speed and endurance were assessed using dynamometer, 50 m dash and Harvard step test respectively. Simple linear correlation was used at 0.05 level of significance in order to find out relationship.

3. DISCUSSION ON FINDINGS:

The analysis of data comprehensively revealed positive relationship but not significant in selected psychological variables and motor abilities among male basketball players. The analysis showed insignificant relationship of aggression, anxiety and motor abilities in case of basketball players.

Table 1: Relation of Selected Psychological Variables with Motor Abilities

Variables co-related Psychological Variables	Motor Abilities	r' value
Aggression	Endurance	0.08
	Strength	0.19
	Speed	0.15
Anxiety	Endurance	-0.06
	Strength	-0.35
	Speed	0.12

After correlation, it is found that 'r' value is close to '0' which implies that there is no relationship between variables. But in some cases it was found positive which implies that both values are directly proportional and if 'r' is negative which implies that both values are inversely proportional. Accordingly positive correlation in case of aggression-endurance ($r=0.08$), aggression-strength ($r=0.19$) aggression-speed ($r=0.15$) and anxiety-speed ($r=0.12$) shows if there is increase in aggression of a player then simultaneously it gives a bit positive effect on motor abilities and negative correlation shown in case of anxiety-strength ($r = -0.35$), anxiety-endurance ($r= -0.06$) means anxiety had a negative effect on motor ability as the anxiety increases motor abilities gets affected negatively. In addition to this, human beings are in every aspect psychophysical entity. Hence, psychological parameters do have physical manifestation too. As also psychological characteristics has effect on various task performance, the outcome of the task do directly influence related motor abilities. Due to this reason, different pattern of relationship was observed among selected group of basketball players between selected psychological parameters and motor abilities.

4. CONCLUSION:

It was concluded through present study that there do exists positive inter-dependence of Aggression among endurance, strength and speed. Irrespective of sportsmen belonging to any sports, their aggression is positively related with strength, speed and endurance. Anxiety was found to be negatively related with endurance and strength and positively related with speed. Hence, psychological parameters are crucial in realising levels of motor abilities namely endurance, speed and strength.

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A COMPARATIVE ANALYSIS OF RISK TAKING ABILITY OF GOVERNMENT AND PRIVATE SCHOOL STUDENTS

¹Mr. Deepak Singh Bisht, ²Dr. Usha Tiwari, ³Dr. Dharendra Tiwari

¹Research Scholar, ²Associate Professor ³Assistant Director

¹Department of Physical Education, Banasthali Vidyapith, Rajasthan.

²Department of Physical Education, Central University of South Bihar, Gaya.

³Department of Physical Education, Banaras Hindu University, U.P.

Correspondence Email - sporty07deepak@gmail.com

Abstract:

Background: There is an increasing trend of risk-taking behaviour among teenagers in India but little empirical evidence exists on its motives. Teenage is one of the most challenging development periods in a person's life. Individuals biologically and psychologically experience wide variety of changes in this period.

Objective: to compare the risk taking ability of government and private school students of District Nainital, Uttarakhand.

Methods: A total number of fifty (N=50) school students (25 boys from government and 25 from private school) of Nainital district were included as samples, by using stratified random sampling technique for the motive of the study. The age group of selected samples were 14-19 years (teenagers). All the subjects were tested on the psychological variable i.e., Risk taking ability. Risk taking questionnaire (RTQ) constructed by Dr. V Sinha and Dr. P N Arora was used for collection of data. Independent 't' test was applied to find out the significant difference and the level of significance was fixed at 0.05 level, to test the hypothesis.

Results: The result of the study revealed that there is a significant difference exists in risk taking ability of the students of government and private school ($t=3.096$, $df=48$, $p=0.003$).

Conclusion: It is concluded that risk taking ability of the Government school students is higher than the private school students. It shows that they are having high risk taking ability or attitude.

Key Words: Risk taking ability, school students, boys, Government, questionnaire and private.

1. INTRODUCTION:

“Life is all about taking risks. If you never take a risk you will never achieve your dreams”.

For any type of education, healthy mind is the primary need. A lot parents are so busy with their own life, they don't have enough time for their kids and some parents have the time but they do not spend it with them. We feel that parents need to have a strong bond with their children so that they can explore their thoughts with their parents and guidance can be provided. If needed. The 21st century is the age of competition, in which people are busy to keep themselves in a leading position. This competitive spirit bounds them to take risks. It is evident now that a risk-taker is more successful and position holder in the society (Sinha & Arora, 1982). The biggest changes in the brain happen during the teenage years, literally re-wiring our teen for liberty. During this period they will spend most of their time in the primitive part of their brain making them more likely to experience high and low levels of emotion and risk taking behavior. Getting used to taking risks can encourage one to repeatedly engage in risky behaviors (and may be progressively dangerous ones). Risky behaviors are those that can cause harm or a significant risk of harm to someone. Thus, it is more important to take wise and smart decisions. Risk-taking known as 'the tendency to involve in behaviours that have the intense to be harmful or dangerous, yet at the same time provide the opportunity for some kind of outcome that can be perceived as positive' (Matthew, 2009). Risk taking ability of 'an individual is the major factor which influences the education products as well as it is a key for success in all spheres of the life'. Risk taking majorly causes substance abuse, hyper sexual activities, performing physical stunts, rash or reckless driving, sharing unnecessary details on social media, bullying, deliberately self-harm, gambling, cheating, pornography or piracy etc.

1.1. OBJECTIVE: To compare the risk taking ability of government and private school students of District Nainital, Uttarakhand.

1.2. HYPOTHESIS: The hypothesis of the research was -

H₀: There would be no significant difference between the government and private school students (boy) of Nainital district on risk taking ability.

2. METHODOLOGY:

This part consists of selection of subjects, variables and selection of tests used to assess the variables.

2.1. Selection of subjects:

In the present study, 50 school students (25 boys of government and 25 boys from private school) were selected as samples by using stratified random sampling technique, from Nainital district of Uttarakhand for the purpose of the study. The samples age were ranged from 14-19 years (teenagers).

2.2. Selection of Variables:

- **Independent variable:** Government and private school students (boys).
- **Dependent variables:** Risk Taking Ability.

2.3. Assessment Tools: The following test items were selected to measure the risk taking ability.

- **Risk Taking Questionnaire (RTQ; V Sinha & P N Arora, 1982):** The RTQ consists of 40 items and evaluates 08 (eight) areas of risk taking ability i.e. Hills (A), Space (B), Sea (C), Commercial trades (D), Police and intelligence services (E), Fire (F), Professional trades (G) and Military services (H). The answering of RTQ is based on a 05 point scale. The participants are asked only to tick the learning category liked by him. Every item is to be ticked out. Reliability of a whole sample was computed to be 0.785 ($P > 0.01$) while the reliability of adolescent group was computed to be 0.79 ($P > 0.01$). The test has been validated. The concurrent validity of the risk taking questionnaire is (-) 0.82 for risk takers and (-) 0.542 for non-risk takers.
- **Procedure:** before collecting the data, the subjects were assembled at one place and well-informed about the motive, procedure and possible perils of the study. The requisite consent and approval was obtained from all the participants. The prescribed tests were explained to the subjects so that they would be familiar with the tests and procedure. The participants with injury, disease, sick or ill health were excluded from the study. Participants were not paid for sharing their views and we expressed our heartfelt gratitude for their sincere involvement, after accomplishment of the study.
- **Statistical analysis:** In order to find the statistical results, SPSS version 24.0 was employed. Mean and SD (standard deviation) was computed as descriptive statistics. Independent 't' test was employed to reveal the mean differentiation of risk taking ability of the groups, and for testing the hypothesis, the significance level was fixed, at 0.05 level.

3. RESULTS:

The descriptive analysis of the data shows, mean, SD, and 't' value on risk taking ability of the Government & private school students. The outcomes of this research are displayed in the below mentioned table.

Table-1: Descriptive statistics of risk taking ability of the students (Boys).

S.No	Variable	Group (School type)	N	Mean Scores	S.D	t-value	p-value
1.	Risk Taking Ability	Govt.	25	151.28	13.92	3.096	0.003
		Private	25	135.76	20.84		

* Significant at .05 level. 't' 0.05 (48) = 2.009

It appears from the **Table & Fig. no-1** that the mean value of risk taking ability for government and private school students are 151.28 (± 13.92) and 135.76 (± 20.84) respectively. The obtained 't' value on flexibility is 3.096, which is greater than the table value 2.009, and signifies towards significant discrepancy. Thus, the null hypothesis is refused in support of the alternative hypothesis at 0.05 level.

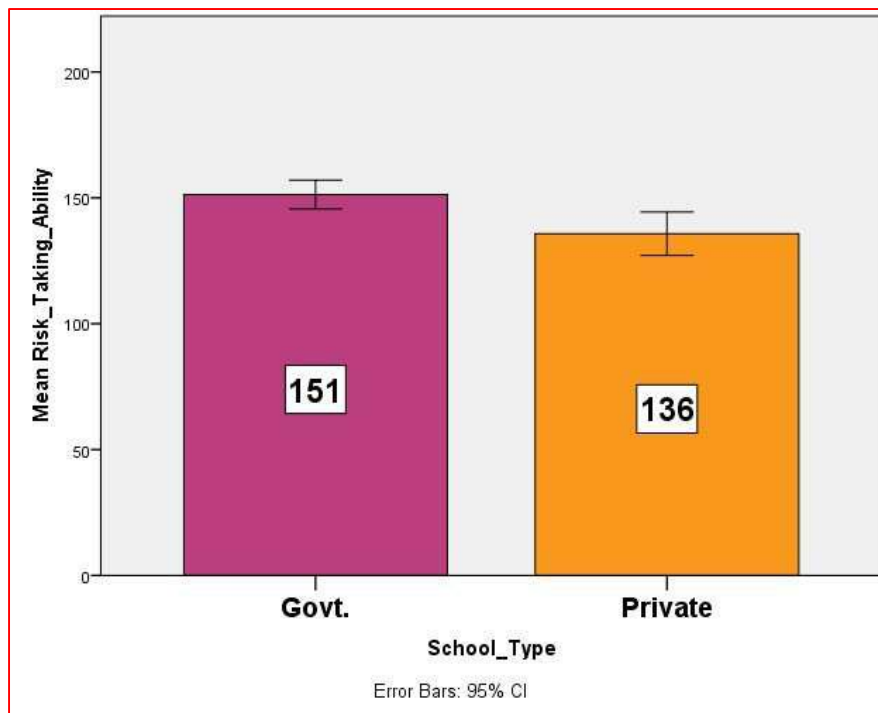


Figure 1. Graphical representation of risk taking ability of the students (Boys).

4. DISCUSSIONS OF FINDINGS:

The primary motive of the research was ‘to compare the risk taking ability of government and private school students of District Nainital, Uttarakhand.’ It is shown from results that there is statistically significant discrepancy exists between the students (boys) of Government and private school on the ‘selected variable’ i.e. risk taking ability. Similar findings were observed by Jamwal (2012), Jamal. (2012), Joshi (2013), Chen et al. (2011), Kaur(2009), and Kaur, A. (2017) and found a significant differences in their studies. In another study, (Khan, 2015) conducted a study between the rural and urban area male students of bhilai (CG) and data revealed that rural area male students were high risk takers than the urban area male students, in risk taking ability. On the other hand, Ginsburg and miller (1982) conducted a study in turkey on risk taking ability/behavior and reported that male individuals were more expected to involve in risk taking ability than girls. On the contrary, Previous studies by other researchers on risk taking ability or behavior i.e. Kaur P. (2007), Jain and Pasrija (2014), Kaur R. (2010), Todd (2007), (Khan, 2018), Saxena and puri(2013) and Kaur (2017) could not find any statistically significant differences (statistically insignificant) in their research.

5. CONCLUSION:

On the support of the outcomes, acquired from the present empirical investigation, it is concluded that there is a statistically significant differences exists between the boys of Government and private school students on the selected psychological variable i.e. ‘risk taking ability’ of Nainital district (UK). It shows that Government school students are better and dominating in risk taking ability (preferably risk takers) than the private school students. Risky taking ability among teenagers are relatively frequent, with several motives and attitudes lying behind. Types of school, personality, nutrition, home & school environment, social interactions, daily lifestyle and socio economic status etc are the factors that could influence individuals risk taking behavior or ability, and investigator recommend that, effective teaching and learning, education system, physical activities, yoga sessions, qualified teachers and counselling sessions can be helpful to overcome from these annoying factors. Therefore, the school, family and society should furnish a healthful habitat to the students to explore.

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COMPARATIVE STUDY OF LUNG CAPACITY IN DISTRICT LEVEL VOLLEYBALL AND FOOTBALL PLAYERS

Dr Manda V. Thengne
Yeshwant Mahavidyalaya Wardha. Dist. Wardha

Abstract:

Lung limit predicts wellbeing and life span. A 29-year study distributed in Chest reasoned that lung limit is a drawn out indicator of respiratory mortality, and ought to be utilized as a device for general wellbeing evaluation. The scientist picked the 12 players of volley ball and football. The analyst done the above investigation by measurable strategy. The specialist broke down the mean, S.D. what's more, 'T' Ratio of the players, from which the Breathing limit of the players were close. The breathing limit of national degree of football players and volley competitors was determined and dissected. The relative investigation of breathing limit of district level football and volley athletes was finished.

1. INTRODUCTION:

The respiratory framework is the thing that permits us to inhale and trade carbon dioxide for oxygen. The human respiratory framework is a progression of organs answerable for taking in oxygen and ousting carbon dioxide. The essential organs of the respiratory framework are the lungs, which do this trade of gases as we relax.

Breathing Capacity

Essential Principles of Gas Exchange

Gas trade during breath happens fundamentally through dispersion. Dispersion is a procedure wherein transport is driven by a fixation angle. Gas atoms move from a locale of high focus to a district of low fixation. Blood that is low in oxygen fixation and high in carbon dioxide focus experiences gas trade with air in the lungs. The air in the lungs has a higher centralization of oxygen than that of oxygen-exhausted blood and a lower grouping of carbon dioxide. This fixation inclination considers gas trade during breath.

Lung Volumes and Capacities

Human lung size is dictated by hereditary qualities, sex, and tallness. At maximal limit, a normal lung can hold very nearly six liters of air, yet lungs don't typically work at maximal limit. Air in the lungs is estimated regarding lung volumes and lung limits. Volume quantifies the measure of air for one capacity, (for example, inward breath or exhalation). Limit is any at least two volumes (for instance, what amount can be breathed in from the finish of a maximal exhalation).

Techniques to build lung limit:

Your lung limit is the aggregate sum of air that your lungs can hold. Over the long haul, our lung limit and lung work regularly decline gradually as we age after our mid-20s. A few conditions like interminable obstructive pneumonic malady (COPD) can essentially accelerate these decreases in lung limit and working. This prompts trouble in breathing and windedness. Luckily, there are practices that can help keep up and increment lung limit, making it simpler to keep your lungs solid and get your body the oxygen it needs.

Diaphragmatic relaxing

Diaphragmatic breathing, or "paunch breathing," draws in the stomach, which should do the vast majority of the truly difficult work with regards to relaxing. This strategy is especially useful in individuals with COPD, as the stomach isn't as viable in these people and could be reinforced. The strategy best utilized when feeling rested. On the off chance that you have COPD, ask your primary care physician or respiratory advisor to tell

you the best way to utilize this activity for best outcomes. As per the COPD Foundation, you ought to do the accompanying to rehearse diaphragmatic relaxing:

1. Relax your shoulders and sit back or rests.
2. Place one hand on your paunch and one on your chest.
3. Inhale through your nose for two seconds, feeling the air move into your midsection and feeling your stomach move out. Your stomach should move more than your chest does.
4. Breathe out for two seconds through tightened lips while pushing on your midsection.
5. Repeat.

2. Pressed together lips relaxing

Pressed together lips breathing can hinder your breathing, decreasing crafted by breathing by keeping your aviation routes open longer. This makes it simpler for the lungs to work and improves the trading of oxygen and carbon dioxide. This breathing activity is frequently simpler for amateurs than diaphragmatic breathing, and you can do it at home regardless of whether nobody has gave you how. It very well may be rehearsed whenever.

To rehearse the tightened lips breathing procedure:

1. Inhale gradually through your noses.
2. Purse your lips, as though frowning or going to blow on something.
3. Breathe out as gradually as conceivable through tightened lips. This should take in any event twice the length it did to take in.
4. Repeat.

The volume in the lung can be isolated into four units: flowing volume, expiratory save volume, inspiratory hold volume, and remaining volume.

1. Tidal volume (image VT or TV) is the lung volume speaking to the typical volume of air dislodged between ordinary inward breath and exhalation when additional exertion isn't applied. In a sound, youthful human grown-up, flowing volume is roughly 500 mL for each motivation or 7 mL/kg of weight.
2. The inspiratory save volume (IRV) is the extra measure of air that can be breathed in after an ordinary motivation (flowing volume).
3. Expiratory save volume-

The extra measure of air that can be terminated from the lungs by decided exertion after typical lapse — analyze inspiratory save volume.

4. Residual volume-

The volume of air despite everything staying in the lungs after the most persuasive lapse conceivable and measuring for the most part to 60 to 100 cubic inches (980 to 1640 cubic centimeters) called leftover volume.

5. Inspiratory limit is the volume of air that can be propelled following an ordinary, calm lapse and is equivalent to flowing volume + inspiratory save volume.
6. Expiratory limit is the maximal volume of air that can be breathed out after finished resting motivation. Expiratory limit is equivalent to the total of flowing volume and expiratory hold volume. $EC = VT + ERV$. For a grown-up 70 kg man involves around 1600 ml.
7. Vital limit is the most extreme measure of air an individual can oust from the lungs after a greatest inward breath. It is equivalent to the aggregate of inspiratory save volume, flowing volume, and expiratory save volume. It is around equivalent to Forced Vital Capacity.
8. Total lung limit is the volume of air present in the chest after full motivation. The all out lung limit (TLC), around 6,000 mL, is the most extreme measure of air that can fill the lungs ($TLC = TV + IRV + ERV + RV$).

2. METHODOLOGY:

The researcher has described the design of the study in detail. The size and selection of the sample, the variable and the control employed the sources of data, the tools and the method of gathering data, the description of data gathering instruments and the statistical procedure used in the analysis are carefully described.

SOURCES OF DATA:

The researcher did the data collection through the district level football and volleyball players in Wardha district.

1. SELECTION OF SUBJECT

The study was done about the lung capacities of district level players of football and volleyball.

2. COLLECTION OF DATA

The researcher chose the 12 district level players of volley ball and football. In this study the students were chosen randomly having age group between 18 to 24.

3. ANALYZING DATA

The researcher analyzed the mean, S.D. and 'T' Ratio of the players, from which the Breathing capacity of the players were conclude.

S. No.	Sports	Mean	S.D.	Mean Difference	'T' Ratio
1.	Volley ball	2993.83	323.21	766.67	7.88
2.	Foot Ball	3761.5	95.95		

Graphical Representation

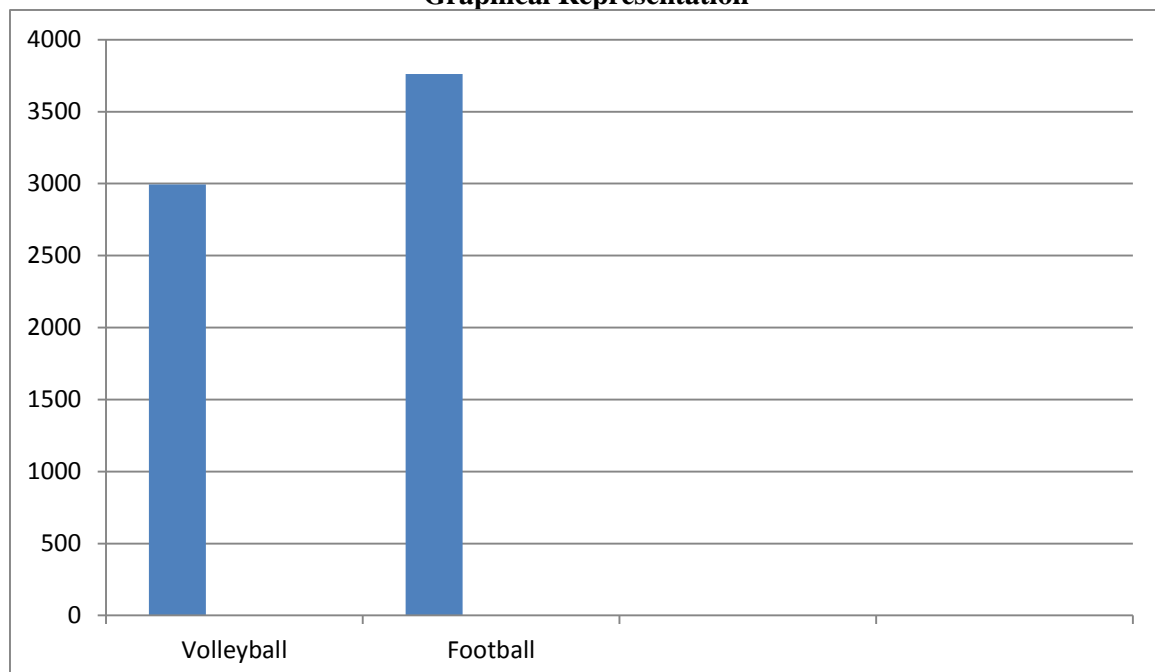


Table no. 1 examined that the Mean of the breathing limit of volley athletes was 2993.83 and Mean of breathing limit of football players was 3761.5. The Mean contrast between these two breathing limits was 766.67. The S.D. of the volley athletes was 323.21 and S.D. of football players was 95.95. The 'T' proportion acquired 7.88. The examination infers that the breathing limit of football players was more than breathing limit of volley athletes.

4. CONCLUSION:

The breathing limit of locale level of football players and volley athletes was determined and investigated. The near investigation of breathing limit of locale level football and volley athletes was finished. The breathing limit of region level football players was more and the breathing limit of locale level volley competitors was less.

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TALENT IDENTIFICATION AND DEVELOPMENT IN SPORTS

MADHUSUDAN REDDY

Physical Education Director

MJP Arts Degree College, Kalaburagi - Karnataka,

Abstract:

Talent identification, orientation within wide variety of sports and events, and further selection is a complex multidimensional process. Purpose of the study was to scrutinize the systems of Talent Identification and Development available worldwide in order to suggest how the current principle model of talent identification and development can be optimized. Available literature and systems of talent identification and development existing in the world's leading sporting nations were examined and evaluated. Apart from other important factors determining the approaches to Talent Identification, one kept over-weighing all others. That was availability or absence of human resources to pick the talent from. The early identification of talented individuals is considered increasingly important across many performance domains. Traditional concepts of talent have primarily emphasized genetically driven variables, proclaiming that exceptional abilities are the result of favourable genes matched to the required performance domain. Consequently, an oversimplified concept of sporting talent exists where the focus has typically been on discrete, one-dimensional measures at unstable periods in the athlete's development. Talent identification processes adopted by several countries around the world have evolved from this oversimplified concept of talent and are unlikely to reflect adequately how talent emerges in sport. In fact, retrospective interviews with successful athletes emphasized that a range of factors impact success within sport and these are not solely governed by genetic determinants of performance. In particular, athletes highlighted the crucial role that psychology can have on the ability of an individual to translate potential to performance.

Key Words: *Psychology, Potential, Talent, Development, Performance*

1. INTRODUCTION:

Many children strive to attain excellence in sport. However, although talent identification and development programmes have gained popularity in recent decades, there remains a lack of consensus in relation to how talent should be defined or identified and there is no uniformly accepted theoretical framework to guide current practice. The success rates of talent identification and development programmes have rarely been assessed and the validity of the models applied remains highly debated. This article provides an overview of current knowledge in this area with special focus on problems associated with the identification of gifted adolescents. There is a growing agreement that traditional cross-sectional talent identification models are likely to exclude many, especially late maturing, 'promising' children from development programmes due to the dynamic and multidimensional nature of sport talent. A conceptual framework that acknowledge-edges both genetic and environmental influences and considers the dynamic and multidimensional nature of sport talent is presented. The relevance of this model is highlighted and recommendations for future work provided. It is advocated that talent identification and development programmes should be dynamic and inter-connected taking into consideration maturity status and the potential to develop rather than to exclude children at an early age. Finally, more representative real-world tasks should be developed and employed in a multidimensional design to increase the efficacy of talent identification and development programmes.

2. STARTING POINT IS THE STRUCTURE OF FUTURE PERFORMANCE:

Talent identification and development is a future oriented process. The aim is to find and develop talent for high performance several years ahead in the future. Therefore one has to look for those performance factors or performance capacity which will enable the sportsperson to achieve this performance. The proper implementation of this principle involves tackling of the following tasks: a) Prognosis of sports performance in sports at a fixed time in the future. b) Determination of the structure of prognostic performance. c)

Determination of the performance capacity and its structure essential to achieve prognostic performance. On the basis of the performance capacity and its structure demand profiles should be prepared for the different stages of training. The demand profiles serve as the base for talent identification and its development.

3. IT IS A LONG TERM PROCESS:

Sports talent is a product of heredity and environment. Heredity unfolds itself with the passage of time and is also affected by environment including physical activity. In high performance sports children are normally considered for talent identification. These children are growing and maturing in a certain environment growth produces changes in physique, capacities, abilities, personality traits, interests, attitudes etc. Younger the children the faster are the changes. Therefore it is very difficult to judge the final outcome or sports talent. Moreover, through systematic training growth and development processes can be significantly affected. It is now generally believed that by about 13-14 years of age sports talents can be judged fairly accurately. But it is not advisable to wait till this age and then start sports training as the most crucial periods of growth and development are before the onset of puberty. The process of talent identification and its development therefore must begin in early childhood. It should be spread over a number of years and sports training should aim at maximal exploitation of growth and development especially motor development, for optimum development of talent.

4. A WIDE RANGE OF FACTORS MUST BE CONSIDERED:

- Sports performance is the product of total personality of the sport person. Hence when trying to spot talent the effort should not be limited to only physical fitness, technical skill, tactical efficiency and physique. One must consider all factors which directly or indirectly determine or influence performance, performance capacity and sports training, it is very important to give due weightage to those qualities and factors which will enable the child to undergo hard and systematic training for several years. Some of the important factors to be considered for talent identification are given below: -
- Age (chronological and biological).
- Performance and training state (present and past)
- Nature and duration of training in the past.
- Motivation, interest and attitude of the child and his parents
- Health
- Socio-economical and living conditions.
- School/college results.

5. IT SHOULD BECOME PROGRESSIVELY MORE SPECIFIC:

In the initial stages of training talent identification should be general in nature. With the passage of time and also due to regular sports training the sports talent assumes its final shape and shows itself in the form of excellence in a sports or event. Therefore, the effort to spot talent for a specific sport or even should be made at a later stage. It is also very important that the effort to develop talent in the initial stages should be through general means. It should gradually become more specific with the passage of time and improvement in performance. From the view point of motor development also it is harmful to go for early specialization. It has also been observed that early specialization in a sport is not fruitful and it leads to the problem of drop outs. It is advisable to link talent identification and development with the training stages. The first step of talent identification should aim at finding children who have the potential to successfully undergo training of first stage. Similarly second step should aim at finding suitable children for the second stage of training this experience is based on the fact that the structure of performance in sports undergoes change with the growth and improvement in performance.

6. LESS TRAINABLE FACTORS SHOULD WEIGHTAGE BE GIVEN MORE:

Sports performance is determined by a complex of factors. Some of these factors like strength, endurance etc., can be improved to a considerable extent through training. Some factors, however, are very less trainable i.e., are largely genetically determined. Most important among the less trainable factors are physique, height, speed, play ability, temperament etc. While identifying talent in children less trainable factors should be given more weightage. Some of these factors can be easily determined or assessed e.g., speed. The physique of the child can also be easily determined by using anthropometric measurements. Experienced coaches can quite accurately judge the type of physique by visual observation only.

7. TALENT INDICATORS SHOULD BE CONSIDERED:

Sports talents find full expression in sport and physical activities and also develop as a result of these. Therefore, the assessment of talent must be based on performance in sports and physical activities. Sports science disciplines should be used to provide additional information about the individual components of performance. While assessing talent on the basis of performance in sports the following aspects of performance called talent indicators, should be considered:-

- Performance level
- Rate of increase in performance
- Performance stability
- Ability to increase performance in a series of competitions
- Ability to tolerate load.

8. CONCLUSION:

No system of talent identification and development can be fool proof. This is so because talent identification is basically a process of prediction of a child's performance in the future. During the period of growth and development so many things can happen over which we can have no control in order to overcome this problem it is essential that a large population of children is selected for the first stage of training. The larger the population the higher is the probability that some of the selected children will reach international level when they grow up (theory of probability).

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4. Bargolai Gaon Panchayat area has been shown in the following table 1.1, during the year 2008-2011

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
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ROLE OF TECHNOLOGY IN PHYSICAL EDUCATION

Smt: JYOTI REDDY
Physical Education Director
Govt. Women's First Grade College Jewargi Colony
Kalaburagai –Karnataka.

Abstract:

In the fast growing world the physical education emphasizes to have a healthy life style of a child. Everyone likes to take part in physical activity but it is not continued properly as the prime importance is given to academics. To impart the curriculum systematically, include dance and movement activities which are the necessity in this era. The difficulties faced by the physical educationist and necessity to overcome the problems is presented. More over the role of technology has made a revolution in the latest years. The Physical education (PE) is an integral part of school curriculum. It's not a detach area from others. As an outcome of research, schemes, advanced technology, critical issues, awareness of health, it has become essential to develop the quality of PE programmes. Today it has been renowned that PE is relevant and necessary to develop a healthy lifestyle. Some misconceptions are there in the mind among school authorities, parents and students that PE activities requires lot of time allotment, may affect academics and chance of injuries are more. In case of severe injury and due to the insufficient availability of proper facility, trained people, doctors and physiotherapists the rehabilitation process it may keep them away from the academics and sports for many days. There are many potential children at the international standard but the traditional inclination has kept them away from involving. PE and sport is vital for the overall development of the child. It helps to achieve mind body unity, learn to be calm during victory and accept the defeat graciously in a sportive behaviour. PE is a scientific as well as technical subject. Yet, the PE and sports programmes are neglected and funds are allotted for the private associations. Thus it makes a variation from competitive sports. Competitive sports are good for economy, but at the same time it is more necessary to have good health and the entire development of the child shall be the primary focus.

Key Words: Development, Physical, Technology, Education, Sports

1. INTRODUCTION:

Physical education can be made fun, interesting, and more productive thanks to the use of technology. Find out how tablets, exer-games, and much more can help improve physical education. Physical Education and Sports is one of the significant measuring sticks and furthermore essential piece of training in any nation anytime of time. Consequently every nation should endeavor to set out a structure of activity plan for advancement and improvement of Physical Education and Sports Paradoxically, sports is seeing an awesome blast in the media spotlight everywhere throughout the world including India while it is in effect genuinely disregarded inside the instructive framework. Physical Education go about just as the arrangement of assets for the country and in the development of assessment framework in instruction advancements and it proms the improvement physical training in a nation. At present contrast with prior years and now we can go over the decay of physical training in instruction contrast with present is one needs to defeated the obstacles and fights to improve the structure and foundation status in around to build up the general order in physical instruction and sports.

Presently that being the piece of complete training process physical instruction and sports has extraordinary effect on the physical just as mental advancement of kids. Many examine that physical instruction is less critical field in entire educational modules yet it is as significant as different subjects, for example, science and math. Educational programs should be structured so that physical exercises become a piece of every day exercise plan. Sports are among the features of media nowadays and it is going to be a major industry on the planet. Notwithstanding being disregarded by larger part of individuals in the public arena, sports have critical effect on the majority of them, legitimately or by implication. Heaps of issues which unfavorably

influence the games should be settled. Participation with the propelled nations is required in such manner since we are not up to check in games field up until this point. We should set up a motivation of activity plan for the support and extension of physical instruction and game.

2. PHYSICAL EDUCATION TECHNOLOGY:

We use it to improve the way cars drive, the way we communicate with one another, and the ways by which we can catch criminals. It's technology. So, why not use it to improve physical education? Actually, many inventions that were developed for completely different purposes are finding their way into physical education programs. Let's take a look at the way technology is being used in physical education programs to assess a student's progress or to improve physical education outcomes by making PE class a lot more fun and interesting.

2.1. Tablets and Apps:

Tablets and apps seem to have taken over the world recently. They're being used by everyone from all ages. Inasmuch, a tablet and appropriate apps can be used to record a student's form during a bat swing, free throw technique, or positioning during a game of football. The video can then be played back, analyzed, and constructive critiques can be given by the coach right on the tablet. The teacher or coach can literally draw on the screen in order to tell students how best to improve their form, strategy, or just about anything else. Today's technology has taken the need away for bulky cameras, videotapes, and expensive software to achieve this. Much cheaper apps and tablets are available for physical education programs. Not to mention, sharing these types of videos and critiques are far easier. This same technology can also be used by students to create workout videos or to choreograph dance routines that can then be easily shared with students in the class. In fact, using the miracle of video chat, students across the globe can literally have a dance competition without having to fly anywhere. This kind of cheap, global connectedness and friendly competition can spur students to train harder to be the best, not just in their region, but in the entire world!

2.2. Heart Rate and Pedometer:

Even slightly older technologies can be used to improve physical education. How do we really know if a student has exercised enough? At least in part, we can measure things like heart rate and the amount of distance covered to figure out whether or not a student has gotten enough exercise. Whether during PE class or even outside of school, **pedometers** - or devices that measure the amount of distance covered by walking or running - and heart rate monitors can be handed out to students for this end. A **heart rate monitor** is an electronic device that can help us ascertain how fast a person's heart is beating, and thus whether a student is exercising hard and long enough. Conversely, it can help us track if a student is over-exercising if their heart rate is way too high for too long.

2.3. Integrate Technology into Physical Education:

Teaching physical education can be challenging for any number of reasons, from a lack of equipment to keeping students engaged. To meet these challenges, some educators are turning to technology to create more dynamic classes that work for students with a wide range of fitness levels. Here are some examples of technology and how you can use them in your classes.

2.4. Pedometers:

Pedometers are probably one of the first examples that come to mind when discussing technology and physical activity. Measuring steps is one of the easiest ways to measure physical activity, and pedometers can be used by a wide range of age groups. Another benefit of using pedometers is they can be used in a variety of tasks, such as doing household chores or scavenger hunts. One issue to remember with pedometers and heart rate monitors is that target rates are different for children with different abilities and activity levels, so be sure to plan accordingly.

2.5. Heart Rate Monitors:

Heart rate monitors are used to measure a student's pulse while engaged in activities. Using these devices allows educators and students to aim for an individualized target heart rate that is challenging to maintain but not too difficult to achieve. By customizing student goals, students feel more involved and more empowered to continue with fitness. Once more, there are different target rates depending on age and ability, so remember to take those into consideration.

2.6. Health Tracking

Taking the data used by heart monitors and pedometers is vital to creating a long-term plan for advancing health. Some pedometers and heart monitors have connectivity built in, which makes the process easier. Using tracking programs or monitoring systems provides educators with tools useful in creating custom goals for the students. Using these kinds of programs allows for instant feedback that allows students the opportunity to adjust their goals and how they wish to achieve them.

2.7. Apps:

With the explosion in mobile technology, physical educators have a wealth of tools. For example, MapMyFitness and MyFitnessPal allow for movement tracking as well as nutritional help. Some apps also assist with improving athletic activities such as basketball. Then, the students can compare what they with what the app instructs. Another idea is to use Google Earth to show students distances and challenge them to walk those distances—for example, the height of Mount Everest or the distance between their home and another location.

2.8. Video Resources:

Sites such as YouTube and Vimeo offer a wide range of tools for educators. If an educator wants to teach something such as dance or yoga, there is a wide variety of how-to videos that can apply to any age group. Additionally, some educators create video projects where student groups create an instructional video to teach something to the rest of the class.

2.9. Games:

There is a steady market of “exergames,” such as Wii Sports and Dance Dance Revolution. To use these for a whole class, have a few students using the controllers (taking turns is crucial!) and have the rest of the class follow along with them. For these games, and any video resources, projecting the video on a wall or screen allows everybody to see what is happening. Adapting to new technology can be challenging for instructors. Sometimes, physical education instructors can feel as if technology does not apply to their subject. However, by embracing technology, physical education instructors create a more varied and dynamic classroom. They are also able to appeal to the interests of many different students and ability types. Using technology to teach physical health allows educators to create more activities and show how important their goals are.

3. ROLE OF TECHNOLOGY:

Role of technology the one and the most reasonably priced mode of technology is simple video recorder. In this the students are in such a position to view their mistakes and rectify, like the glide in the shot put, landing with both the legs, extension of arm, swinging of arms. It is more effective then explaining theoretically or manually. The other mode of technology is the pedometer and heart rate monitors. Pedometer is the most common technology used in the field of PE. It tracks the person where the person is going on. How many steps they have made but it's not absolutely possible to know how far the person is. The average steps they make shall be studied. The heart rate monitors are used to fix the heart rate goals and to study how the exercise affects the body. Today it's a wireless world where everyone are familiar with high speed internet, data connection, tabs, lap top, cell phones, i phones, video games and various apps. These shall be used as one of the tool effectively for the development among children, youths and sportspersons. The downloaded videos helps to know the various movements, world record events, hard fought matches, inspirational talks, research analysis and many required data's shall be shown by using the video projectors. The research trends, healthy habits with the specified and modern explanation and appropriate figures are available to enhance the curriculum offerings in the education system. The growth in the tremendous technological application has emphasized on promoting physical activity, fitness, which is the primary goal in everyone, life. The instructional strategy, different offensive and defensive methods, Habits of various sports persons, Tactics, Health tips all over the world can be known in seconds. Technology has made the students to learn in their way, which is directly a student oriented one. The technology has driven the world in to a challenged and enhanced variety of opportunities for the learners and teachers and researcher. Hence, it is more essential for the health and physical education teachers to update become more responsible in utilising these technologies in an effective manner

4. CONCLUSION:

Physical Education has constantly taken a secondary lounge in India. The issue is on both the sides. In any case, schools and universities don't take the physical instruction and sports in all respects genuinely and guardians don't value their child/little girl to take up games as their profession. The administration and sports industry must meet up and strategize that how they can build up the physical training in India and settle on games as a lifelong decision.

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**YOGA ASANA AND ITS IMPACT ON THE GENERAL MOTOR
ABILITIES OF TABLE TENNIS PLAYERS OF, NANDED DISTRICT
MAHARASHTRA**

¹Dr. Thakur Arjunsingh Narayansingh, ²Prof Patil Sunil Hanmantrao

¹Director, ²Asst. Prof

¹Physical Education & Sports, College Mudkhed, District, Nanded M.H.

²Physical Education Rajiv Gandhi, SHS College Udgir, District Latur M.H

Abstract:

Yoga Asanas bring the Body, Breath and Mind together. When performed in the morning, it revitalizes the body and refreshes the mind, leaves one feeling energetic throughout the course of the day. The postures can help one unwind when performed them in the evening. Table tennis is a game that requires good hand-eye coordination and stimulates mental alertness, concentration and tactical strategy. It is essential to test if Yoga asana would help improve performance of Table tennis players. The main objective of the study was to determine the effect of six weeks Yoga asana training on Flexibility and Hand-Eye coordination of the selected Table tennis players of the Nanded District, Maharashtra. For the purpose of this study a total of 40 Table tennis Players were randomly selected as subjects from the Nanded District, Maharashtra. The age of the subjects was ranging from 18-20 years. The Selected subjects were used as one practicing group. The subjects practiced the Yoga asanas 6 days a week for a total of 6 weeks in the common room selected for the purpose. Yoga asana training was considered as Independent Variable and Flexibility and Hand-Eye coordination were considered as Dependent variables. Flexibility was measured by “Sit and Reach test” and recorded in centimeters. Hand-Eye coordination of the subjects was assessed by “Mirror-Drawing test”. It was evident that 6- weeks’ practice of Yoga asana has significantly improved the Flexibility and Hand-Eye coordination. On the basis of the statistical findings it may be concluded that there is a significant improvement on the General Motor abilities (i.e. Flexibility & Hand-Eye coordination) after Six weeks Yoga asana training.

1. INTRODUCTION:

Yoga Asanas involve gracefully performing stretching exercises and poses. Yoga Asanas bring the Body, Breath and Mind together. When performed in the morning, it revitalizes the body and refreshes the mind, leaves one feeling energetic throughout the course of the day. The postures can help one unwind when performed them in the evening. Table tennis is a game that requires good hand-eye coordination and stimulates mental alertness, concentration and tactical strategy. This makes it the perfect game for young people to sharpen reflexes, and for older people to refine tactics. It is essential to test if Yoga asana would help improve performance of Table tennis players.

1.1. General Motor Ability:

The concept that an athlete’s ability to perform different motor skills is determined by ones general ability. A motor skill is associated with muscle activity. Thus, a person with high general motor ability would tend to learn motor skills more quickly than a person with low general motor ability. Motor skills are the movements and actions of the bone structures. Typically, they are categorized into two groups: Gross Motor Skills and Fine Motor Skills. Gross Motor Skills are involved in movement and coordination of the arms, legs, and other large body parts and movements. They involve actions such as running, crawling and swimming. Fine Motor Skills are involved in smaller movements that occur in the wrists, hands, fingers, feet and toes. They involve smaller actions such as picking up objects between the thumb and finger, writing carefully and even blinking. These two motor skills work together to provide coordination.

1.2. Flexibility:

Flexibility refers to the range of motion for a given joint. The degree of flexibility that a person has is influenced by muscles and connective tissues, like ligaments and tendons. It is the capacity of the muscle to

extend without any damage i.e. the quality of bending easily without breaking. Stretching is a form of exercise that can lead to an increase in flexibility.

1.3. Hand-Eye Coordination:

It is the ability of the vision system to coordinate the information received through the eyes to control, guide, and direct the hands in the accomplishment of a given task, such as hand writing or catching a ball. Hand-Eye coordination uses the eyes to direct attention and the hands to execute a task.

1.4. OBJECTIVE OF THE STUDY:

The main objective of the study was to determine the effect of six weeks Yoga asana training on Flexibility and Hand-Eye coordination of the selected Table tennis players of the Nanded District, Maharashtra.

1.5. HYPOTHESIS:

H1- It was hypothesized that Six weeks Yoga asana training will result in significant improvement in Flexibility of the selected Table tennis players of the Nanded District, Maharashtra.

H2- It was hypothesized that Six weeks Yoga asana training will result in enhanced Hand- Eye coordination of the selected Table tennis players of the Nanded District, Maharashtra.

2. METHODOLOGY:

The following methodological steps were taken for the study.

2.1. Subjects:

For the purpose of this study a total of 40 Table tennis Players were randomly selected as subjects from the Nanded District, Maharashtra. The age of the subjects was ranging from 18-20 years. The Selected subjects were used as one practicing group.

2.2. Variables:

Yoga asana training was considered as Independent Variable and Flexibility and Hand-Eye coordination were considered as Dependent variables.

2.3. Tools & Tests:

- Flexibility was measured by “Sit and Reach test” and recorded in centimeters.
- Hand-Eye coordination of the subjects was assessed by “Mirror-Drawing test”. This was done by digital mirror drawing apparatus. In this test, error while drawing is recorded and fewer error indicates good Hand-Eye coordination.

2.4. Experimental Design:

The random group design was used for this study. Only one group of 40 participants was created. The subjects were administered the Yoga asana practice in addition to their regular participation in all other activities.

2.5. Training protocol:

The selected group of subjects had 30 minutes of practice of the Yoga asana in the initial days but total time was increased up to an hour gradually by increasing the number of repetitions and time duration in a progressive load method. The subjects practiced the Yoga asanas 6 days a week for a total of 6 weeks in the common room selected for the purpose. The scheduled time of the practice lasted for one hour between 6.00 am to 7.00 am and was conducted instead of the student’s regular conditioning period. Each and every practice period was concluded with five minutes of Shavasana.

3. STATISTICAL ANALYSIS:

Independent t-test was used for analyzing the data. The level of significance at 0.05 was determined.

Table shows the variation of Mean, Standard Deviation and t-ratio of Table tennis players of the Udgir, Latur District, Maharashtra.

Sr. No	Parameters	N	Pre-Test		Post – Test		t- ratio
			Mean	SD	Mean	SD	
	Flexibility	40	34.32	3.56	40.35	3.22	4.348
	Hand-Eye Coordination	40	12.35	0.59	11.78	0.42	4.326

The above table reveals that the pre-test mean of flexibility for Table tennis players was 34.32 with the standard deviation of 3.56 and post-test mean was 40.35 with the standard deviation of 3.22. The obtained t-ratio 4.348 was found to be greater than the required table value of 2.05 at 0.05 level of confidence for 38 degrees of freedom. This indicates that there was significant difference on flexibility between the pre and post-test of Table

tennis players. The above table reveals that the pre-test mean of Hand-Eye Coordination for Table tennis players was 12.35 with the standard deviation of 0.59 and post-test mean was 11.78 with the standard deviation of 0.42. The obtained t-ratio 4.326 was found to be greater than the required table value of 2.05 at 0.05 level of confidence for 39 degrees of freedom. This indicates that there was significant improvement on Hand-Eye Coordination between the pre and post-test of the table tennis players.

4. RESULTS AND CONCLUSION:

From the present study it is evident that 6- weeks' practice of Yoga asana has significantly improved the Flexibility and Hand-Eye coordination. On the basis of the statistical findings it may be concluded that there is a significant improvement on the General Motor abilities (i.e. Flexibility & Hand-Eye coordination) after Six weeks Yoga asana training on the selected Table tennis players of the Nanded District, Maharashtra. Hence, the hypothesis 1 & 2 were accepted.

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**AVAILABILITY AND UTILIZATION OF THE SPORTS FACILITIES AT
THE PRIMARY SCHOOLS OF BORDER AREA IN NORTH 24
PARGANAS**

¹Madhusudan Biswas, ²Dr. Apurba Biswas

¹Research Scholar, ²Assistant Professor

^{1,2}School of Education, Adamas University, W.B., India

Email: ¹madhusudanbiswas054@gmail.com, ²apurba.biswas.127@gmail.com

Abstract:

Sports are the important part of the growth and development of mental and physical health. The study was conducted to determine the availability of the sports facilities, sports materials and sports practice in the primary schools of Bangoan, Basirhat, Baduria, Bagdah, Hingalgang, Hasnabad, Gaighata, Swarnapurnagar blocks of North 24 Parganas in West Bengal. A survey was carried out among 800 children and 80 teachers among them 40 Headmasters and 40 Assistant teachers from 40 selected Primary schools. Data were collected using questionnaires, interview and observation in the selected schools and the collected data were presented in the tables, bar-charts, and pie-charts. Three and two point Likert scale questionnaire was developed including seven important factors regarding availability and utilization of the sports facilities. The study found that sports facilities and relevant equipment was also not available or not sufficient according to needs in most of the schools. It was also found that the equipment whatever available in the schools was not effectively used.

Key Words: Sports facilities, Availability of Sports Facilities, Utilization of Sports Facilities, Primary schools, Border area.

1. INTRODUCTION:

Sports are given lesser attention in Indian schools since it is considered a just physical activity. But sports and games encompass more than just the benefits of physical things; it increases the confidence, self-esteem and mental alertness that made them an essential part of the curriculum. Games and sports should be made an integral part of a student's life. A student should study hard to be successful in various test and examinations. But, he/she should also get involved playing games to derive the health and vigor of life. For this, Schools must have suitable sports equipment for the students. The school should be equipped with multi-sporting facilities include playground, cricket, football, tennis, volleyball, skipping, shot-put, flying disk, etc. When children participate in sports in school, it enables them to work in a team environment of inclusion and being part of a team. In addition, it helps students interact with peers in a social and friendly way. It helps peers to consider their interests and learn to practice mutual respect and gain their cooperation. Work together, share time, sensitive space and other help to develop understanding among them. It helps to return to play and learn to endure successes and failures as a group and as a team. These conversations can greatly contribute to friendships and long lasting friendships with schoolmates can help children become more creative in future careers. Several studies have indicated that children who participate in sports and physical activities are less likely to commit crimes. Engaging yourself in sports reduces the amount of free time you can monitor and prevents boredom. It makes smoking, alcohol and drugs less attractive, it has been proven that girls who play sports do better in school and have learned the importance of goal setting, planning, strategies all of which can be an important part of workplace success, including sex at an early age, or less likely to get pregnant. The benefits of playing sports are several and it leads to balanced mental development. It teaches children social skills, team effort, leadership, patience, etc. it makes you confident, disciplined and compelled to play without breaking the rules. After all, it makes athletes, it is extremely necessary where it helps to deal with both winning and losing with grace. All these experiences and habits are effective in their future life as well as their career.

1.1. PURPOSE OF THE STUDY:

- To find out the availability of the playground in the Primary schools,

- To find out the sufficient playground in size at the Primary schools as requirement for the students,
- To find out the availability of sufficient sports equipment in the Primary schools,
- To find out the utilization of the sports equipment by the students,

2. METHODOLOGY:

This was a study under the category of the survey in the field of educational research, in which the investigator attempted to evaluate and compare availability and utilization of the sports facilities at government added primary schools of border area in North 24 Parganas.

2.1. The Population of the Study: Populations of the study were the students, Head Teachers, and Assistant Teachers of the primary schools from the international border area between Bangladesh and India of North 24 Parganas in West Bengal.

2.2. Sampling: Multilevel Mixed Methods Sampling techniques were used to collect the data. At first, the researcher used cluster sampling to identify the blocks of North 24 Parganas which touched the Indo-Bangla border. A total of 8 blocks of North 24 Parganas were touched on the Indo-Bangla border, they are- Bangoan, Basirhat, Baduria, Bagdah, Hingalgang, Hasnabad, Gaighata, Swarupnagar. Then 5 schools were chosen using purposive sampling from each block those are within 5 km from the international borderline. Total number of schools were- (number of blocks x 5) = (8 x 5) = 40.

The researcher chooses 10 male and 10 female students from the class III & IV. Here, the researcher used disproportionate stratified random sampling.

Total numbers of male students are- (number of schools x 10) = (40 x 10) = 400.

Total numbers of female students are- (number of schools x 10) = (40 x 10) = 400.

Total students- (Total Male Students + Total Female Students) = (400 + 400) = 800.

The Head-teacher of the school and an Assistant Teacher were also considered as population. No sampling technique was used for Head Teachers, but simple random sampling was used for the Assistant Teachers.

Total Head Teachers = (Number of Schools x 1) = (40 x 1) = 40.

Total Assistant Teachers = (Number of Schools x 1) = (40 x 1) = 40.

2.3. Criterion Measure and Tools used: In this study, the researcher wants to measure the available sports facilities, and also wants to measure the utilization of those sports facilities in the primary schools of border area. To measure the available sports facilities in the schools the researcher standardized a questionnaire for Head Teacher. And to measure the utilization of sports facilities in the schools another questionnaire was standardized for Head Teachers, Assistant Teachers and for the students. In some cases, unstructured interview and observation techniques were also applied.

3. ANALYSIS OF AVAILABILITY OF SPORTS FACILITIES:

3.1. Availability of Playground:

TABLE 1. Availability of Play ground

Play Ground	Yes	No	Total
No of Schools	19	21	40
%	47.5%	52.5%	100%

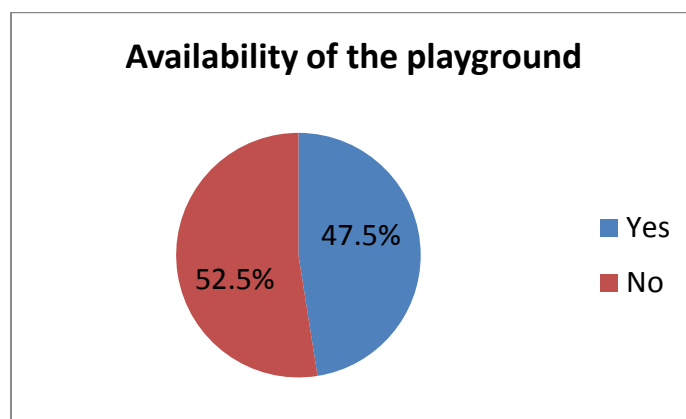


Figure 1. Percentage distribution according to Head teachers of the Availability of the playground in the Primary schools.

Table 1 shows that the Availability of the playground in the Primary Schools. According to the Head-teachers, this table indicates that 47.5% of schools have playgrounds, and were 52.5% of schools had no playground in Primary schools.

3.2. Size of the playground:

TABLE 2. Sufficient Size of the playground is as per students' requirement

Sufficient Size of the play ground	Yes	No	Total
No. of schools	12	28	40
in %	30%	70%	100%

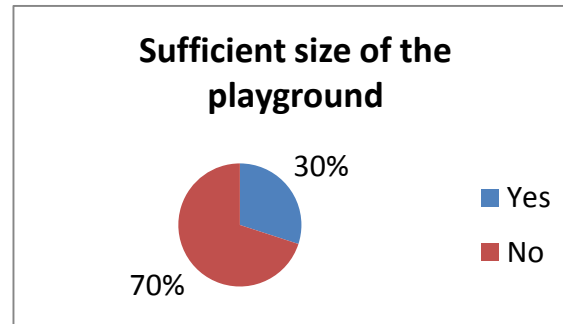


Figure 2. Percentage distribution according to Head teachers of the sufficient size of the playground in the Primary schools.

Table 2 shows that the sufficient size of the playground as per students requirements in the Primary school. According to Head teachers this table indicates that 30% of schools have sufficient size of playground as per student requirements and where 70% of schools don't have sufficient size of the playground in the Primary schools. The researcher has been noticed that many of the schools did not have playground. Some of the schools have playgrounds; among them several schools have identified a small space of their front as a playground but the researcher does not consider it as a playground because it was not suitable for games and sports.

3.3. Availability of the sufficient sports facilities:

TABLE 3 Availability of sports equipment

Sports equipment	Yes	No	Total
No of Schools	19	21	40
In percentage	47.5%	52.5%	100%

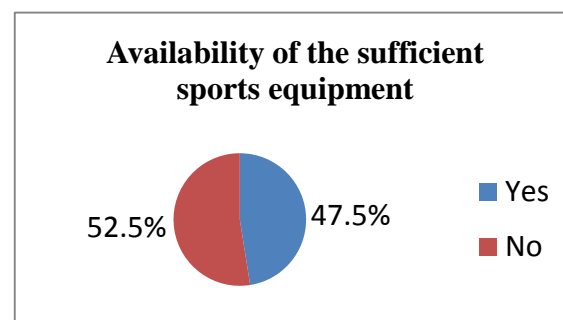


Figure 3: Percentage distribution according to Head teachers of the Availability of the sufficient sports equipment in the Primary schools.

Table 3 shows that the Availability of the sports equipment in the Primary Schools. According to the Head-teachers, 47.5% of schools have sufficient sports equipment and 52.5% of schools did not have sufficient sports equipment at the Primary schools. The researcher has observed that most of the schools did not have adequate play equipment for the students. And most of the schools acknowledge the inadequacy of sports equipment. However, the researcher has found that most of the schools' sports equipment is nothing more than ludo, shot-put, skipping, carrom, and flying disk. The researcher has also noticed the inadequacy of sports equipment in the schools where the

headmasters admitted that their school has adequacy equipment such as ludo, skipping, carrom, flying disk, etc. Besides, the researcher has noticed that there was no such sports equipment for playing cricket, football, tennis, hockey, etc. Several schools have few balls but no cricket-bat, so, the students cannot play cricket. The researcher also became known from students that their footballs, cricket balls have fallen into the river and lost, and could not play football and cricket in the field.

4. ANALYSIS OF UTILIZATION OF SPORTS FACILITIES:

Utilization of the playground:

TABLE 4. Gender wise use of the playground by the students

Gender	Use of playground by the students						Total
	Always		Some times		Never		
	Number of Students	Percentage	Number of Students	Percentage	Number of Students	Percentage	
Boys	328	82%	55	13.75%	17	4.25%	400
Girls	320	80%	56	14%	24	6%	400

Table 4 shows that the use of the playground by the students in the primary schools. According to the students, 82% of boys play on the playground all the time, 13.75% of the boys sometimes play on the playground and 4.25% of the boys never play on the playground. On the other hand, 80% of girls reported that they always play on the playground, 14% of girls sometimes play on the playground and 6% of girls never play on the playground.

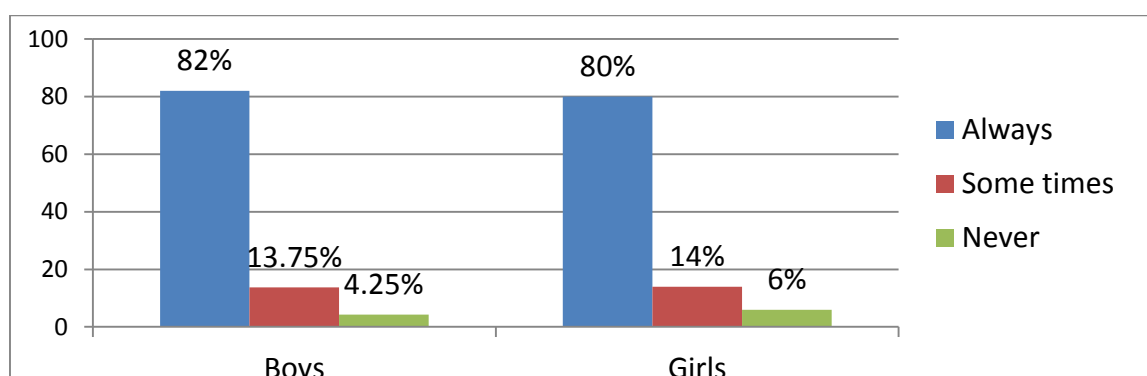


Figure 4. Graphical representation of Percentage distribution of the use of the playground by the students in the Primary schools (according to students).

TABLE 5. Use of the playground according to students and teachers

	Use of playground by the students						Total
	Always		Some times		Never		
	Number of Students	Percentage	Number of Students	Percentage	Number of Students	Percentage	
According to Teachers	52	65%	24	30%	4	5%	80
According to Students	648	81%	111	13.88%	41	5.13%	800

Table 5 shows that the use of the playground by the students in the Primary school. According to the Teachers of the Primary schools 65% students always play on the playground, 30% sometimes, and 5% never use the playground in the primary schools, where according to students it was 81%, 13.88% and 5.13% respectively.

The researcher has known that all the students could not always play on the playground because many schools did not have a playground and some schools have a playground that was too small to use. The teachers and the students both have admitted it. However, the researcher found the lack of the playground in the primary schools of Border area so that students could not play properly in the schools. The researcher also noticed that boys have slightly ahead of girls in field use for the play.

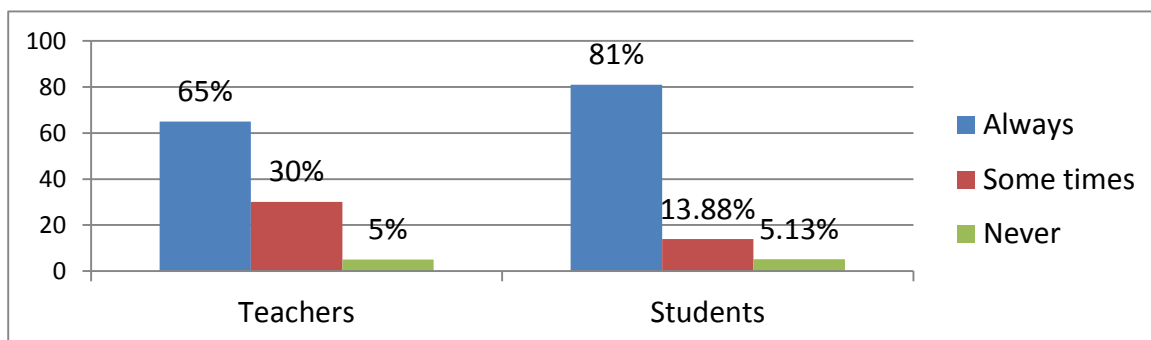


Figure 5. Graphical representation of percentage distribution of the utilization of the playground in the Primary schools (according to Teachers and Students).

Utilization of Sports Equipment:

TABLE 6. Gender wise use of the Sports equipment

Gender	Use of the Sports equipment						Total
	Always		Some times		Never		
	Number of Students	Percentage	Number of Students	Percentage	Number of Students	Percentage	
Boys	190	47.5%	101	25.25%	109	27.25%	400
Girls	174	43.5%	109	27.25%	117	29.25%	400

Table 6 shows that the use of the sports equipment by the boy and girl students in the primary schools. According to the students of the primary schools, 47.5% of boy students always used sports equipment in the school, 25.25% boy students sometime used the sports equipment, and 27.25% boy students never used sports equipment. For the girl students it was 43.5%, 27.25%, and 29.25% respectively.

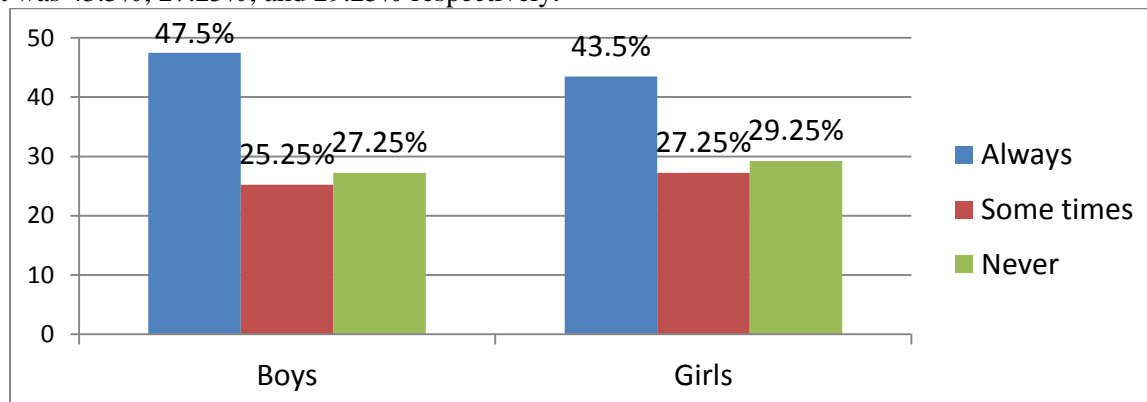


Figure 6. Graphical representation of percentage distribution of the utilization of the sports equipment (according to the students)

TABLE 7. Use of sports equipment by the students

	Use of sports equipment by the students						Total
	Always		Some times		Never		
	Number of Students	Percentage	Number of Students	Percentage	Number of Students	Percentage	
According to Teachers	37	46.25%	36	45%	7	8.75%	80
According to Students	364	45.5%	210	26.25%	226	28.25%	800

Table 7 shows that the use of the sports equipment by the students in the Primary schools. According to the Teachers of Primary schools 46.25% students always used sports equipment, 45% students sometimes used the sports equipment, and 8.75% students never used the sports equipment, where according to the students 45.5% students

always used sports equipment, 26.25% students sometimes used the sports equipment, 28.25% students never used of the sports equipment.

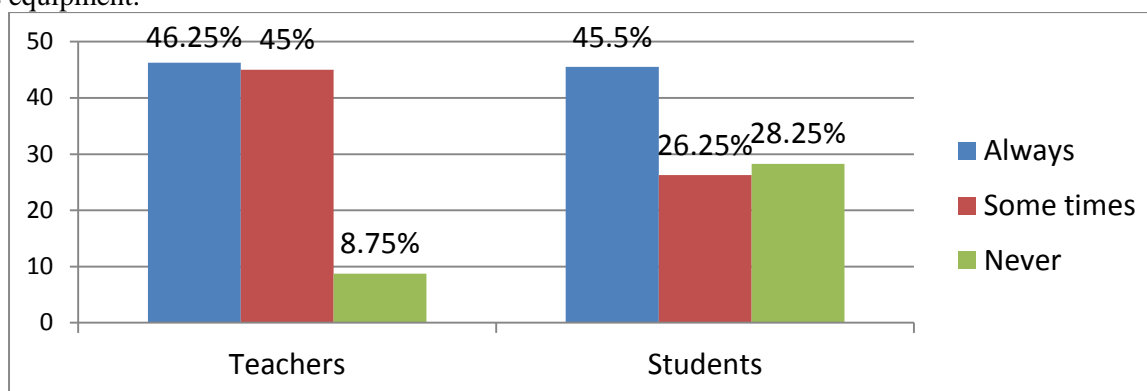


Figure 7. Graphical representation of percentage distribution of utilization of the sports equipment by the students in the primary schools (according to the Teachers and Students).

The researcher has noticed that students cannot play properly because the school did not have adequate sports equipment. The students said to the researcher that they could not play football, cricket etc. because the school did not have sports equipment. Again not all students got sports equipment due to the inadequacy of the sports equipment at the schools and they could not play. The researcher has known from the children of class three that the inadequate sports facilities which were occupied by the children of class four, and the boys students were taken the sports equipment from the girls student forcefully, so the children of class three and girls students did not get all the sports material when they need. Researcher has found that education is given more importance in every school, where sports should be given equal importance for the overall development of the students.

5. FINDINGS:

The above tables indicate that most of the schools of the Border area did not have any playground and the sports materials were not available as per requirement of the students. Even whatever equipment was available at the schools those were also not used regularly or properly.

6. CONCLUSION:

There is a need for sports equipment in the schools to help improve health. Sports facilities in the schools were found to be inadequate. The availability of sports facilities was not satisfactory in any school. The utilization of sports facilities by students was unsatisfactory. It is the responsibility of the teacher to distribute all the sports equipment equally among the students so that everyone can play. The teachers should always arrange an internal competition between two classes to encourage the students towards the sports. Next to the needs, they arrange a competition of sports between two local schools. The teachers have to arrange different sports materials for the students in any way. In addition to studies and sports can lead to the overall development of the students and to become responsible citizen in the future. So not only the school but also the society has to take responsibility. So it is recommended that all the school should have a playground and the size of the playground should be sufficient as per the requirements of the students. Sufficient sports materials will be provided by the schools for the students as the requirement of the students. All the sports equipment will be monitoring by the teachers to provide all the sports material to the students.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

TALENT IDENTIFICATION ON PULSE RATE AND ANAEROBIC CAPACITY BETWEEN FOOTBALL PLAYERS AND HOCKEY PLAYERS

¹Sarungbam Sen Singh, ²Dr. Laishram Santosh Singh

¹Research Scholar, ²Assistant Professor

^{1,2}Department of Physical Education and Sports Science
Manipur University, Canchipur

Abstract:

The purpose of the study was to compare pulse rate and anaerobic capacity between the state level players of football and hockey. In this study, the subjects for data collection were drawn from the Iroisemba Youth Development Club, Imphal, Manipur and Meira Club Bashikhong, Imphal, Manipur. Simple random sampling technique was used to select the subjects. The age of the subjects ranged between 12-18 years. The sample consisted of 30 male players who have been regular practices in the Iroisemba Youth Development Club, Imphal, Manipur and Meira Club, Bashikhong, Imphal, Manipur. Fifteen (15) male players from football and fifteen (15) male players from hockey. To find out the pulse rate and anaerobic capacity between football players and hockey players. Talent identification on pulse rate and anaerobic capacity between football players and hockey players was used for this purpose of the study. To find out the significant differences between football players and hockey players the independent t-test statistical technique was employed. The level of significance was set at 0.05. The result showed that there is no significance difference in pulse rate between football players and hockey players whereas there is significance difference in anaerobic capacity between football players and hockey players with regard to talent identification on pulse rate and anaerobic capacity between football players and hockey players.

Key Words: Football, Hockey, Talent Identification, Pulse rate, anaerobic capacity.

1. INTRODUCTION:

Talent Identification is an art one yields great results today the other builds elite athletes and winning teams for the future. Talent Identification requires the skill to weigh all the physical, physiological, psychological and technical components of an athlete, as well as a measure of “gut instinct” of which kid has what it takes to become elite and which kid does not. Talent Identification aims to find those individuals who have the most promise to succeed in the future, with a further consideration being the subsequent development of these promising youngsters so that they can reach their fullest potential. Talent needs to be identified at a young age so that it can be properly nurtured to develop top players. It is vital that athletes receive the best possible service in predicting their attributes and abilities, while some athlete arise by ‘spontaneous generation’, other do so as a product of systematic search campaigns based on scientific and methodological criteria. Good players are not created overnight, but instead natural talent and ability must be nurtured in order to enable players to fulfil their potential. The processes that shape the success of sports people in any sport are conditioned by the player's response to the multiple environmental interactions and stimuli that are presented day by day. Consequently, it is important to regard the player as a multifactorial entity and assess if he will be able to adapt to the situations that are presented to him. There are four stages involved in the conversion of a talented player into an elite sportsman. These include detection, identification, development and selection. Within any sporting domain, talent and potential alone does not automatically translate into capability and success. Talent identification is a multifactorial process and it is important to not only view the player as he is now, but look at what, with the right support he may become.

1.1. Statement of the Problem: The statement of the problem was to find out the Talent Identification on pulse rate and anaerobic capacity between football players and hockey players.

1.2. Purpose of the Study: The main purpose of the study was to find out the Talent Identification on pulse rate and anaerobic capacity between football players and hockey players.

1.3. Hypothesis of the Study: It was hypothesized that there might be significant difference on Talent Identification on pulse rate and anaerobic capacity between football players and hockey players.

2. METHODOLOGY:

2.1 Materials and Method: For the purpose of the study, thirty (30) male players from football and hockey were selected as a subject from the Iroisemba Youth Development Club, Imphal, Manipur and Meira Club Bashikhong, Imphal, Manipur. The age of the subjects ranged between 12-18 years. For the present study, the subjects for data collection were drawn from the Iroisemba Youth Development Club, Imphal, Manipur and Meira Club Bashikhong, Imphal, Manipur. Simple random sampling technique was used to select the subjects. The sample consisted of thirty (30) male players who have been regularly practices in the Iroisemba Youth Development Club, Imphal, Manipur and Meira Club Bashikhong, Imphal, Manipur. Pulse rate and anaerobic capacity were used for measuring the talent identification of football players and hockey players of Manipur.

2.2 Selection of Variables: The researcher reviewed the available scientific literature pertaining to the problem under studies from book, journals and research paper and also taking into consideration of the feasibility criteria of the availability of the instrument and relevance of the variable to the present study. The following variables were selected:

- Pulse rate
- Anaerobic Capacity

2.3. SELECTION OF TESTS:

VARIABLES	TEST NAME	UNIT OF MEASUREMENT
Pulse Rate	Pulse Rate Test	In Minute
Anaerobic Capacity	Anaerobic Capacity Test	Kg-m.sec ⁻¹

2.4. Criterion Measures: The following criterion measures were chosen for the hypothesis.

Pulse rate: Pulse rate is the number of heart beat per minute. To determine the pulse rate of subject's pulpatory method (pulse rate count) was used and score was recorded in the numbers of pulse per minute.

Anaerobic Capacity: Anaerobic Capacity is the ability to put body parts into motion quickly and to sustain high intensity efforts where the energy is supplied anaerobically. Measuring the difference between people's standing reach and the height to which he or she can jump and touch has erroneously been used as a power test of legs. In order to make the jump reach test more valid as a measure of leg power, the Lewis Nomogram were used, anaerobic capacity was expressed in kg-m.sec⁻¹

3. RESULTS AND DISCUSSION: The significant mean difference in the pulse rate between football players and hockey players is presented in Table-I

TABLE-I

Group	N	Mean	Σ	SE _M	df	t-value
Football	15	69.26	7.64	1.97	28	.915
Hockey	15	64.93	16.67	4.30		

Significant at .05 level

$$t_{.05} (28) = 2.048$$

From the finding of the above table, the mean value of football players is 69.26 and the mean value of hockey players is 64.93 after analysis the data 't' ratio is .915 at 0.05 level of significance. Hence there is no significant difference found between the football players and hockey players.

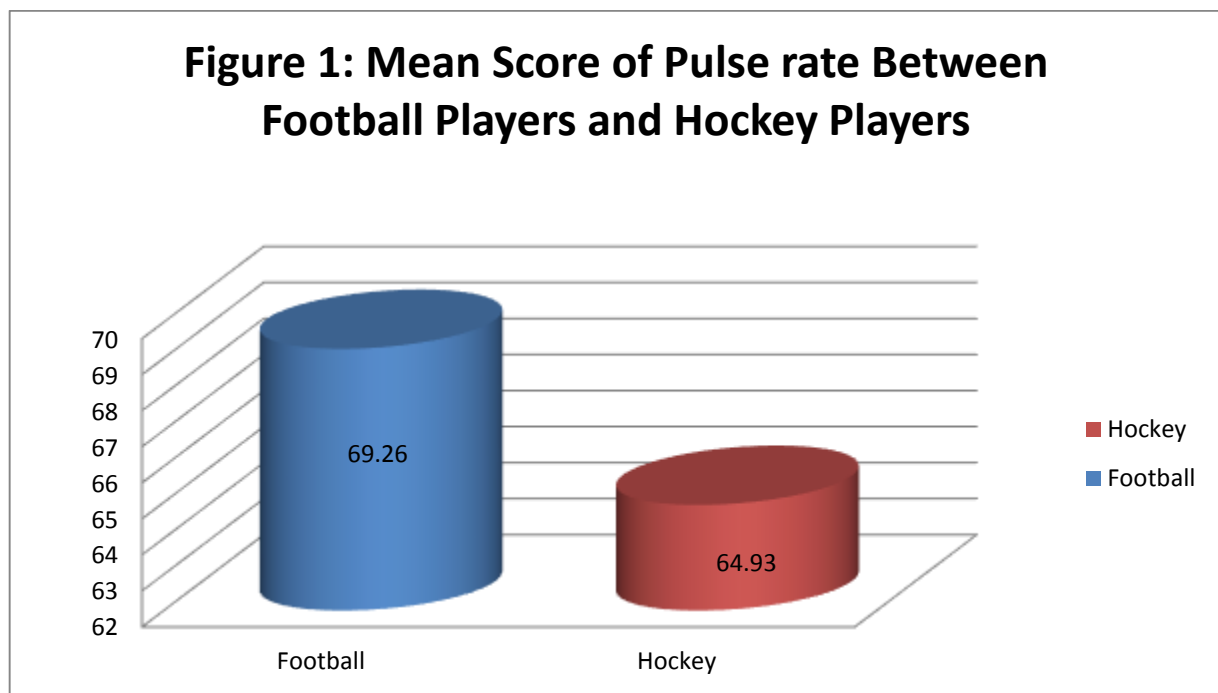


Figure 1. Graphical representation of mean difference in the pulse rate between football players and hockey players.

The significant mean difference in the anaerobic capacity between football players and hockey players is presented in Table-2

TABLE-2

Group	N	Mean	Σ	SE _M	df	t-value
Football	15	1.95	.504	1.30	28	3.50*
Hockey	15	1.38	.373	.096		

*Significant at .05 level

$t_{.05}(28) = 2.048$

From the finding of the above table, the mean value of football players is 1.95 and the mean value of hockey players is 1.38. After analysis the data 't' ratio is 3.50 at 0.05 level of significance. Hence there is significant difference found between the football players and hockey players.

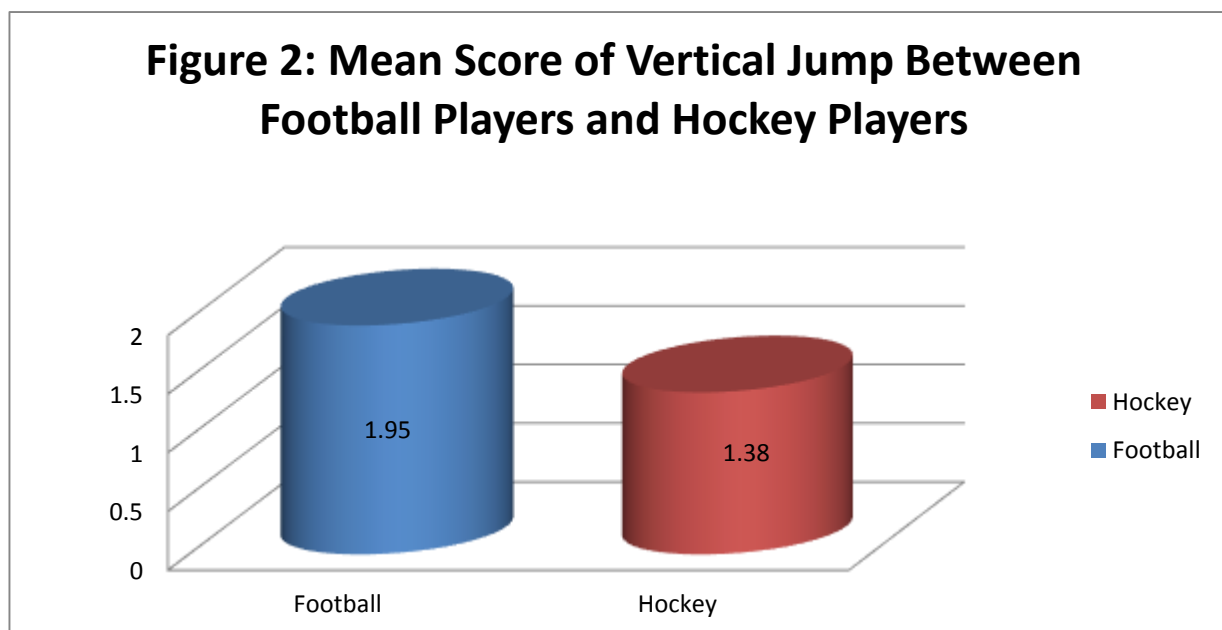


Figure 2. Graphical representation of mean difference in the vertical jump between football players and hockey players.

4. DISCUSSION OF FINDINGS:

It is evident from table that no significant difference in pulse rate between the football players and hockey players whereas there was significant difference in anaerobic capacity between the football players and hockey players with regard to talent identification on pulse rate and anaerobic capacity between football players and hockey players. The finding of the study showed that there were no significant difference obtained on pulse rate between football players and hockey players. The probable reason could be that the sports of football players and hockey players need equal level of fitness which are highly required while performance certain technical skills like dribbling, quick running, jump passing, co-ordination. Whereas there is significant difference in standing broad jump is due to all the selected players of football and hockey have been staying at different places, having different type of foods intake, having different training schedule, having different life style of the players. The analysis of data on pulse rate and anaerobic capacity between football players and hockey player has been examined by independent t-test. Pulse rate and anaerobic capacity were applied to assess talent identification on pulse rate and anaerobic capacity between football players and hockey players.

Conclusion: Based on the study was concluded that, there was no significance differences in pulse rate between football players and hockey players. Whereas there was a significance differences in anaerobic capacity between football players and hockey players with regard to talent identification on pulse rate and anaerobic capacity between football and hockey players.

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COMPARATIVE STUDY OF AGILITY AND EXPLOSIVE STRENGTH BETWEEN FOOTBALL AND HOCKEY PLAYERS

¹Sarungbam Susmita Devi, ²Sarungbam Sen Singh

^{1,2}Research Scholar

^{1,2}Department of Physical Education and Sports Science
Manipur University, Canchipur

Abstract:

The purpose of the study was to compare the agility and explosive strength between the state level players of football and hockey. In this study, the subjects for data collection were drawn from the Th. Birachandra Singh Football Academy (TBSFA), Toubungkhok, Langjing Achouba, Manipur and Sport Authority of India (SAI), Khumanlampak, Manipur. Simple random sampling technique was used to select the subjects. The age of the subjects ranged between 18-20 years. The sample consisted of (forty) 40 male players who have been regularly practicing under the Th. Birachandra Singh Football Academy (TBSFA), Toubungkhok, Langjing Achouba, Manipur and Sport Authority of India (SAI), Khumanlampak, Manipur. Twenty (20) male players from football and twenty (20) male players from hockey. To find out the agility and explosive strength between football and hockey players. Comparative study on agility and explosive strength between football and hockey players was used for the purpose of the study. To find out the comparative study on agility and explosive strength between football and hockey players the independent t-test statistical technique was employed. The level of significance was set at 0.05. According to the research findings, there is a significance difference found between the football and hockey players on agility and explosive strength in this study.

Keywords: Agility, Explosive Strength, Football, Hockey.

1. INTRODUCTION:

Sports includes all form of competitive physical activity or games which, through casual or organised participation, aim to use, maintain or improve physical ability and skill while providing enjoyment to participants, and in some cases, entertainment for spectators. Football is the most watched and played single sports on the planet. Soccer is the sport of namely every country in Asia, Africa, South America, Argentina, Brazil, England, Germany, Italy etc., are football playing giants and forces to reckon with these days, it is no wonder that football is bigger than baseball, basketball and all combined. Hockey or field hockey as it known in international circles was played by ancient Egyptians, Persians and Greeks throughout Europe and Asia, a stick and ball game resembling hockey in aspect or another had away been quite popular giving rise to myriad speculations about the authenticity of its origin and validity of its play structure. It is nothing more than a myth that hockey took birth in India though the Indians have been instrumental in developing it to the level of excellence during the twentieth century. The unsurpassed hockey Wizard Dhyani Chand sprang up from the Indian Sport soil only. At present Germany, Netherlands, Australia, Pakistan, South Korea, England, Japan etc. are powers to reckon with in hockey at most international fixtures. Agility means ability of quick and swift movements, and ability of quick apprehension of body movements. Agility is an important motor ability in majority of the sportive activities, especially in football, hockey, handball, gymnastics, tennis, badminton, softball diving, hurdling high jumping etc. therefore, the measurement of agility is an important factor for sports counselling. As used in physical education and sports, agility may be defined as one's controlled ability to change body position and direction rapidly and accurately. Strength is a conditional ability i.e., it depends largely on the energy liberation processes in the muscles, strength is also perhaps the most important motor ability in sports as it is a direct product of muscle contractions. All movements in sports are caused by muscle contractions and, therefore, strength is a part and parcel of all motor abilities, technical skills and tactical actions. Explosive strength is a combination of strength and speed abilities. Explosive strength is the ability to

overcome resistance with high speed. Due to the fact that the 100m dash is so widely covered every Olympics, people perceive reaction time and explosive strength as genetic. Agility and Explosive strength and it's developed is from the research on rate of force development.

2. STATEMENT OF THE PROBLEM: From the above surface literature and background, the problem had been stated that *Comparative Study of Agility and Explosive Strength between Football and Hockey Players.*

3. PURPOSE OF THE STUDY: The main purpose of the study is to compare the agility and explosive strength between football and hockey players.

4. METHODOLOGY:

4.1 Selection of Subject:

For the present study, total forty (40) male players, 20 football players and 20 hockey players were selected as a subject from the Th.Birachandra Singh Football Academy (TBSFA), Toubungkhok, Langjing Achouba, Manipur and Sport Authority of India (SAI), Khumanlampak, Manipur. The ages of the subjects were ranged from 18-20 years and all the subjects were physically fit.

4.2 Selection of Variables: The researcher reviewed the available scientific literature pertaining to the problem under studies from book, journals and research paper and also taking into consideration of the feasibility criteria of the availability of the instrument and relevance of the variable to the present study. The following variables were selected:

- Agility
- Explosive Strength

4.3. Selection of Tests:

VARIABLES	TEST NAME	UNIT OF MEASUREMENT
Agility	Shuttle Run Test	In Minute
Explosive Strength	Standing Broad Jump Test	Kg-m.sec ⁻¹

4.4 Criterion Measures: The following criterion measures were chosen for the hypothesis.

Agility: The speed with which an individual may change his positions or fastness in changing directions while moving is known as agility. To measure agility by using shuttle run and score was recorded in minute.

Explosive Strength: Explosive strength is the ability to overcome resistance with high speed. To measure explosive strength by using the standing broad jump and score was recorded in Kg-m.sec⁻¹

4.5. Statistical Test:

To analyse the data on agility and explosive strength between football and hockey players independent t- test was employed. The level of significance was set at 0.05.

5. RESULT:

To know the significant mean difference in the performance of shuttle run between football and hockey players is presented in Table No.1

TABLE - I

Group	N	Mean	Σ	SE _M	df	t-value
Football	20	9.93	.441	.098	38	5.79*
Hockey	20	9.02	.541	.121		

*Significant at .05 level. $t_{.05}(38) = 2.022$

From the finding of the above table, the mean value of football players is 9.93 and the mean value of youth hockey Players is 9.02. After analysis the data 't' ratio is 5.79 at 0.05 level of significance. Hence there is significant difference found between the football and hockey players.

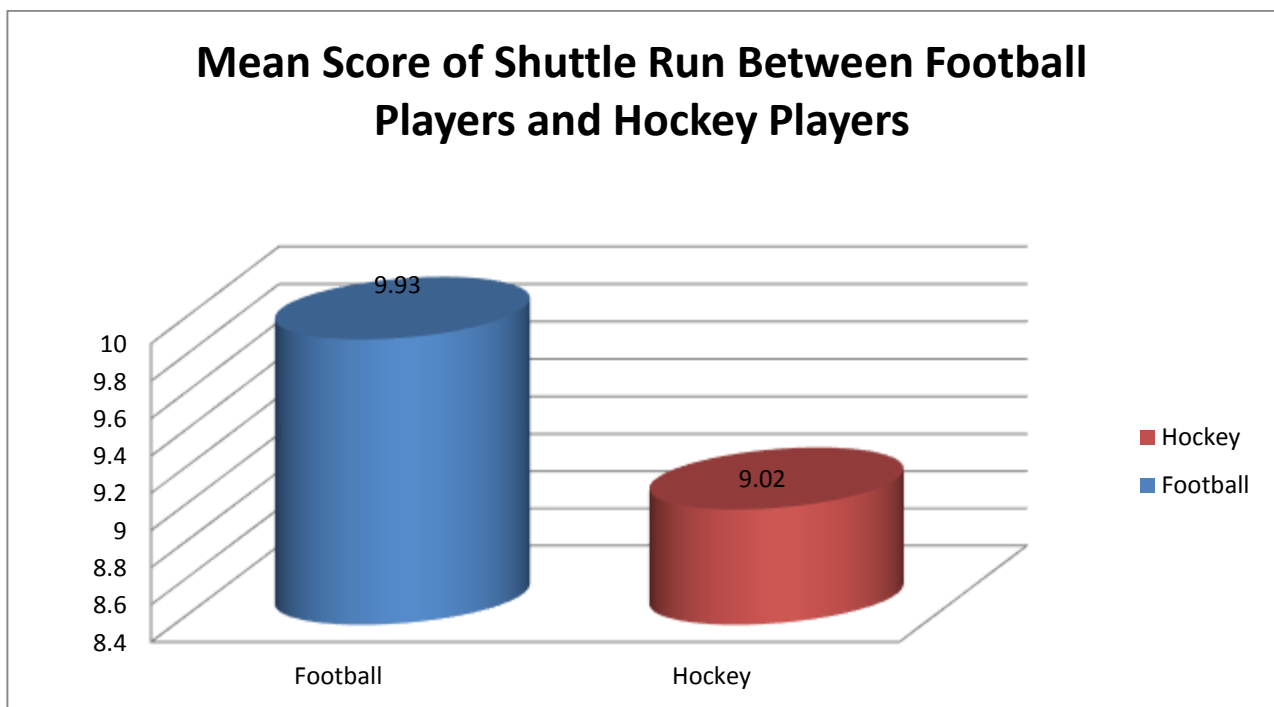


Figure 1. Graphical representation of Mean Difference in the Performance of Shuttle Run between Football and Hockey Players.

The Significant mean difference in the performance of Standing Broad Jump between football and hockey players is presented in Table-II

TABLE 2.

Group	N	Mean	Σ	SE _M	df	t-value
Football	20	6.23	.808	.180	38	3.44*
Hockey	20	7.01	.590	.130		

*Significant at .05 level. $t_{.05}(38) = 2.022$

From the finding of the above table, the mean value of football players is 6.23 and the mean value of youth hockey players is 7.01. After analysis the data 't' ratio is 3.44 at 0.05 level of significance. Hence there is significant difference found between the football and hockey players.

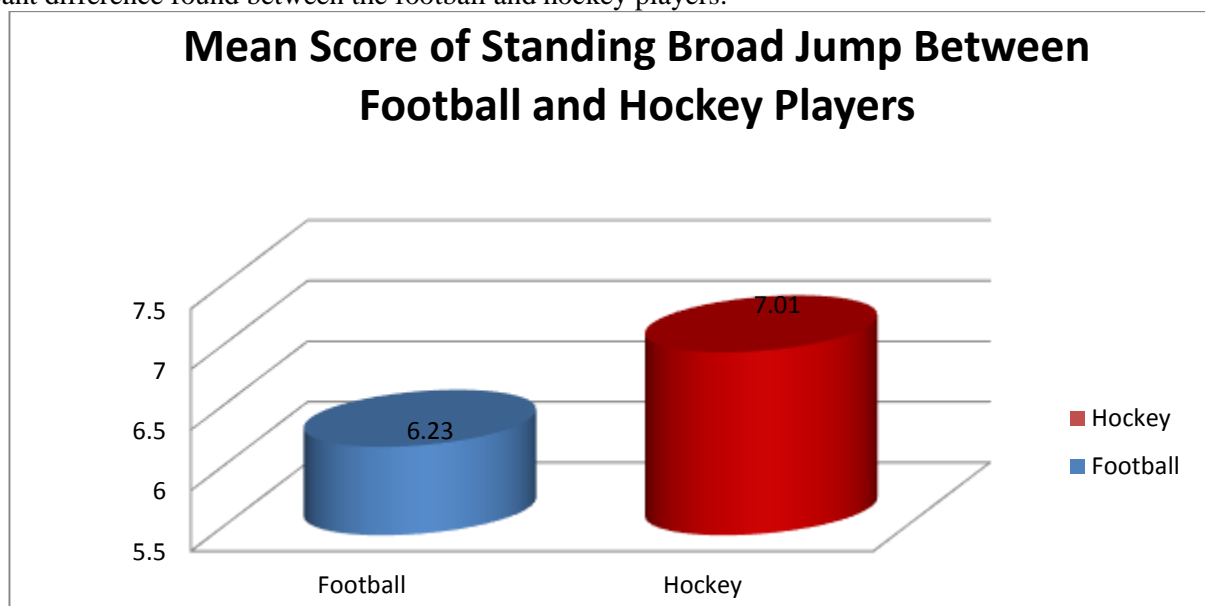


Figure No 2: Graphical representation of Mean Difference in the Performance of Standing Broad Jump between Football and Hockey Players.

6. DISCUSSION OF FINDINGS:

It is evident from the table that significant differences were noticed with regard to comparative study of agility and explosive strength between football and hockey players. The significant results is due to all the selected players of football and hockey have been staying at different places, having different type of foods intake, having different training schedule and having different life style of the players. Thus, on the basis of findings it was found that the football players were significantly better in shuttle run than the hockey players whereas hockey players were significantly better in Standing Broad Jump than football players.

7. CONCLUSION:

The results of the study showed that there was a significant difference among football and hockey players on agility and explosive strength.

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LEISURE TIME ACTIVITIES AND HEALTH OF ADULT

¹Seram Babysonia Chanu, ²Dr. Rajkumar Suresh Singh
¹Research Scholar, ²Assistant Professor
^{1,2}Dept. of Adult Continuing Education & Extension, MU
Email - ¹babysoniachanu@gmail.com, ²singh.suresh86@yahoo.com

Abstract:

In this study, the researcher focuses on adults how much they are involved in leisure time activities, the difference in regular involvement of leisure time activities between adult men and women, the health status, and the relationship between leisure time activities and health. Fifty adults under the age group of 50 and above have randomly selected from Kyamgei. An Ageing scale developed by Badiger and Kamath (2008) has been used to measure the health status and leisure time activities of adult. The Correlation research design was employed to determine the degree of relationship between leisure time activities and health and t-test to find out the difference in the involvement of leisure time activities between adult men and women regularly. It found out that almost all the Adults are involved in leisure time activities, so most of them are healthy and exquisite; only some have a health issue to great-extend. According to the t-test, both adult men and women are equally involved in leisure. Health status positively and significantly correlated with leisure time activities of adults. The correlation shows that higher the involvement in leisure time activities, there will be a better improvement in the health of adult.

Key Words: Adult, health status, leisure time activities

1. INTRODUCTION:

In reality, leisure plays a critical role in one's life, but leisure is very hard to define since it is different from every person. There is no determined list of activities, which is to state as leisure activities and vice-versa. It ultimately depends on each individual what leisure means to them. There are no such guidelines on what leisure should be and how it performs.

Three main components can identify leisure activities.

- It's something that happens during free time or not during work, or when you're taking care of routine household tasks or other obligations.
- Usually made up of certain kinds of activities like playing games or sports, reading a book, outdoor activities, crafting, and even watching a movie.
- It's something that you know is leisure when you're conscious that you're involved in an activity that's got nothing to do with getting a task done, or someone's counting on you to be then you're likely required leisure.

It is not to say that enjoyment shouldn't be above daily activities, your works, etc. but by all means, leisure enjoyment can achieve. In terms of leisure, it means both time and activities set apart from things that have to do. According to the American Therapeutic Recreation Association (ATRA), recreation therapists “embrace a definition of 'health' which include not only the absence of 'illness' but extends to the enhancement of physical, cognitive, emotional, social and leisure development so an individual may participate fully and independently in chosen life pursuits.” ATRA sums up their field's philosophy plainly and simply: “people with active, satisfying lifestyles will be happier and healthier.

2. LEISURE AND HEALTH:

Badami, S. and Yenagi, G.V. (2015) illustrate that majority of the elderly had no health problems. The higher percent of urban male and female elderly found to be involved in the leisure time activities occasionally, but the majority report involved regularly. It also shows that health status and leisure time activities are correlated.

Jopp, D. and Hertzog, C. (2016) found that the reduction in leisure activities with age has more to do with physical health limitations than with older age itself. Regardless of age, the benefits of physical health for well-being are partly due to the level of leisure activity participation. Also, highlight the importance of leisure activities for successful aging throughout the adult life span. Kalpak, S., Shraddha, R., Gajanan, D. and Purushottam, A. (2016) show that physical inactivity was more so with increasing obesity women and increasing age. To the epidemic of obesity, constant moderate physical activity is the key. It is the necessity of time to create an environment for the adoption of a healthy lifestyle through properly channelled health education and advocacy. Po-Ju Chang, Linda Wray, and Yeqiang Lin (2014) found that leisure activities mediate between social relationships and health in older adults. Perceptions of positive relationships were associated with greater involvement in leisure activities, and greater involvement in leisure activities was associated with better health in older age.

1. 2. OBJECTIVE:

- To find out how much adults involve in leisure time activities.
- To find out the difference in the involvement of leisure time activities between adult men and women regularly.
- To find out the health status of the Adult.
- To find out the relationship between leisure time activities and health.

1.3. HYPOTHESES:

- There is no significant difference between adult men and women in the involvement of leisure time activities regularly.
- There is no significant relationship between leisure time activities and health.

2. METHODOLOGY:

2.1. Research method-A normative survey method used.

2.2. Sample- In this research, 50 adults (25 men, 25 women) in the age group of 50 and above from Kyamgei, Manipur was taken as a sample for the study.

2.3. Tool for data collection-The data collects through the Ageing scale developed by Badiger and Kamath (2008).

2.4. Tools for data analysis- Percentage, t-test, and correlation were used.

3. OBSERVATION AND DATA ANALYSIS:

Table 1.

Percentage distribution of leisure time activities of Adult				
Sl. No.	Leisure Activities	Regularly	Occasionally	Rarely
1	Watching T.V.	31(62%)	14(28%)	5(10%)
2	Listening to music	27(54%)	17(34%)	6(22%)
3	Visiting Friends	31(62%)	7(14%)	12(24%)
4	Gardening	38(76%)	9(18%)	3(6%)
5	Reading newspaper	30(60%)	15(30%)	5(10%)
6	Going for a walk	32(64%)	11(22%)	7(14%)
7	Religious activities	32(64%)	10(20%)	8(16%)
8	Participating in community organization	29(58%)	8(16%)	13(26%)
9	Caring for grandchildren	37(74%)	11(22%)	2(4%)
10	Participating in sport games	15(30%)	11(22%)	24(48%)

The table illustrates the percentage distribution of leisure time activities of adults. It can easily observe that almost all Adults are involved in leisure time activities. Occasionally some adults involved in leisure time activities and only a few adults were not much involved in leisure time activities. From this, it can conclude that the majority of the Adult is involved in leisure time activities and is essential for one's life. Leisure time activities help in stress management, self-esteem, positive lifestyle development, personal satisfaction, quality of life, and preventative health.

Table 2.

Percentage distribution of regular participation of Adult in leisure time activities			
Sl. No.	Leisure Activities	Regularly	
		Men	Women
1	Watching T.V.	16(64%)	15(60%)
2	Listening to music	12(48%)	15(60%)
3	Visiting Friends	13(52%)	18(72%)
4	Gardening	17(68%)	21(84%)
5	Reading newspaper	16(64%)	14(56%)
6	Going for a walk	18(72%)	14(56%)
7	Religious activities	14(56%)	18(72%)
8	Participating in community organization	17(68%)	12(48%)
9	Caring for grandchildren	16(64%)	21(84%)
10	Participating in sport games	11(44%)	4(16%)

This table shows the involvement of adult men and women in leisure time activities regularly.

Table 3: H₁ There is no significant difference between adult men and women in the involvement of leisure time activities regularly.

Gender	Mean	df	t-value	
Men	15	9	C.V. Value	Cal. Value
Women	15.5		2.26	-0.14

There is no significant difference between adult men and women in regular involvement of leisure time activities (Cal.V. of $t = -0.14 < C.V.$ of $t = 2.26$). From this, it can clearly state that both adult men and women involved in leisure activities equally participate; none of them are lack behind.

Table 3: H₂ = There is no significant relationship between leisure time activities and health.

Correlation between health status and leisure time activities among adult women	
Variable	Health status
Leisure time activities	$r=0.38$

Table 4.

Percentage distribution of Adult according to their health status				
Sl. No.	Health Issues	To great extend	To some extend	Not at all
1	Heart Problem	3(6%)	15(30%)	32(64%)
2	Diabetes	10(20%)	18(36%)	22(44%)
3	Arthritis	5(10%)	13(26%)	32(64%)
4	Blood Pressure	2(4%)	10(20%)	33(66%)
5	Poor Vision	6(12%)	15(30%)	29(58%)
6	Poor Hearing	7(14%)	11(22%)	32(64%)
7	Asthma	6(12%)	13(26%)	31(62%)
8	Back Pain	5(10%)	6(12%)	39(78%)
9	Knee pain	5(10%)	10(20%)	35(70%)
10	Joint Pain	6(12%)	15(30%)	29(58%)

The result shows us that the majority of the Adult is healthy, and only a few have health issues to a great extent. It might be due to improved sanitation, hygienic, living standard, involvement in physical activities, a balanced diet, etc. Some health problems that are too great might be due to the lack of essential requirement fulfillment like personal care, nutrition, etc. This table signifies the relationship between health status and leisure time activities among the Adult. A moderate positive correlation found between leisure time activities and health status. From all this, it can conclude that higher involvement in leisure time activities will decrease health issues. Leisure time activity is one of the most critical elements of the human being. If the leisure time activities

spent in a very appropriate and useful way, it could boost the health of the body. More involvement in leisure time could relax their minds from the pressure of work, and it can even increase the life span of man as it affects the health a lot. There is also a need to give awareness regarding leisure time activities and their impact on health so that every person could be aware of it. Leisure is time for doing something useful; this leisure the diligent man will obtain, but the lazy man never (Benjamin Franklin).

4. CONCLUSION:

This study revealed that the majority of the Adult (50 and above) are free from health issues. Only a few of them have a health issue to great extends. It also found out that leisure time activities are much involved by almost all the Adult. It is a good sign for the health of the body and mind. This study clearly shows that there is a moderate positive relationship between health status and leisure time activities of adults, so if the involvement in leisure time activities increase, then automatically health status also will be better and vice versa.

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Two Day International E-Conference on
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All Round Development of Human Personality
30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India

EDUCATIONAL AND EMPLOYMENT STATUS OF RONGMEI WOMEN IN THOUBAL DISTRICT OF MANIPUR

¹Dr. S.Birahari Singh, ²Dr. Rajkumar Suresh Singh, ³Mr. Gaichangpou Ruangmei

¹Assoc. Professor, ²Asst. Professor, ³SRF,
¹Y.K.College, Wangjing, Thoubal, ^{2,3}ACEE, MU.

Abstract:

There are more than 60 Rongmei villages in Manipur valley. It is the most abundant tribe of the state where they are found living in most of the districts of Manipur. The Rongmei people and its widespread settlement in Manipur and in the entire North-East India ponder the mind of those who work on the Ethnic Studies. The article is a part of my research which aim is to find out the ‘Educational and Employment Status of Rongmei Women in Thoubal District of Manipur’. The data is collected with the help of an appropriate interview schedule during 17th October- 26th October, 2019. The result so found revealed not so high status of women in education and employment in the proposed district. Suggestions are being brought out based on the findings to look into the prevailing situation with reference to Women Empowerment in India.

Key Words: *Rongmei Women, Thoubal District, Education, Employment, Status.*

1. INTRODUCTION:

Thoubal district came into existence in May, 1983 through a notification of the Government of Manipur: Secretariat/Revenue Department Order No. 6/1/73-R(Pt. VII) dated 24th May, 1983; Manipur Extraordinary Gazette No. 76 of the same date under the Manipur Land Revenue and Land Reform Act, 1960 as Thoubal with its district headquarters. Later, the district is bifurcated into Thoubal and Kakching Subdivisions on 25th November, 1983 with their all existing villages of their respective circles. Yet a new Lilong sub-division came into existence on 17th June, 1997 vide Govt. Gazette No.104 dated 17/6/1997 bringing total number of sub-divisions to three. The district has two community development blocks one each at Thoubal and Kakching Sub-Division. It has 9 main towns namely; Lilong Pt. in Thoubal, Yairipok, Sikhong Sekmai, Wangjing, Heirok, Kakching, Kakching Khunou, Sugnu and a part of Samurou. Thoubal and Kakching are Municipal Councils.

2. METHODOLOGY AND TOOLS:

The present study is undertaken through descriptive survey method. Both primary and secondary data are obtained and analysed. The researcher used Self- developed and closed ended House-hold Interview Schedule for obtaining primary data and those of authenticate printed and published documents of government and related authorities for the secondary data.

3. GENERAL GEOGRAPHICAL AND POPULATION DISTRIBUTION:

The Thoubal district is one of the four valley districts of Manipur. It occupies the bigger portion of the eastern half of Manipur Valley. It is bounded on the north by Imphal East district, on the east by Senapati and Chandel districts, on the south by Chandel district and on the west by Imphal West and Bishnupur districts. The district has an area of 514sq.kms. as supplied by the Surveyor General of India. Its elevation is about 790 metres on an average above the mean sea level. In the district, there are 103 villages, of which 87 are inhabited and 16 are uninhabited and has 9 towns. The total population of the district is 4,22,168 of which 2,10,845 are males and 2,11,323 are females. There are 2,70,835 people living in the rural area and 1,51,333 people are living in the urban area. The growth of population is 15.9 per cent during 2001-2011. With regard to area and population size, the density of population is 821 persons per sq.km. as against 128 persons per sq. Km. of the state average. The sex ratio of the district is 1002 females per 1000 males showing an almost balancing proportion between male and female population. Thoubal district has 74.5 per cent total literate population of

269,304 people. This comprise of 1,52,617 males at 85.0 per cent and 1,16,687 females at 64.1 per cent. The district census of 2011 recorded a sizeable Scheduled Caste Population of 40,953 at 9.6% of the district total population. While that of the Scheduled Tribe Population is recorded as 1,808 which constitutes only 0.4 % as against the state average of 40.8 per cent. In the district, 1,95,319 total workers(46.3 %) comprising the main and the marginal workers are recorded. The main workers share 31.6 per cent and the marginal workers 14.7 per cent of the total workers. Further, in the category of main workers, the district recorded 39.6 per cent of cultivators as highest, 16.9 per cent of agricultural labours, 10.7 per cent of workers in house- hold industry as smallest and 32.6 per cent of other workers.

4. BRIEF HISTORY OF THE CHINGKHAM KABUI AND CHAOBOK KABUI VILLAGES IN THOUBAL DISTRICT

Chingkham Kabui village is situated 14 kms from Imphal within the radius of a km west along the National Highway-39 now NH-2, under Thoubal district. The settlers are **Rongmei Scheduled Tribe** whose forefathers had migrated from different places namely **Juruan, Longchum(Awangkhul), Longraeng, ChingKhoupum, Gaengluan Namthanh of Tamenglong district**. In the later years, households from **Sempat, Sangrung of Tamenglong and Khonglong of Senapati** also came to settle in the village. The name of the village was called accordingly in the Rongmei (Kabui) dialect having two words as '**Chingkham**' wherein '**Ching**' means '**Hill**' and '**Kham**' means '**Last**' or in unison it means **Last-Hill**. It is one of the old villages of Rongmei (Kabui) Naga in the valley of Manipur. It has a very long oral tradition and long history of its settlement though no written record was maintained. Search into the records of Manipur Kingdom shows that Chingkham was first mentioned during the reign of **King Meidingu Thawanthaba(1195-1231)** whose evidence is found in the form of the game called **Kang (Taiga, in Rongmei dialect)** fondly played by the youth of Chingkham village and which originated during his reign. **The existence of Chingkham village if counted from the reign of King Meidingu Thawanthaba would be about 800 years or more till date.** Paying tribute to the kings of Manipur every year with the frequently mentioned **Mangoes of Kolom** was also associated with the Chingkham Kabui villagers to **King Churachand (1891-1941)**. Paying of Hill House Tax to rulers of those eras and during the British period after 1892 with the **Chin Hill Regulation** was made applicable and continued till 1994. The land area is 11.5256 hectares and at present it is registered in the name of Khullakpa, Khunbu Chingkham and Chingkham Villagers under Patta No. 16/1518,16/880/543/, 16/1682. Topographically, it consists of hill and plain area. As of **Chaobok Kabui village**, it also had a long oral tradition of its settlement which dated back to around 300 years as per information passed down from the forefathers. It is located under the jurisdiction of Thoubal district at a distance of about 15 km from the Imphal situated on the eastern side of NH-39 over the gentle slope of **Phunal Hillock**. It has an area of 300 hectares. The Gangmei clan occupied the seat of Khunbu. hereas, the Longmei clan occupied the Khulakpa respectively.

5. DISCUSSION AND ANALYSES:

As per the general Census of India 2011, there are 103 villages in the district. These 103 villages are distributed to the 10 Assembly Constituency Segments of the district to the House of 60 members of Manipur's Legislative Assembly. Of which at least 2(two) villages are inhabited by the Rongmei Scheduled Tribe community. The first, Chingkham Kabui village comes under 30-Lilong Assembly Constituency and the second, Chaobok Kabui village falls under 32-Wangkhem Assembly Constituency of the district. The previous falls under municipal council of Lilong Thoubal and the later comes under the Charangpat Panchayat of Wangkhem. The table below shows the population distribution of the two villages.

Table 1: Population of Rongmei Tribe in Thoubal District (Chingkham Kabui & Chaobok Kabui villages)

Name of Village		No of Houses	Adult population Above 18 years		Under 18 years		Total		Grand Total	% Against ST in district	% Against District
			M	FM	M	FM	M	FM			
1.	Chingkham Kabui	43	97	90	19	31	116	121	237	44.1	0.09
2.	Chaobok Kabui	38	69	65	7	21	76	86	162		
Total		81	166	155	26	52	192	207	399		

Source: Thoubal district Electoral roll, 2017. & Village survey.

From the village survey, there are 81 houses of which 43 households are in Chingkhram Kabui village with a population of 237 persons. There are 116 males and 121 females. Among these, 19 males and 31 females are under the age of 18 years. In the case of Chaobok Kabui village, there are 38 households with a population of 162 persons in which 76 are males and 86 are females. Among these, 7 males and 21 females are under the age of 18 years. The Rongmei tribe population against the total Scheduled Tribe is 399 out of 1,808 which is 44.1 % in the district. It is found out to be only 0.09 % of Rongmei tribe in Thoubal district. There are 155 adult women who are above the age of 18 years.

Table 2. Educational & Qualification of Rongmei Women in Thoubal District.

Name of Village	Primary	Upper Primary	Secondary	Hr.Sec.	Graduate	Post Graduate	Total literate population of women
Chingkhram Kabui	06	16	12	10	18	09	109 = 70.32%
Chaobok Kabui	02	05	15	09	13	02	
Total	08	21	27	19	31	11	
Percentage%	5.1%	13.5%	17.41%	12.2%	20%	7.09%	

From the above table 2, it is found out that the 5.1% are in primary level, 13.5% are in upper primary level, 17.41% are in secondary level, 12.2% are in higher secondary level, 20% in graduate level and 7.09% in post graduate level of education. As such the total literate population of Rongmei women in the district is found out to be 70.32%.

Table 3. Employment of Rongmei Women in Thoubal District.

Name of Village	Weaving	Local wine brewing	Pvt. sector Employee	Semi govt.	Govt. employee	Petty Business	Paddy Cultivation	House keeping
Chingkhram Kabui	03	18	05	02	13	12	00	08
Chaobok Kabui	06	02	04	01	06	06	01	14
Total	09	20	09	03	19	18	01	22
Percentage%	8.2%	18.3%	8.2%	2.75%	17.4%	16.5%	1%	20%

Source: Village survey, 2019.

6. FINDINGS:

Rongmei women of Thoubal district are found out to be pre-occupied with their daily chores to support and help in the maintenance of their families. They engaged in different types of earning as and when they usually learnt from their local folks like local weaving, traditional wine brewing and an old inherent occupation of paddy cultivation. Though paddy cultivation is reduced to minimum, its attachment in their economic life still stands. From the above table-3 it is found out that 8.2% of women engage in weaving, 18.3% work in local wine brewing, women in private sectors are found to be 8.2%, 2.75% work in semi govt. sectors, 17.4% are employed under government departments, 16.5% of women are engaged in running the petty business, only 1% is found to be practicing paddy cultivation and the maximum of 20% women are engaged in looking after their family needs as house-keeping. In Thoubal district there are 5,789 government employees from 2008 to 2013. It is found out that only 0.32% of Rongmei women in Thoubal district are employed in the government sectors. The majority of them which is 72.47% are not employed in the government sectors.

7. SUGGESTION:

The increase of employable and employees among the Rongmei women populace in the district could be substantiated by providing proper compulsory education facilities through formal and non formal. Traditional local wine brewing which is their coherent women activity could be replaced by more productive and healthy occupation like modernized weaving facilities but without undermining their traditional attachment of using the local wine. Running of small scale industries could be another proven gateway for generating income to support the families as well as in education of the children. Women should be given equal importance as to men in all fronts in the society.

8. CONCLUSION:

The Rongmei women who are living in Thoubal district in their well established recognized villages are peace loving and laborious. They look for the new ways of better living and for more secure lifestyle. They take education as the basis of every development and hence they keep up education as their priority so as to exchange their educational value with their economic activities and pursue to get government works. Only 20.18% of Rongmei women in the district are found out to be employed in the government sector which is considerably low. Yet their education status stands at 70.32% which is almost equals to the district literacy rate of women (71.25%). The necessity of providing employment opportunity to the growing women populace who are well educated and qualified in different fields could balance the education and employment disparities in the society for equitable development of the whole community.

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STUDY ON THE IMPACT OF PLYOMETRIC TRAINING ON THE EXPLOSIVE POWER OF WRESTLING PLAYERS

Dr. Pravin Gopalrao Patil
Director of Physical Education
Renuka College Besa, Nagpur
Email- pravingopalpatil@gmail.com

Abstract:

This study is based on the theory of sports biomechanics, sports training and exercise physiology, 30 wrestling players from Nagpur University was chosen as the experimental subjects and divided into two equal experimental group and control group randomly. 15 people were included in each group. The training contrast experiment was carried out for twelve weeks. The impact of plyometric training on the explosive power of wrestling players was analyzed by comparing the scores of the vertical jumps, the broad jumps and 20-meter sprints of pre-training and post-training. The results show that after twelve weeks, obviously the experimental group are perform well than the control group in 20-meter sprint and vertical jump, but there is no significant difference in the broad jumps. It can be seen that, although the regular training can be helpful to improve players' explosive power, the enhanced training is more operative and generally.

Key Words: *plyometric training, broad jumps, vertical jump, leaping ability, explosive power.*

1. INTRODUCTION:

Wrestling has the characteristics of high skill, high explosive power, high altitude advantage, high speed and high synchronization, which not only requires athletes to have a good team coordination skills and tactical ability, but also the strong explosive power to jump higher and run faster (2015, N. Ozbar). Michael says that enhanced training can reduce the damage of muscles and ligaments and improve bone density in females (2015, Dallas G., et.al). Explosive power is the product of muscle strength and speed. Increasing muscle strength is the basic condition to enhance the explosive power. Plyometric training is widely used to enhance the athletes muscle strength, explosive power and jumping ability (2017, Giovanelli N, et.al). This study is conducted on the basis of the theory of sports biomechanics, sports physiology, sports training and experimental methods. In this study, 30 wrestling players from Nagpur University were selected and randomly divided into equal experimental group and control group 15 people included in each group for a 12-week training contrast experiment to analyses the impact of enhanced training on the running speed & jumping skill of wrestling players. So this provides the reference for strength training practice of wrestling players.

2. METHOD:

Testing subject: 30 wrestling players of inter collegiate wrestling from Nagpur University was chosen as the test subject for experiment. The age was 20-25 years. The average weight was 62.31 kg. & average height was 171.38 cm.

2.1. Testing time and location

- Testing time: pretesting time: 5 September, 2019,
post testing time: 29 November, 2019.
- Training time: from September 6, 2019 to November 30, 2019.
- Experimental location: Renuka College Besa, Nagpur.

2.3. Testing equipment:

Whistle, Tape, stopwatch, 5 baby hurdles of 40x60 centimeters high, standing plane ground, marking cone, chalk powder.

2.4. Testing methods:

In order to minimize the injury due to improper strength for experimental subjects in the test, subjects were ask to do proper warm-up for 10 minutes and were then followed the guidelines of Researcher for the following items:

- **Vertical jump:** First, the height of the mid fingers while standing and hand up was taken when the subject was attached to the wall and then measured the height of the vertical jump with the color chalk powder in the middle finger, then deducted them from the normal height. There were two trials given to subject and the best score was noted.
- **Broad jump:** Subjects ask to stand before the line with their arms swaying and their knee bent at the same time and jumped forward. Using measuring tape the distance from the starting point to the drop point was measured for 2 times and then taken the best score is noted.
- **20-meter sprint:** subjects ask to stand before the starting line, after hearing the "ready set, Go (clapper sound)", they went straight ahead quickly and ran through the 20-meter marking line. There were a total of two trials & taking the best score in seconds.

2.5. Training Time Line and Content:

30 wrestling players were randomly divided into two equal groups as the experimental group & the control group including 15 people in each group for a 12-week training compare experiment, in which the experimental group of subjects adopted enhanced training in addition to 12-week consistent wrestling training circuit and physical training with 3 times in a week, 3 groups for each time, 8 times for each group, 2- minute interval and 40-cm height of baby hurdles. The baby hurdles were arranged in a row with 60cm distance between two hurdles. Jump one hurdle and then the vertical jump. Complete 5 hurdles at the fastest speed and turn back. There were a total of 10 hurdle in a group back and forth and three groups to be completed.

3. STATISTICAL METHODS:

After taken scores of test of all subjects in this study are expressed as Mean and standard deviation. The statistical analysis done by using MS-excel software. The significance between the both groups are analyzed by the t-test and the single-factor covariant analysis of the independent samples. The level of significant 0.05.

1. Comparison of the results of the experimental group before and after the test

Table 1: the side by side comparison of before & after the test of experimental group.

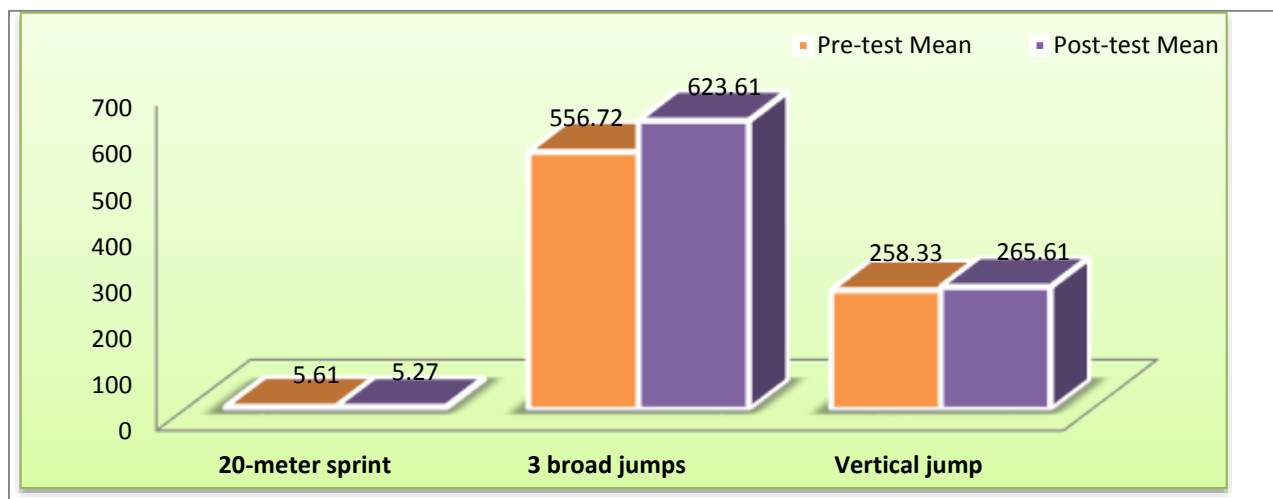
Category	Pre-test (n=18)		Post-test (n=18)		MD	SE	df	t
	M	SD	M	SD				
20-meter sprint	5.61	0.34	5.27	0.30	0.34	0.117	28	2.9041
broad jumps	556.72	46.25	623.61	39.33	66.89	15.676	28	4.2671
Vertical jump	258.33	6.48	265.61	6.21	7.28	2.317	28	3.1415

*Tab t=2.048

level of significance =0.05

From Table 1, it is found that the 28-meter sprint ($t = 2.9041$), broad jumps ($t = -4.2671$) and vertical jump ($t = 3.1415$) of the experimental group adopting enhanced training is significantly different.

Graph 1: Mean comparison of before & after the test of Experimental group.



2. Comparison of the results of the control group before and after the test:

Table 2: the side by side comparison of before & after the test of control group.

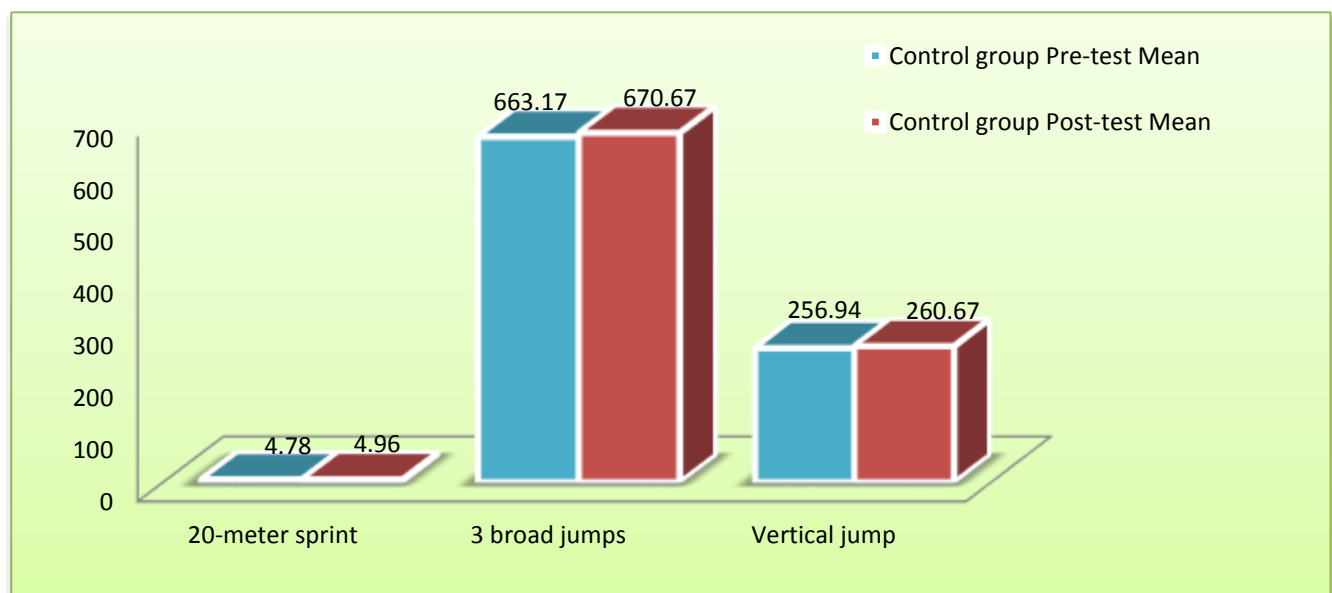
Category	Pre-test (n=15)		Post-test (n=15)		MD	SE	df	t
	M	SD	M	SD				
28-meter sprint	4.78	0.52	4.96	0.40	0.18	0.169	28	1.0626
broad jumps	663.17	8.2652	670.67	7.678	7.5	2.913	28	2.5749
Vertical jump	256.94	5.6793	260.67	9.66	3.73	2.893	28	1.2892

*Tab t =2.048

level of significance =0.05

From Table 2, it is found that the 20-meter sprint ($t = 1.0626$) and broad jumps ($t = 2.5749$) of the control group which was not conducted the enhanced training has a significant difference; the performance of the vertical jump is significantly different ($t = 1.2892$).

Graph 2: Mean comparison of before & after the test of control group.



4. RESULTS:

According to the theories of sports biochemistry, exercise physiology and exercise training, 30 wrestling players of Nagpur University were selected as experimental subjects and randomly divided into experimental group (15 persons) and control group (15 persons). The training experiment was carried out for 12 weeks. The effect of enhanced training on the explosive power of wrestling players was analyzed before and after the training was carried out.

5. CONCLUSION:

After the statistical analysis and discussion we obtained the following conclusions:

- After 12 weeks of intensive training, the experimental group had a significant increase in 20 m sprint, broad jumps and vertical jumps. This shows that improved training can well improve the explosive power of wrestling players.
- In the 12-week intensive training group, the experimental group was superior to the control group in 20 m sprint and vertical jump, but the triple jumps did not reach the significant level. Showing that ordinary training of the control group while helped with the player's explosive force, but the enhanced training is having more impact and improvement to the player's explosive force.

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All Round Development of Human Personality

**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

A STUDY ON FAT- RELATED DIETARY HABITS OF SELECTED VILLAGE OF CHANDEL DISTRICT, MANIPUR

¹KONTHANG NGORUH MONSANG, ²Dr. KH. RAJEN SINGH

¹Research Scholar, ²Associate Professor

¹Dept. of Physical Education and Sports Science, Manipur University

²Dept. of Physical Education and Sports Science DM University

Abstract:

The primary aim of the study was to check the consumption of Fat Related Diet Habits of selected village of Chandel District, Manipur. For the purpose of the study, a total of 10 (ten) male and 10 (ten) female each of Chandel District were selected. The age group of selected people ranges between 25 – 55 years. To examine the Fat Related Diet Habits questionnaire by Dr. ALAN R. KRISTAL was administered and Descriptive Analyses i.e. percentile scale was used to analysed the data at 0.07 level of significance. The data reveals that there was high consumption of fats diet.

Key Words: Fat Related Diet Habit, Descriptive Analyses i.e., Percentile Scale, Chandel District.

PURPOSE OF THE STUDY:

The purpose of the study is to measure the fat related dietary habits of selected village of Chandel District, Manipur.

1. INTRODUCTION:

In most studies of diets, the importance of diet to health, especially in the prevention and cure of illness, is slowly becoming apparent. Diets provide us more than the basic and usually inaccurate information on diet and nutrition. So whether we are registered dietitian and want to brush up on the immense amount of information, or whether we just want to find out, for the first time what we should be eating, when referring to their eating habits, because we feel that it is humiliation to be on diet, whether underweight, overweight, sick or fit, diet, so when we talk about diet we do not mean that we must necessarily lose weight, what we are referring to is the food that we should generally be eating, be it to build muscles, put on weight, lose weight or get rid of a cold. Foremost among them is the disproportionate consumption of fats, sodium, and sugar, at the expense of foods that may be more conducive to good health, such as foods which is high in complex carbohydrates and fiber (vegetables, fruits, and whole grain products). Foods contain nutrients that are essential for normal metabolic function. An imbalance in nutrient intake or the consumption of harmful substance is the underlying factor in many chronic diseases such as coronary heart disease, obesity, and some cancers. To acquire these nutrients we have to eat foods to contain them and make choice about what food should not be eaten in excess. By knowing what nutrients are, how they relate to different diseases, and how to make choices in selecting and preparing foods, it is quite possible to feel good and enjoy life equally and more. Eating too much carbohydrate and not enough protein and the body tends to produce more inflammation and blood clotting hormone with the EFAs it gets. If adequate protein is eaten, the fats are used more efficiently, energy levels are boosted, weight regulation is stimulated, and more anti-inflammatory hormones are produced. If there are insufficient EFAs (or other nutrients, especially antioxidants) the cells and hence their structure are weak. A major factor is the presence of Trans fatty acids (in fried foods and margarine) and hydrogenated oils (in margarine and many processed foods), which are much worse than saturated fats. Saturated foods are mostly undamaged by the heat of cooking plus their short chain acids can be used by the body effectively. The resulting structure will be weak, especially if there is a lack of antioxidants. When any tissue in the body is weak, it will typically compensate by making more of it. In blood vessels, cholesterol or other fatty deposits are typically used to add thickness to the vessel walls. This is going for short-term damage control of preventing the vessels from bursting from being too weak to contain the pressure, at the expense of the long-term detriment of clogging the vessels with these

deposits and making the heart work harder. Clogging the vessels are therefore mostly a symptom of nutrient deviancy of too little good oils (and antioxidants) or too many bad oils. Destroying the liver with toxic drugs to inhibit its proper function of providing fats and cholesterol to repair the weak vessels is silly. Many adult women fail to meet the Recommended Dietary Allowances (RDAs) for calcium, vitamin E, vitamin B, magnesium, and zinc.

2. METHODOLOGY:

10 (Ten) male and 10 (Ten) female each of Chandel District, Manipur, were chosen as subjects for this study. The data were obtained by administering Fat Related Dietary Habit questionnaire by Dr. ALAN R. KRISTAL to the subjects which consist of 5 (Five) items. The questionnaire measures the consumption of Fat-Related Diet. To find out Fat-Related Dietary Habits Descriptive Analysis i.e. percentile scale was used.

3. RESULT:

Q1. Did you eat chicken? How often was it fried?

	1 (%)	2 (%)	3 (%)	4 (%)	Total (%)
MALE	2	5	2	1	10
FEMALE	1	6	2	1	10
TOTAL	1.5	5.5	2	1	20

The percentage analysis of statement no. 1 of table 1 reveals that amongst MALE and FEMALE, the total percentages of fat related diet intake are:

1. Usually (1.5%)
2. Often (5.5%)
3. Sometime (2%)
4. Rarely or Never (1%)

Q2. Did you eat chicken? How often did you remove the skin?

	1 (%)	2 (%)	3 (%)	4 (%)	Total (%)
MALE	3	5	2	-	10
FEMALE	2	7	1	-	10
TOTAL	2.5	6	1.5	0	20

The percentage analysis of statement no. 2 of table 2 reveals that amongst MALE and FEMALE, the total percentages of fat related diet intake are:

1. Usually (2.5%)
2. Often (6 %)
3. Sometime (1.5 %)
4. Rarely or Never (Nil)

Q3. Did you eat red meat such as beef, pork or lamb? How often did you trim all the visible fat?

	1 (%)	2 (%)	3 (%)	4 (%)	Total (%)
MEN	3	6	1	-	10
WOMEN	2	7	1	-	10
TOTAL	2.5	6.5	1	0	20

The percentage analysis of statement no. 3 of table 3 reveals that amongst MEN and WOMEN, the total percentages of fat related diet intake are:

1. Usually (2.5%)
2. Often (6.5%)
3. Sometime (1%),
4. Rarely or never (Nil).

Q4. Did you eat ground meat? How often was it lean?

	1 (%)	2	3 (%)	4 (%)	Total (%)	(%)
MEN	2		4	3	1	10
WOMEN	3		5	1	1	10
TOTAL	2.5		4.5	2	1	20

The percentage analysis of statement no. 4 of table 4 reveals that amongst MEN and WOMEN, the total percentages of fat related diet intake are

1. Usually (2.5%)
2. Often (4.5 %)
3. Sometime (2 %),
4. Rarely or never (1 %).

Q5. Did you fish? How often it was fried?

	1 (%)	2 (%)	3 (%)	4 (%)	Total (%)
MEN	4	3	2	1	10
WOMEN	5	3	1	1	10
TOTAL	4.5	3	1.5	1	30

The percentage analysis of statement no. 5 of table 5 reveals that amongst MEN and WOMEN, the total percentages of fat related diet intake are

1. Usually (4.5 %),
2. Often (3 %),
3. Sometime (1.5 %),
4. Rarely or never (1 %).

4. DISCUSSION AND FINDING:

First and foremost observation of the study was that an overwhelming majority of subjects of the study were not serious out their diet and nature of jobs. The extended duty hour, arm chair or desktop work and importantly absence of physical movement were regular features in their daily life. The highlight of the findings was that male and female of Chandel District constantly consumed high fat diet that causes obesity. The prevalence of diet problems and interesting facts has been revealed from the survey, pertaining to attribution of health problem to possible causes. The majority of subjects attributed their health problems to idle life style, job stress, faulty diet habits, drinking alcohol and family demands. This shows that health problems are a matter of concern and majorities were aware about it. This also signifies that their understanding about their problems and possible remedy. A significant percentage of subjects were affected by their uncontrolled dietary habits. From all above revelations from opinions of the subjects, it can be inferred as that the male and female of Chandel District should control their dietary habits and proper advice should be given to them by the fitness instructor so that they can live a healthy life style which may help to prevent them from various life style diseases namely, blood pressure, cardiac complications, depression, diabetes, overweight, and digestive disorder etc.

5. CONCLUSION:

The current findings may provide people of Chandel District a clear message that participation in physical activity or striving for physical fitness and proper intake of diet will lead to the bright sight of life. It may also lay emphasis to the fact that they should examine their health more often as to attain healthy living environment. They should constantly monitor the diet intake and modify their diet according to their needs and requirement, which is very essential for an individual as machines and exercise are not the only criteria to decide the success or failure of fitness. It also depends on the people that how much they are conscious and taking into consideration about their diet and exercise. All these evidences reinforced the message that physical fitness activity as well as proper intake of diet would only benefit to healthy living. This notion would be even more important when promoting active lifestyles to Indian families, which has long held wrong beliefs, traditions and customs. The people need to choose the right kind of diet intake that will lead to better standard of living as well as to be healthy. As a result, the dispute of physical activity participation along with proper diet will enhance their working ability and freedom from sickness.

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IMPACT OF STRENGTH TRAINING AND STRENGTH WITH EXPLOSIVE TRAINING ON LEG EXPLOSIVE STRENGTH

Praveen Mathew

Assistant Professor in Physical Education,
Co-operative Arts and Science College, Madayi, Kerala, India
Email - praveenmathew07@gmail.com

Abstract

In the present study the efforts were made to find out the effect of strength training and strength with explosive training on selected variable of leg explosive strength. To achieve this forty five physically active male students ($n = 45$) were selected as subjects. They were aged between 18 to 22 years. The subjects were categorized into three different groups in randomly. The Group I strength training group (STG), group II strength with an explosive training group (SETG), group III control group (CG) and each group had fifteen ($n = 15$) subjects. Both experimental groups treated with respective experimental training for eight weeks, 3 days a week and a session on each day. The Control group was not exposed to any specific training programme. Leg explosive strength was selected as the dependent variable for this study. The collected data were analysed by using analysis of covariance (ANCOVA). The Scheffe's test was applied as a post hoc test to determine the paired mean difference. The result of the study revealed that the both training such as strength (STG) and strength with explosive training (SETG) produced significant improvement ($p \leq 0.05$) on leg explosive strength when compared to the control group. It was noticed that the strength with explosive training is the best method to improve leg explosive strength.

Key Words: Strength training, explosive training, leg explosive strength.

1. INTRODUCTION:

Physical fitness refers to the ability of our body systems to work together efficiently to allow us to be healthy and perform activities of daily living. Being efficient means doing daily activities with the least effort possible. A fit person is able to perform schoolwork, meet home responsibilities, and still have enough energy to enjoy sport and other leisure activities. A fit person can respond effectively to normal life situations, such as raking leaves at home, stocking shelves at a part-time job, and marching in the band at school (us.humankinetics.com). Strength training can be defined as an exercise type that is designed to increase lean muscle tissue, improve structural strength, decrease excess body fat, increase endurance, and provide several additional physical and psychological benefits (www.fitnesshealth101.com/, 2020). All exercise types that promote increases in muscular strength and lean muscle tissue can further be defined as resistance training. Resistance training that forces the muscles to contract when moving an object of mass. Explosive training is training that combines strength and speed to increase your power output. Explosive power drills are often used by athletes who need to generate a quick burst of maximal effort (www.verywellfit.com). Explosive strength is the ability to expand energy in one explosive action in a series of strong sudden movements in jumping (Dodd, 2007). Plyometric training helps to develop the contractile protein that gives the muscle in pulling power (Edwin et al. 2000). The jumpers need greater leg strength and power while jumping; the explosive strength mainly depends upon one's leg strength.

2. METHODOLOGY:

To achieve the purpose of the study there were forty five ($n = 45$) physically active male college students of Kannur University were randomly selected as subjects and their age ranged between 18 to 22 years. The subjects

are categorized into three different groups in random. The groups were strength training group (STG) group I, strength and explosive training group (SETG) group II, and control group (CG) group III. Each group had the strength of the students as fifteen ($n = 15$). Leg explosive strength was selected as variable for this study and it was measured by using standing vertical jump test. The control group was not exposed to any training. Group I (STG) underwent their weight training for 8 weeks and group II (SETG) underwent weight training and plyometric training for alternate days for 8 weeks, 3 days per week and a session on each day. Both groups initially did proper warming up activity before training and concluded the session with proper cooling down activities. Before the commencement of the experimentation, the investigator recorded 1RM for all the two groups taking each subject separately. After that group I performed the following exercises 1.bench press 2. half squat 3.push press 4. heel raises 5.arm curl 6.leg curl 7.leg press 8. military press 9.sit ups 10.medicine ball exercises. The intensity ranged from 60% to 90% of 1RM. The II group performed weight training first and then plyometric exercises with moderate intensity 1. Drop jump; 2. Tuck jump; 3. Split jump; 4. Medicine-ball exercises; 5. Bounding; 6. Single leg hop (alternate leg); 7. Hurdle drills. These exercises were performed for 90 minutes in a day. Data were collected one day before and after the experiment. Mean and standard deviation were calculated for leg explosive strength for each training group and the data were analyzed by using analysis of covariance (ANCOVA). If the 'F' value was found to be significant for adjusted post-test mean, Scheffe's test was used as a post hoc test to determine the significant difference between the paired mean. The level of confidence was fixed as 0.05 levels.

3. RESULTS:

Table I Analysis of Covariance for Leg Explosive Strength of Experimental Groups and Control Group

Group		Strength Training Group	SETG	Control Group	SO V	SS	df	MS	'F' Ratio
Pre Test	Mean	37.84	38.13	37.59	B	1.55		0.78	0.15
	SD	2.26	2.27	2.38	W	223.33		5.31	
Post Test	Mean	44.31	46.22	38.33	B	505.19		252.61	39.44*
	SD	2.80	2.85	1.82	W	269.09		6.42	
Adjusted Post Test		44.32	46.26	38.29	B	509.63		254.79	39.52*
					W	264.49		6.43	

*Significant $F = (df\ 2, 42) (0.05) = 3.22$ & $(df\ 2, 41) (0.05) = 3.225$; ($p \leq 0.05$).

The pre, post and adjusted post test mean scores of the strength training group, strength with explosive training group and the control groups were 37.84, 38.13 and 37.59 for pre test, 44.31, 46.22 and 38.33 for post test and 44.32, 46.26 and 38.29 for the adjusted post test mean values. The obtained F value of pre test 0.15 lesser than the table value of 3.22 and the post test F value of 39.44 which was greater than the table value of 3.22. Hence there was a significant improvement on leg explosive strength among the groups. The adjusted post test F value of 39.52 also higher than the table value of 3.22 for the significance of 0.05 levels. Further, the Scheffe's test was used to find out the paired mean difference and it was presented in Table II.

Table 2. Scheffe's Post hoc Test for the Difference between Paired Mean on Leg Explosive Strength

Adjusted Post Test Mean			Mean Difference	CI
Strength Training Group	SETG	Control Group		
44.32	46.26	-	1.44	2.36
44.32	-	38.29	6.03*	
-	46.26	38.29	7.97*	

*Significant, $p \leq 0.05$.

Table II indicates that the adjusted post test mean difference of leg explosive power between strength training group and the strength with explosive training groups were 1.44 which was lesser than the CI of 2.36. Hence there was no significant difference between the groups. But in the case of strength training group and the control group and the strength with explosive training group and the control group mean difference were 6.03 and 7.97 both the values were higher than the CI. Hence it was pointing that the both training of strength as well as strength with explosive strength were provided better result than the control groups. The pre, post and adjusted post mean values of experimental groups and the control group in leg explosive power was graphically represented in the Figure 1.

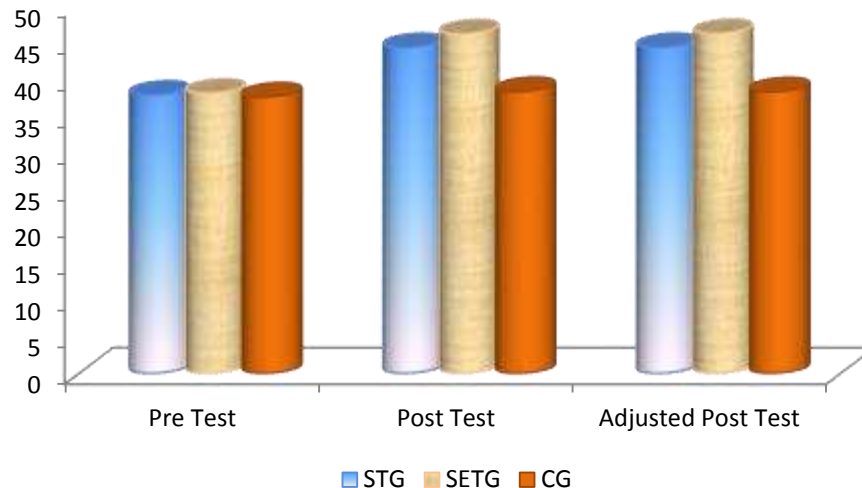


Figure 1. The pre, post and adjusted post test mean values of experimental and the control groups on leg explosive strength

4. DISCUSSION AND FINDINGS:

Hanson et. al. (2009) conducted their study among sixty five years old inactive aged people. The training duration was extended up to twenty two weeks and reached the conclusion that the training were significantly improved the quality of strength among the subjects. Karpatkin et. al. (2016) evaluated the effect of power training among the selected subjects. They all were aged men and women, and the training duration was extended up to sixteen weeks and noticed the significant improvement on maximum strength among the subjects after the training duration. Explosive strength training is used to increase the speed or force of muscular contractions, providing explosiveness for a variety of sport specific activities. Vertical jump is improved through explosive strength training with the support of weights (Markovic, 2007). Miszko et. al. (2003) examined the study of strength and the power training effect among the selected subjects of thirty nine men and women. The training package were extended up to sixteen weeks duration and they reached the conclusion that the training were significantly improved the strength among the subjects. They also noticed that the power training were produced better result than the strength training. Matavulj et. al. (2001) found that plyometric training improved jumping performance in teenage basketball players and Kotzamanidis (2006) reported that plyometric training enhanced jumping performance and running velocity in prepubertal boys. Murlasits and Katicwells (2012) examined their study on resistance training and its impact on strength among the selected subjects of both men and women. The training package were extended up to eight weeks duration and reached the conclusion that the training were significantly improved the strength among the selected subjects. All these results were pointing the similarity for the present investigation, and it was concluded that the training were positively improved the leg strength of the selected subjects.

5. CONCLUSION:

Strength training has been shown to increase the factors associated with explosiveness. The result of the study indicated that there was significant improvement in leg explosive strength due to eight weeks of strength and

strength with explosive training among the selected groups. From the results, it was noticed that the strength with explosive training is the best method to improve leg explosive strength.

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**IMPORTANCE OF DEVELOPING PHYSICAL LITERACY THROUGH
QUALITY PHYSICAL EDUCATION PROGRAMME IN NURTURING
HEALTHY AND ACTIVE LIFESTYLE AMONG SCHOOL CHILDREN**

Dr. Shafeeq V. A.

Asst. Professor

Dept. of Physical Education,

K.K.T.M. Govt. College, Pullut. Thrissur, Kerala.

Abstract:

Background: Modern lifestyle has reduced the physical activity level in young generation resulting in sedentary lifestyle and varieties of life style diseases in them. 61% of Indian school-going children are growing up without the right fundamental skills needed to engage in sports while 43% of the children have less than ideal levels of physical fitness. Research reveals that without physical literacy, many children and youth withdraw from physical activity and sport and turn to more inactive and unhealthy choices during their leisure time. Physical literacy is an emerging construct in children's health promotion, and may impact their lifelong physical activity habits. Physical Literacy means fundamental Movement Skills (FMS) and Sports skills that provides motivation, confidence and competence for children to engage in a wide range of physical activities. UNESCO recommends Quality Physical Education (QPE) underpinning PL at schools ensuring each student engage in 150 minutes of Moderate to Vigorous Physical Activities (MVPA) per week to promote active lifestyles among children. **Conclusion:** To promote physical activities among young children, physical literacy needs to be developed in every child. School PE programme is the ideal way to develop PL and encourage and provide required amount of PA among children. An early positive exposure to PA increases the likelihood of staying active throughout their life.

1. INTRODUCTION:

Kid's bodies are made to move. Unfortunately, the opportunity and perceived necessity to move in modern life has declined dramatically. What hasn't changed is that we still need to be physically active to survive. The rising inactivity among children and its consequences threatens the future health of new generation and the problem needs to be addressed immediately. Globally, over two billion children and adults suffer from health problems related to being overweight or obese, and an increasing percentage of people die from these health conditions. Blair (2009) argued that evidence shows physical inactivity is one of the most important public health problems of the 21st century. In India, the overall physical activity level of the young school going children are low and they are having lower fitness level (Sarah Helen Kehoe et al. 2016). Research has proved that the brain goes through a crucial development period in the first 10 years of life. This early years provide a critical window for creating a lifelong commitment and interest to physical activity. Enrolling kids in physical activity programs that are fun, educational and appropriate for their age and skill level helps ensure early positive exposure to physical activity and increases their likelihood of staying active throughout their life (Cairney, J. 2019). Therefore, to create an active and healthy population all children need a sound foundation of movement and sport skills to build on later in life; and this foundation is called **Physical Literacy**. Physical literacy is an emerging construct in children's health promotion, and may impact their lifelong physical activity habits. Without physical literacy, many children and youth withdraw from physical activity and sport and turn to more inactive and unhealthy choices during their leisure time (Kirk 2005). To prevent this from happening, physical literacy needs to be developed in every child.

1.1. Definition and meaning of Physical Literacy:

Physical Literacy has been defined as “the confidence, physical competence and motivation, knowledge and understanding to value and engage in physical activities for life (Whitehead, 2019). Physical literacy is the fundamental movement skills (running, jumping, throwing, catching etc.) and fundamental sport skills (agility,

balance, coordination etc.) that permit a child to move confidently and with control, in a wide range of physical activity and sport situations. Literacy means competence to read and write which is basis of learning and acquiring knowledge. Likewise PL is the key to an active life forming a base for participation in physical activities.

Physical Literacy is the..



$$\begin{aligned}
 &\textit{Fundamental Movement Skills} \\
 &+ \\
 &\textit{Fundamental Sport Skills} \\
 &= \\
 &\textit{Physical Literacy} \\
 &= \\
 &\textit{Base for Participation \& Excellence}
 \end{aligned}$$

1.2. Fundamental Movement Skills (FMS):

FMS are the basic building blocks of movement and are an essential part of everyday life and recreational activity. FMS are divided into three categories;

Locomotor Skills	Stability Skills	Manipulative Skills
<ul style="list-style-type: none"> • Walking • Running • Hopping • Skipping • Jumping • Dodging 	<ul style="list-style-type: none"> • Balancing • Landing • Twisting • Turning 	<ul style="list-style-type: none"> • Catching • Throwing • Kicking • Striking

1.3. Consequences of not having Physical Literacy:

Missing out on Fundamental Movement Skills also means that the child is unlikely to choose to take part in a formal sport activity that requires proficiency in that skill. Being unable to perform even a single fundamental movement skill can seriously restrict later opportunities for life-long health-promoting activities and sporting excellence, as can be seen from the few examples shown below.



PL is the foundation for physical activity in children. Children who are physically literate are capable of moving with confidence and competence in a wide variety of physical activities in multiple environments. Possessing an elevated level of PL may enable children to engage in habitual physical activity and reduce their sedentary time. (Leblanc AG, Janssen I, 2017). PL is considered a dynamic concept, and has been regarded as a “lifelong journey”. “Individuals who are physically literate move with competence and confidence in a wide variety of physical activities that benefit the healthy development of the whole person”

This means that physically literate people are able to:

- Develop the motivation and ability to understand, communicate, apply and analyse various forms of movement
- Demonstrate a variety of movements confidently and competently across a wide range of physical activities
- Make healthy, active choices that are both beneficial to and respectful of their selves, others and environment.

1.4. International and National Scenario:

Reviews from many countries reveals alarming situation where sedentary lifestyle among children causing innumerable health consequences which prompted the government to take up necessary steps to increase Physical Activities among children and adult. As early adopters of physical literacy, England, Wales, and Canada have implemented established initiatives and contributed to the development of physical literacy among the younger generation, for example, Top Sportsability in England and Passport for Life in Canada (Aspen Institute, 2015).

The Active Healthy Kids Global Alliance organized the concurrent preparation of Report Cards on the physical activity of children and youth in 38 countries from 6 continents (Tremblay MS, Barnes JD et al. 2016). Average grades for Overall Physical Activity around the world is D (low/poor). The Report Card on physical activity level of Indian children was graded ‘C’ (Sarah Helen Kehoe et al. 2016)

In India, a study carried out by Edusport (2014), covering more than 1,00,000 children, aged 7 to 17 years, from 287 schools across 85 cities in 23 states, assessed various physical fitness parameters and revealed the following;

- 61% of Indian school-going children are growing up without the right fundamental skills needed to engage in sports. This covers locomotor skills, manipulative skills, non-manipulative skills, and spatial awareness
- 43% of the children have less than ideal levels of physical fitness (identified with unhealthy BMI) poor skill and fitness levels consistently across the country with no significant difference between metros and non-metros.

In urban south India, 21.4 percent boys and 18.5 percent girls aged 13-18 are either overweight or obese. India is home to second highest number of young people who have excess weight. Another study conclude that almost 15-20% of children in India are overweight (Gulati, S; Misra, A, 2017). In Kerala, Total Physical Fitness Performance (TPFP) survey revealed 82% of school students are below recommended fitness levels (Manoj T.P., Bipin G 2015). All these investigation points out that physical inactivity caused negative impact on the fitness level of the school children and youth in India. Physical Education at schools is the entry point into physical activity for every child. It is the duty of the school authority to provide opportunity for each child to engage in wide range of physical activities in week through PE classes. Participating in regular physical activity and limiting sedentary behaviour is an effective way to prevent the development of many health risks, regardless of age, gender, ethnicity and socioeconomic status (Kohl HW et al. 2012).

1.5. Significance of developing PL through PE:

In India, the most unfortunate trend is that a declining interest in Physical Education and sports in schools. Increasing demands from other curricular areas have resulted in a reduction in time allocation, budget and status for PE and sports in schools. Physical inactivity is now an epidemic and we must act urgently to break its deadly cycle. Fortunately, the solution is within reach. If we reach children when they are young enough, they can learn to love physical activity and sports for life. As per the UNESCO recommendations, the school children should be provided with Quality Physical Education (QDP) programme ensuring each student engage in 150 minutes of Moderate or Vigorous Physical Activities (MVPA) per week (Nancy McLennan and Jannine Thompson, 2015). Developing Physical Literacy through PE at schools is the ideal way to integrate the physical activity we’ve lost, back into the lives of the next generation. Enrolling kids in Physical Education programs that are fun, educational and appropriate for their age and skill level helps ensure early positive exposure to physical activity and increases their likelihood of staying active throughout their life (Carson V. et al. 2016).

1.6. The Skill Theme Approach:

The PE programme should be prepared within a Skill Theme Approach in which the focus is on helping children become skillful movers so that they can successfully participate in physical activities. In this approach the primary goal is to develop competency in basic motor skills and confidence to try and enjoy a variety of sports and physical activities. It is a road map to the important components of a physical education program that will help PE

teachers' "guide children in the process of becoming physically active for lifetime". Mastering Fundamental Movement Skills like running, jumping, landing, throwing, catching etc. will motivate them to involve in physical activities in future.

1.7. Measurement Physical Literacy:

PL can be measured by the test battery **PLAY** (Physical Literacy Assessment for Youth). This testing protocol is consisted of 16 tests that measures various skill competency of the child as detailed below.

2. PLAY TEST BATTERY:

1. Run a square	9. Hand Dribble Stationary & Moving Forward
2. Run There and Back	10. Kick Ball
3. Run, jump and Land on Two Feet	11. Foot Dribble Moving Forward
4. Crossovers	12. Hand Dribble Stationary & Moving
5. Skip	13. Balance Walk (Heel to Toe) Forward
6. Hop	14. Balance Walk (Toe to Heel) Backward
7. Jump	15. Drop to Ground & Get Back
8. Overhead throw	16. Lift and Lower

3. CONCLUSIONS:

Enhanced physical inactivity level is causing health issues among young children. Studies show that Physical literacy need to be developed in every child to promote and increase physical activity levels among them. Quality Physical Education (QPE) programme underpinning Physical Literacy at schools ensuring the children engaging in 150 minutes of MVPA per week is an ideal solution. Enrolling kids in physical activity programs that are fun, educational and appropriate for their age and skill level helps ensure early positive exposure to physical activity and increases their likelihood of staying active throughout their life.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

**ANALYSES OF SPORTS PERFORMANCE IN MOBILE
APPLICATION SOFTWARE**

B. Praveen Doss

Asst. Professor

YMCA College of Physical Education, Chennai.

Abstract:

Mobile devices are ubiquitous in the population, and most have the capacity to download mobile applications in the own device. Some apps have been developed to collect physiological, biomechanical, kinanthropometric and performance analyzing data, however the validity and reliability of such data is often unknown. An appraisal of such apps is warranted as mobile apps may offer an alternative method of data collection for practitioners and athletes with money, time and space constraints. This article identifies and critically reviews the commercially available apps that have been tested in the scientific literature, finding evidence to support the measurement of resting heart through photoplethysmography, heart rate variability, range of motion, barbell velocity, vertical jump, mechanical variables during running, and distances covered during walking, jogging and running. The specific apps with evidence, along with reported measurement errors are summarized in the review. Whilst mobile apps may have the potential to collect data in the field, athletes and practitioners should exercise caution when implementing them into practice as not all apps have support from the literature, and the performance of a number of apps have only been tested on one device.

Key words: Apps, testing, field testing, technology

1. MyDartfish Express:

If you try to search for a sports video analyzing application myDartfish will be among the most popular and most trusted solutions used by many coaches. It has proven its efficiency over time. Many professional trainers found it very useful and effective in tactic and performance analysis. myDartfish software is available in different versions. There are free apps and premium apps with a one-time payment or monthly fees for options like integration with Cloud services to download and send video analysis. The story of the myDartfish performances lasts since the 1999 year and the developers have created a lot of different software for professionals and amateurs. For mobile the rate of Rs.550 both ios and android.

2. Coach Cam:

Coach Cam has a broad spectrum of features similarly apps for video analysis. The user is required to upload any video file from a device or record directly through the app. This is the first main step. Then you are free to add lines, spots, arrows of different colors to highlight mistakes or right steps of athletes. Don't forget to add text with important remarks. The text will make you video analysis more informative. All mentioned above features are available in a free version of the app. Though to get more benefit from this software and improve your analysis to a high level you better to subscribe to the premium version. It will cost you 5.99\$ per month with a discount if to take a package starting from a 3-month subscription. Subscription will be the right choice for professional coaches as it will open those unlimited shares options for ready video analysis. Its only in Mac Software.

3. Coach's Eye:

Coach's Eye is leading the field of analyzing apps for sports activities. If you are coach you can record your players' performance on video, make an in-app analysis during the process or after the whole training session. Thereby to show them how to improve and train better. You will find all the necessary modern tools that help you to check the video frame by frame, add tags, draw lines, and other indicators, to measure angles. Coach's Eye is leading the field of analyzing apps for sports activities. If you are coach you can record your players' performance on video, make an in-app analysis during the process or after the whole training session.

There by to show them how to improve and train better. You will find all the necessary modern tools that help you to check the video frame by frame, add tags, draw lines, and other indicators, to measure angles.

4. CoachNow:

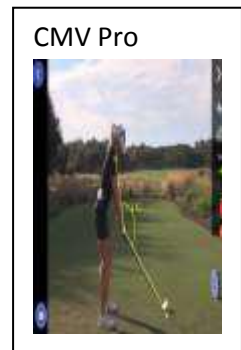
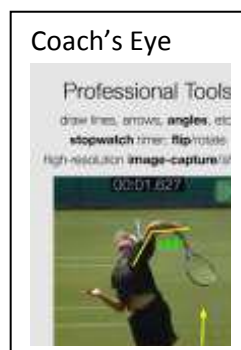
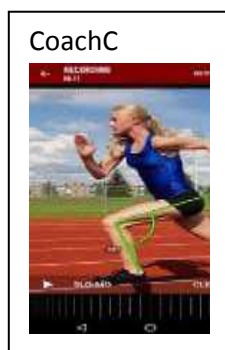
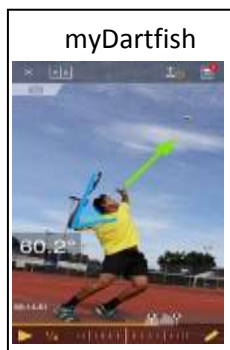
CoachNow is yet another powerful and popular apps for coaches, trainers, and other sports mentors. If you are one of them and you need to improve your own and your athletes' performances the CoachNow will replace any software you have used till now. Coach now is more than a video analysis application. It's a team community app where all will stay tuned together, seeing each other performances, sharing thoughts, texting each other. So, it's professional integrated software for your device that can replace many other apps. App's main features:

5. iClooPlayer:

ICloo Player is an app that allows us to playback any video for detailed analysis. Slow-motion and frame by frame playback forward and backward are very useful functions for those whose work can be improved by this video editor. With this in mind, coaches of all kinds, athletes, choreographers, and golf players will evaluate this app with a high rate. Besides, you can draw lines of different colors modifying the thickness of the line and add angle measurements for better analysis. In this app, you can zoom in the video for better details and analysis.

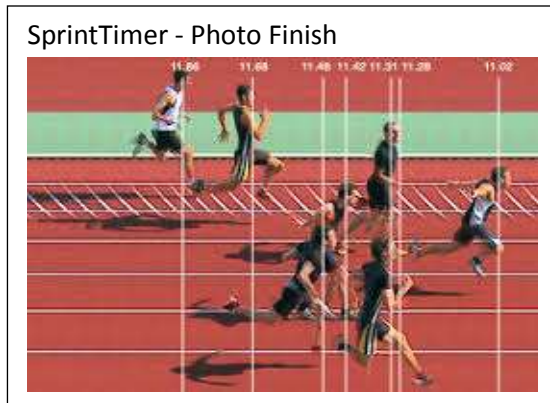
6. CMV Pro:

CMV Pro is an advanced video analysis app for better coaching. It's available only for iOS devices for 9.99\$. It has a bunch of function and let you freeze, rotate video, draw lines over it and measure angles. It has been claimed that all functions and tools of the app are easy to learn for anyone. The design and interface are user-friendly, descriptions comprehend. Features: Professional advanced tools: lines, arrows, angles, stopwatch, All video is available in HD quality. (the quality and functionality of the app directly depend on the model of your iPhone. Thereby, iPhone4 and 5 will have limited abilities)Record video through the app and get an immediate analysis. The app was found very useful by golf, tennis players and other athletes. Also, it will be convenient for dancers and photographers. And of course CMV Pro is an irreplaceable tool for coaches and instructors.



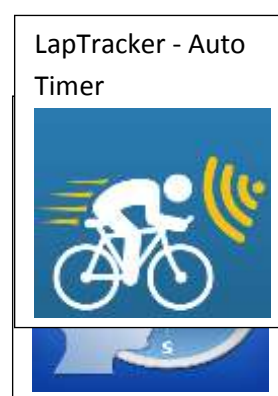
7. SprintTimer - Photo Finish:

SprintTimer is a unique sports timer and photo finish app that employs the same techniques as the fully automatic timing equipment (FAT) used at the Olympics. Start the timer and point the camera towards the finish line. The app creates an image where you can scroll to get the time for each competitor with a 0.01 s accuracy*. SprintTimer also includes a motion-activated Video Finish for longer races and a Start Sender for wirelessly controlling SprintTimer from another device. SprintTimer is used by coaches, teachers, and athletes all over the world for practice and competition in, for example, track & field, cycling, skiing, speed skating, car racing, rowing, kayaking, horses or greyhound is racing. One person can time all participants. Higher accuracy. Easier to determine the order. The image and the results can be saved Can operate "hands-free" when started. The timer can be started manually, with a sound, or remotely from another device.



8. LongoMatch:

LongoMatch is the most complete video analysis app for coaches, analysts and athletes compatible across platforms. It's the perfect sport analysis app for coaches, sport analysts and athletes. It allows you to record a live game, register actions, create and edit projects, teams and dashboards, import & export Sportcode and XML files, sync your projects between the Mobile and Desktop versions and share your projects with your club or community. Use LongoMatch to record your trainings or live matches and pin-point the actions that matter to your team's strategy. Save time by performing your full sport analysis on-the-go without the need to connect to your PC.



9. CONCLUSION:

These are the some applications available in android and ios device with low cost and free trial versions it helps to analyze individual performance and team performance which help to develop skill and technique in your subjects. This type of application are user friendly and obtain result in data immediately. So that we can compare and analyze in world class athlete levels. Using this type of applications in the grass level to correct the skills and technique and the performance level increases with the support of technology.

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EVOLUTION OF THANG-TA SPORTS IN TRIPURA: A CASE STUDY

¹Tapasjit Rajkumar, ²Huidrom Kirankumar Singh
¹Assistant Professor, ²International Thang-Ta Coach,
¹Faculty of Physical Education and Yoga, the ICFAI University Tripura.
India

Abstract:

Thang-Ta is an Indian martial art. It is originated from Manipur, a North-Eastern state of India. The term ‘Thang’ means ‘Sword’ and ‘Ta’ means ‘Spear’. The original name of this martial art is ‘HuyelLanglon’. Thang-Ta has become a very popular sport in India and also in the world. Thang-Ta martial art was practiced in the Manipuri localities of Tripura, from the very beginning of the history of the Manipuri community in Tripura. In the year 1985 Guru HuidromPremkumar Singh was started his journey for Thang-Ta organisation at the national level. He came to Dharmanagar, North Tripura, and talk with local people and went to Agartala (the capital city of Tripura) for the organisation to start Thang-Ta training, but unfortunately, it was unsuccessful. In the year 1989 Guru HuidromPremkumar Singh came again in Dharmanagar and for the development of Thang-Ta sports in Tripura a primary committee was formed in Tripura, where NarendrajitRajkumar was the President and Santosh Kumar Singh was the secretary of the committee. The training programme was started under Oinam Deben Singh from Manipur with 20 players. Nowadays Thang-Ta sports became one of the popular events in Tripura and Thang-Ta players are participating in the various Thang-Ta tournaments.

Key Words: Thang-Ta, Sports, Tripura,

1. INTRODUCTION:

Thang-Ta is an Indian martial art. It is originated from Manipur, a North-Eastern state of India. The term ‘Thang’ means ‘Sword’ and ‘Ta’ means ‘Spear’. The original name of this martial art is ‘HuyelLanglon’, the word ‘Huyel’ means ‘War’ and ‘Langlon’ means ‘Knowledge of Art’ so HuyelLanglon means ‘Art of warfare’. Thang-Ta is a unique martial form where different techniques are there i.e. Thangloan (the art of the sword), KhonglonKhutlon (Patterns of hands and legs technique), SaritSarak (the art of Unarmed fighting), Taron (the art of spear), Mukna (Manipuri Wrestling), Hirikonba (Meditation), ThengouChongba (Secret practices of exercise), Archery, Sairong (a traditional bow-like weapon), Arambai (a unique weapon, used by Manipuri Horse rider warriors), etc. The Manipuri warriors defended the Manipuri Kingdom from the neighboring Kingdoms and defeated several times through this martial art. The Manipuri peoples believed that every traditional art form and indigenous games and sports of Manipur are related to Thang-Ta. It was the compulsory education for the military and other peoples of Manipur Kingdom. The system “Lalup” means a group of “Military Force” was introduced by King Loyumba (1074-1122 AD). King Punshiba (1404-1432 AD) introduced the permanent and professional military department called “ShingchepMeiraHaijouroi”. Again the “Lallup” system (old military system) was upgraded by King Pamheiba (1709-1748 AD). According to this new system, every male above 16 years old had to do their duty as a savior of the kingdom for 10 days out of 40 days.

This rich traditional martial art was banned by the British Government after defeated the Manipur Kingdom in the Anglo-Manipur War 1891, by implementing Arms Act 1878. According to this act, possession of weapons like swords, spears, shields, and muskets were prohibited, and practicing the Thang-Ta martial arts is also not allowed, but some of the Thang-Ta gurus were practiced this art with confidentiality. In the year 1920 the “Satjal Academy” was formed. The aim and objective was to preserve the Manipuri traditional art and cultural dance, drama, etc. Thang-Ta martial arts also practiced there, but it was confidential. In the year 1934 Nikhil Hindu Manipuri Mahasava was formed. In the Mahasabha, the traditional martial art culture of Thang-Ta

was encouraged as a physical and spiritual practice art form. In the same year, VayamCharcha Club was established, where Guru R.K. Sanatomba was the President and his beloved student Guru R.K. Sanahal Guneshwar was the General Secretary.

Nowadays Thang-Ta has become a very popular sport in India and also in the world. Some Guru's and leaders are trying to popularize this Martial Art more in the world. Guru Shri H. Premkumar Singh, a follower of Guru ShriRajkumarSanahalGuneshwar Singh (an approved candidate of Manipur Maharaja by the Government of India in 1956), got scholarship under Ministry of Art and Culture, Government of India in the year 1984 for his devotion towards Thang-Ta and started to extend Thang-Ta martial art as a sports event in across the country. He met with the leaders and sports lovers of across the country and formed Thang-Ta Federation of India in 1993. Thang-Ta Federation of India had been organising National Thang-Ta Championship every year since 1993 and from the 2011 Thang-Ta Competition had been organising in the International level also. In 2006 Thang-Ta Federation of India was recognized by Indian Olympic Association. Now Thang-Ta sports become one of the main events of the National School Games (SGFI). Tripura is a state of north-eastern India. It is the third smallest state of India. It covers 10,491 km² and is bordered by Bangladesh to the north, south, and west, and the Indian states of Assam and Mizoram to the east. In this small state different community's people are living together. Tripura has a big history with the Manipuri peoples since it was an independent kingdom. The Manipuri peoples were migrated here in two different perspectives during the princely period. **One is**, from the marital relationship with the kings of Tripura. The Manipuri and Tripuri first came close to each other during the last decade of the eighteenth century through a historical marriage of Tripura King RajdharManikya –II (1785-1804 A.D.) to Manipuri princess Hariseshwari Devi, daughter of Manipur King Bhagyachandra in the year 1798 A.D, **Second is**, during the 7 years devastation of Manipur kingdom (1819 – 1825 A.D), where huge numbers of Manipuries were migrated to the neighbour states of Manipur like Assam, Tripura, Bangladesh. They have been holding their rich culture. In different periods different Thang-Ta experts and Gurus were practiced this martial art and gives training to the young generations.

1.1. OBJECTIVE OF THE STUDY:

The objectives of the study are:

- To study about the historical background of Thang-Ta Sports in Tripura
- To study the present status of Thang-Ta Sports in Tripura.

2. METHODOLOGY:

It is a historical study. For this study data were collected from the related organisation of Thang-Ta sports, and through the non-structured interview with the related members and players of Tripura.

3. ORIGIN OF THANG-TA SPORTS IN TRIPURA:

From the very beginning of the history of the Manipuri community in Tripura, Thang-Ta martial art was practiced in the Manipuri localities of Tripura. As other art and culture, they preserved Thang-Ta martial art also. Some of the Gurus, belong from the royal family of Manipur settled in Tripura namely DharmajitRajkumar, who was the landlord of Dharmanagar (Dharmanagar was named on the name of DharmajitRajkumar) of North Tripura, under the Kingdom of Tripura, his younger brother ChandrajitRajkumar, DamanjitRajkumar (Nephew of Dharmajit), and his grandsons namely KulajitRajkumar, were remarkable. According to HirendrajitRajkumar, grandson of Dharmajit, in the year 1925 ChandrajitRajkumar gives Thang-Ta training among 350 subordinates, Youngers, and their followers. RajkumarBudhimantajitSingha also belong from the royal family of Manipur was the Thang-Ta Oja (Master) in the west Tripura i.e. Agartala. He was also the first Manipuri Nritya Guru of Shantiniketan. Apart from the royal family, some Gurus were also given Thang-Ta training to young boys and girls in Manipuri locality, among them Oja (Master) KhetrinmayumGokulchand Singh (nickname Gunjando) was remarkable. Oja (Master) KhetrinmayumGokulchand Singh was started to teach the students in the year 1972. In that time Thang-Ta training was bounded only within the Manipuri community. In the year 1985 Guru HuidromPremkumar Singh was started his journey for Thang-Ta organisation at the national level. He came to Dharmanagar, North Tripura, and talk with local people and went to Agartala (the capital city of Tripura) for the organisation to start Thang-Ta training, but unfortunately, it was unsuccessful. His main motto was to spread Thang-Ta as sports. According to him –

“In the international arena different martial art forms of the world are introducing as a sports event, then why not Thang-Ta martial art? If Thang-Ta martial art is introduced as a sports event and if it is becoming the Olympic event, then Thang-Ta players will get a platform to prove themselves in the international arena of sports.”

In the year 1989 Guru HuidromPremkumar Singh came again in Dharmanagar, North Tripura, and met with some of the social activates namely NarendrajitRajkumar, SantoshSingha and with other local peoples and finally started the training at Rajbari, Dharmanagar, North Tripura. It was the first time Thang-Ta martial art training was started beyond the Manipuri community.

3.1. Development of Thang-Ta Sports in Tripura

In July 1989, for the development of Thang-Ta sports, a primary committee was formed in Tripura in presenecof Guru HuidromPremkumar Singh, where NarendrajitRajkumar was the President and Santosh Kumar Singh was the secretary of the committee. The training programmewas started under Oinam Deben Singh from Manipur with 20players. After then in different times different Thang-Ta instructors came in Tripura and the Tripura Thang-Ta team participated in the North-EastThang-Ta Championship in 1990. In the initial period, the primary committee was faced with organizational problems, and then the committee decided to form an organization.

Thang-Ta Instructors of Tripura

Sl. No.	Name of the Instructor	Year
1	Oinam Deben Singh, Manipur	1989
2	OinamNoren Singh, Manipur	1990
3	ThounaojamShyamjai Singh, Manipur	1991
4	OinamThoiba Singh, Manipur	1993
5	Umakanta Sharma, Manipur	1994
6	SandhamIbotombi Singh, Manipur	1994
7	Kh. Prabir Kumar Singh, Tripura	1995 onwards
8	SaratSingha, Assam	2005
7	ManasjitRajkumar	2006 onwards
8	SajalMalakar	2009 onwards
9	OmprakashKalwar	2009 onwards
10	ManasiRajkumari	2014 onwards
11	Anwar Hussain	2014 onwards

26th January, 1992 a meeting was held between the primary members and players of Thang-Ta. In that meeting “ApunbaNaharolEnatThougallup” was formed. The committee members were as follows:

- NarendrajitRajkumar President
- N. Santosh Kumar Singha Secretary
- Th. Amar Singha Asst. Secretary
- Kh. PrabirSingha Treasurer
- Kh. BijuSingha Office Secretary
- SatyanarayanDebnath Member
- PritiRajkumari Member
- DebajitDarlong Member
- GopalSabdakar Member
- KarmajitSingha Member
- Rabindra kr. Reang Member
- H. KarmajitSingha Member

The objectives of the organization was:

- To form integrity through Games and Sports.
- To promote general education in the society.
- To do works for social welfare.
- To promote indigenous art and culture.

Up to 2004, under the same banner Thang-Ta martial art was spread specially within the North Tripura district. In 2005, for the first time, Thang-Ta training center was established in Agartala, West Tripura, and gradually started to spread in the Dhalai District also.

ApunbaNaharolEnatThougallup faced problems to spread this art as well as to participate in the National Thang-Ta tournaments, due to the name of this organization. Therefore All Tripura Thang-Ta Association was formed in the year 2010. In the year 2012, the All Tripura Thang-Ta Association was again reformed, where Mr. AmitabhaDatta, former Vice-President of Tripura Sports Council was the President,

NarendrajitRajkumar was the General Secretary, and in the year 2014, the said association was registered under the Society Registration Act. 1860. It can be mentioned that from 2006, the golden era of this association was started. Since 2006 the Thang-Ta team of Tripura was participating in the different Thang-Ta competitions in every year and achieved good results in the national level competitions. During this period Mr. ManasjitRajkumar was titled as Best Fighter Male for 2006 and again in 2008 also. In 2008 for the first time in the history of Tripura Thang-Ta a female player namely, ManasiRajkumari got Gold Medal in National Thang-Ta Championship at Himachal Pradesh. In the year 2011, two players from Tripura were selected for the First World Thang-Ta Championship, held at KhumanLampak Indoor Stadium, Imphal, India where OmprakashKalwar got Gold Medal in ThanglonChatpa Competition. In the National School Games, the Thang-Ta team of Tripura has been participating since 2012. For the first time, All Tripura Thang-Ta Association has organized Thang-Ta Federation Cup in 2019, under Thang-Ta Federation of India. It was the first time in the history of Thang-Ta in Tripura.

4. ACHIEVEMENTS:

Number of Participants and Achievements, Year Wise

North-EastThang-Ta Championship						
Sl. No.	Year	State/Country	No. Of Participants	Gold	Silver	Bronze
1	1990	Manipur	16	-	-	-
National Thang-Ta Championship						
1	1993	Manipur	6	-	-	1
2	1996	Manipur	4	-	-	-
	1998	Delhi	11	-	-	1
	1999	Haryana	9	1	4	1
	2000	Madhya Pradesh	11	-	5	3
3	2001	Delhi	15	-	5	5
4	2002	Hariyana	4	-	1	1
5	2006	Goa	6	1	2	2
		ManasjitRajkumar selected as Best Fighter Men.				
6	2007	Agra, UP	6	1	-	1
7	2008	Himachal Pradesh	8	3	1	1
		ManasjitRajkumar selected as Best Fighter Men.				
8	2009	Rajasthan	17	-	5	5
9	2010	Tamil Nadu	19	1	4	6
10	2011	Jharkhand	45	4	4	9
11	2012	Jammu Kashmir	33	5	13	5
12	2013	Manipur	19	5	5	8
13	2015	Pondicherry	6	1	-	-
14	2016	Tamil Nadu	8	2	-	3
15	2017	Telangana	14	2	2	2
		AnuraChakma awarded as Best Fighter Female				
Thang-Ta Federation Cup						
1	2013	Jharkhand	6	2	1	2
2	2014	Maharastra	15	4	2	2
3	2015	Panjab	27	-	3	3
4	2018	Punjab	6	-	4	2
5	2019	Tripura	72	9	20	22
		Tripura got 1 st Runners Up				
International Thang-Ta Championship						
1	2018	India	1	1	-	-
World Thang-Ta Championship						
1	2011	India	2	1	-	-

5. Present Status of Thang-Ta Sports in Tripura:

Nowadays Thang-Ta sports became one of the popular events in Tripura. Around 400 players are getting training under 23 centers of 6 district branches of All Tripura Thang-Ta Association. Thang-Ta instructors of Tripura are also given self-defense training in Government schools under the SarbaSikshaAbhijanprogramme. The association has been conducting state level competitions, workshops, and refresher programme for the development of Thang-Ta in Tripura. Nowadays the association has been working with 5 senior instructors with Black Belt, and 18 junior instructors.

6. CONCLUSION:

Thang-Ta players of Tripura are increasing day by day. It shows that this sport is growing, but the numbers of players' participation are not resulting up to the level. The reasons behind this are:

- Players are participating by self-financed, except the ¼ railway fair concession.
- It is not recognized as an event of the National Games of India.
- It may be because of less job perspective on this sport.
- No incentive awards for the medallist.

Therefore, as an Indian martial art, the State and the Central Government should take necessary steps for the development of this sport.

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SPORTS NUTRITION

Dr. Ravi H. Gadadannavar
Asst Prof in Physical Education,
Govt. First Grade College, Mudalagi : 591304
Dist: Belgavi , State: Karnataka.
Email.- rrgsunstar@rediffmail.com

Abstract:

Sports Success is dependent primarily on genetic endowment in athletes. With morphologic psychological, physiologic and metabolic traits specific to performance characteristics vital to their sport such genetically-endowed athletes must also receive optimal training to increase physical power, enhance mental strength and provide a mechanical advantage. However athletes often attempt to go beyond training and use substances and techniques, often referred to as ergogenics, in attempts to gain a competitive advantage, pharmacological agents such as anabolic steroids and amphetamines have been used in the past, but such practices by athlete to have led to the establishment of anti-doping legislation and effective testing protocols to help deter their use. Thus many athletes have turned to various dietary strategies including the use of various dietary supplements which they presume to be effective safe and legal.

Key Words: Sports nutrition, dietary supplements, vitamins, sports performance.

1. INTRODUCTION:

Dietary supplements are used by athletes world wide. In the united states, the dietary supplement health & Education Act has defined dietary supplement as something added to the diet, mainly. 1. Vitamins 2. Minerals, 3. Amino-acids 4. Herbs or botanicals 5. Metabolites/ constituents / extracts, or combination of any of these ingredients. In addition to actual food products targeted to athletes and physically active individuals, numerous companies have marketed dietary supplements to athlete, often with the claim that sports performance may be enhanced. The major focus will be on efficacy of such dietary supplements to enhance exercise or sport performance, with brief coverage of safety, legality and ethically. In general health professionals indicate that vitamin supplements are not necessary for the individual on a well- balanced diet but they may be recommended for certain individuals, moreover some health professionals note that most people do not consume an optimal amount of vitamins by diet alone and indicate that it appears prudent for all adults to take vitamin supplements. Several sport nutrition experts indicated that some athletes may be at risk for a vitamin deficiency, such as those who for one reason or another do not eat well balanced diet other note that the prudent use of anti-oxidant supplementation can provide insurance against a suboptimal diet and / or the elevated demands of intense physical activity, Dietary supplements are used by athletes world wide. In the united states, the dietary supplement health & Education Act has defined dietary supplement as something added to the diet, mainly. 1. Vitamins 2. Minerals, 3. Amino-acids 4. Herbs or botanicals 5. Metabolites/ constituents / extracts, or combination of any of these ingredients. In addition to actual food products targeted to athletes and physically active individuals, numerous companies have marketed dietary supplements to athlete, often with the claim that sports performance may be enhanced. The major focus will be on efficacy of such dietary supplements to enhance exercise or sport performance, with brief coverage of safety, legality and ethically.

2. VITAMINS:

Vitamins function in the human body as metabolic regulators, influencing a number of physiological processes important to exercise or sport performance. For example, many of the B-complex vitamins are involved in processing carbohydrate and fats for energy production, an important consideration during exercise of varying intensity, several B vitamins are also essential to help form hemoglobin in red blood cells, a major determinant of oxygen delivery to the muscles during aerobic endurance exercise. Additionally, vitamins C and

E function oxidative damage to cellular and subcellular structure and function during exercise training optimizing preparation for competition.



Vitamin deficiencies can certainly impair exercise performance, A daily intake of less than One-Third of the RDA for several of the B vitamins (B1, B2 & B6) and vitamin C, even when other vitamins are supplemented in the diet, may lead to significant decrease in vo_2 max, however most studies report that athletes who consume high calorie diets that contain the RDA of all nutrients have few vitamin or mineral deficiencies. Nevertheless recent survey data indicate that vitamins are the mostly common used dietary supplements among various athletic groups.

3. VITAMIN SUPPLEMENTS:

Efficacy studies have been conducted to evaluate the cryogenic potential of virtually every individual vitamin, as well as clusters of vitamins and related substances, including the B-Complex vitamins, multivitamin/ mineral compounds and antioxidants

- **B Vitamins and Choline:**

As many of the B vitamins are involved in the metabolism of carbohydrate fat and protein their ergogenic potential has been studied individually and in combination. In general although a deficiency of the B vitamins may impair both aerobic and anaerobic exercise performance, supplementation has not been shown to enhance performance in well-nourished individuals. Niacin supplementation may influence fat metabolism, blocking the release of free fatty acids (FFA) from adipose tissue and increasing reliance on carbohydrate utilization possibly leading to premature depletion of muscle glycogen



Choline, an anine is found naturally in a variety of foods and its RDA is groups with the B vitamins. Choline is involved in the formation of acetylcholine, a neurotransmitter whose reduction, in the nervous system may be

theorized to be a contributing factor to the development of fatigue. Research has shown that choline supplementation will increase blood choline levels at rest And during prolonged exercise

- **Multivitamin / minerals**

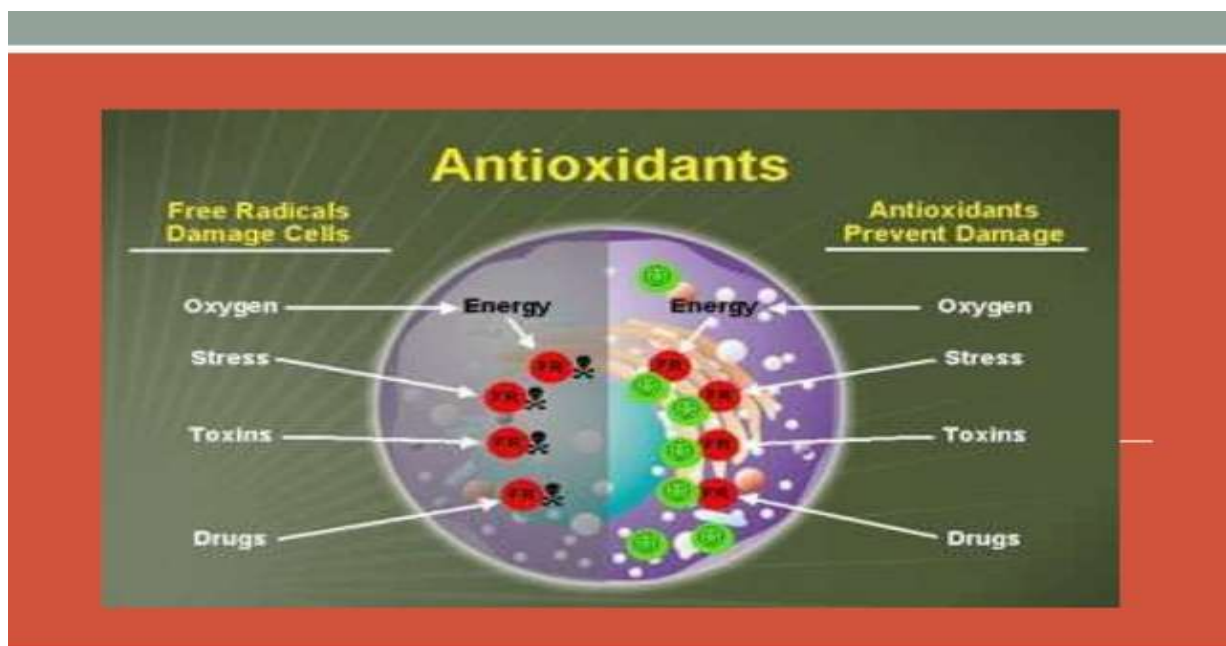
The overall review of the literature supports the view point that multivitamin/mineral supplements are unnecessary for athletes or other physically active individuals who are on a well-balanced diet.

- **Anti-Oxidants:**

Anti-Oxidants vitamins include vitamins C,E and Beth – Carotene, Anti-Oxidant vitamins have been studied individually and collectively for their potential to enhance exercise performance or to prevent exercise-induced muscle issue damage

- **Anto oxidants and exercise performance:**

Vitamin C supplementation has been shown to improvr physical performance in vitamin C – deficient subject but several major reviews support the general conclusion that vitamin C supplementation does not enhance physical performance in well- nourished individuals Vitamin E has been shown to enhance Oxygen utilization during exercise at altitude.



In general health professionals indicate that vitamin supplements are not necessary for the individual on a well- balanced diet but they may be recommended for certain individuals, moreover some health professionals note that most people do not consume an optimal amount of vitamins by diet alone and indicate that it appears prudent for all adults to take vitamin supplements. Several sport nutrition experts indicated that some athletes may be at risk for a vitamin deficiency, such as those who for one reason or another do not eat well balanced diet other note that the prudent use of anti-oxidant supplementation can provide insurance against a suboptimal diet and / or the elevated demands of intense physical activity, and thus may be recommended to limit the effects of oxidative stress in individuals performing regular heavy exercise

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**COMPARATIVE STUDY OF SENIOR AND JUNIOR KABADDI
PLAYERS ON TASK AND EGO ORIENTATIONS AND SPORTS
COMPETITION ANXIETY**

¹Ms. Aruna Satti, ²Dr. N. Vijay Mohan,
¹Research Scholar, ²Professor & Director
Department of Physical Education,
Andhra University, Visakhapatnam.

Abstract:

The purpose of the present investigation was to conduct a comparative study of senior and junior Kabaddi players, on goal orientations and sport competition trait anxiety. The sample comprised 25 senior Kabaddi players and 25 junior Kabaddi players (N=50). All the Kabaddi players were tested on the psychological variable i.e. task and ego orientation, sports competition trait anxiety, and difference between junior and senior Kabaddi players. Results indicated that there is no significant difference between junior and senior volleyball players, on task ego and orientation, and sports competition anxiety.

1. INTRODUCTION:

In the world each and every movement of human life as well as sport and games performance based psychological influence but it will be either negative or positive, based on percentage of anxiety task or ego level of certain situation. Anxiety mental component of anxiety caused by negative expectations about the success or negative self-esteem, while the somatic anxiety physiological anxiety of affective component that is directly associated with autonomic arousal. Sport is also expected to provide a vehicle for learning to cooperate with teammates, negotiations and offer solutions to moral conflicts, develop self-control, display courage and learn the virtues of honesty, loyalty to the team, perseverance, and teamwork.

1.1. OBJECTIVES:

The present study has the following objectives:

- To study the sport competition anxiety level of senior and junior Kabaddi players.
- To study the goal orientation of senior and junior Kabaddi players.

2. METHODOLOGY:

2.1. The sample

The sample of the present study comprised a total number of 51 Kabaddi players, 25 seniors and 25 juniors who participated in various national level competitions, and have more than 5 years' experience, in playing Kabaddi. The age of the subjects ranged between 18 to 23 years.

2.2. Methodology:

Standardized sport specific questionnaire were used, in this study. The following questionnaires were used.

- Task and ego orientation in sport questionnaire (TEOSQ) (Duda, 1992).
- Sport competition anxiety test (SCAT) (Martens, Gill, Scanlan & Simon, 1990).

2.3. Procedure

The instruments used, in this study, were compiled and printed out in both English and Hindi. The respondents filled up the questionnaire, individually in the presence of the researcher, in their off practice hours.

3. RESULT:

To find out the significance of mean difference between senior and junior Kabaddi players, on task ego orientation and sport competition anxiety, t-test was applied.

TABLE- 1

Group	Anxiety			Task			Ego		
	Mean	SD	T	Mean	SD	T	Mean	SD	T
Senior	16.88	3.54	1.31	29.41	2.21	1.13	18.00	3.52	.04
Junior	15	3.53		28.42	2.12		18.05	3.39	

4. DISCUSSION:

Table 1 represent the significance of mean difference between senior and junior Kabaddi players on sport competition anxiety and goal orientation. From table, it is seen that the senior Kabaddi players, do not differ significantly from junior Kabaddi player, in their sport competition anxiety. The obtained t-value was 1.31, which is found to be not significant. With respect to the goal orientation, it is found that the senior Kabaddi players did not differ significantly from the junior Kabaddi players. The 't' value found to be 1.13 in task orientation and the t-value for ego orientation for both senior and junior Kabaddi players, were found to be .40. With respect to goal orientation, it was found out that senior players did not differ from junior Kabaddi players in their goal orientation. That mean values of senior Kabaddi players did not differ significantly, from junior Kabaddi players, in their task orientation. Both senior and junior Kabaddi players were found to be task oriented. The probable reason for this result may be due to the fact that both groups have participated in various National level competitions and have the experience of success in competition that had made both the groups more task orientation.

5. FINDINGS AND CONCLUSION:

It is concluded that is essential for the coaches/physical trainers to know the level of goal orientation of their players and they should motivate their players to be more task oriented. On the basis of this idea of level of goal orientation, the coach can plan for future. It will help them to modify their training schedule and will help to improve the performance of the players. Along with this, the coach can plan for psychological training and counselling of their players to enable them develop the right kind of mental set towards their games, and to control their negative psychological, tendencies like anxiety.

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ESTIMATION OF BLOOD LACTATE WITH THE PROGRESSION OF A FOOTBALL MATCH

¹Sumit Kumar Murmu, ²Dr Kallol Chatterjee

¹Research Scholar, ²Assistant Professor,

^{1,2}Department of Physical Education, Viswa-Bharati University, West Bengal, India,
Email -¹sumit.krmurmu@gmail.com ²Email: kallolchatterjee1980@gmail.com

Abstract:

The purpose of the study was to describe and quantify the changes in blood lactate concentrations with the progression of a football match in the district level football santhal tribe players. For the purpose of the study ten male tribal football players were taken as subjects of the local club team at district level tournament. The subject's age ranged between 19 to 27 years. For this study portable blood lactate analyzer-Lactate pro-2 was used for data collection. Data were collected during semifinal match. Data were collected just prior to the match, post first half time and after completion of the match. The hypothesis selected for this study was that there would be no significant variation on the concentration of blood lactate with the progression of the football match. For analysis of the data repeated measures ANOVA statistical treatment was used. The level of significance was set at 0.05. As Descriptive Statistics mean, standard deviation and standard error of means were calculated. Further, all statistical analyses were computed on IBM SPSS software; Version: 25. The mean of blood lactate concentration of tribal football players prior to the match was 02.55 ± 01.09 mmol/L (mean \pm SD), after half time it was (06.77 ± 03.52) mmol/L and just after completion of match was (11.20 ± 03.86) mmol/L. From the results of this study it revealed that there is a significant change in the concentration of blood lactate with the progression of a football match

Key Words: Blood Lactate, Santhal Tribe, Portable Blood Lactate Analyzer

1. INTRODUCTION:

Football, also called **association football** or **soccer**, game in which two teams of 11 players, using any part of their bodies except their hands and arms, try to maneuver the **ball** into the opposing team's goal. Only the goalkeeper is permitted to handle the ball and may do so only within the penalty area surrounding the goal. The team that scores more goals wins. The sport of soccer called football in most of the world is considered to be the world's most popular sport. In soccer there are two teams of eleven players. Soccer is played on a large grass field with a goal at each end. The object of the game is to get the soccer ball into the opposing team's goal. The key to soccer is that, with the exception of the goalie, players cannot touch the ball with their hands, they can only kick, knee, or head the ball to advance it or score a goal. Soccer is played at all levels throughout the world from small kids leagues to professional and international teams. Perhaps the most famous soccer tournament is the World Cup (Soccer: Learn all about the sport of Soccer n.d.), football | History, Rules, & Significant Players | Britannica n.d.). Soccer is such a game which demands almost all physical fitness components like speed, strength, agility, coordination, endurance, balance, perception, reaction time, power, aerobic and anaerobic capacity too.

Though football being most popular game of the world but it is not that much popular in the India, here in India football is most popular in North-Eastern part of the country. This sport is also the most popular sport for tribal people of rest of the state of India. Santhal Pargana is one of the divisions or commissionerates of Jharkhand, under which six districts come. Most of the population of these six district are of santhal tribe. Santhal tribe are known for playing football more than anything. Santhal community is known for their folk dance, songs and playing football. Every year many local tournaments are being organized by santhal community. Among these tournaments, tournament organized in the district level has its standard. Science and

technology have leaved much impact in the field of sports. Science and technology have made us understand sports in much better way than in last few decades back. Invention of portable gadgets has made it easy to understand the reason behind any physiological stress during any physical activity or in sports event. Lactic acid accumulation or lactate accumulation plays a very important role in the training process of athletes. A coach and players have to understand the physiology of blood lactate, its production and clearance in general as well as in specific. Lactate accumulates if pyruvate formation exceeds pyruvate oxidation. Accelerated glycogenolysis is essential for lactate production. Glycogen and epinephrine enhance glycogen phosphorylase activity and this is higher in type II b than in type I fibers. Pyruvate oxidation is enhanced by exercise-induced increase in pyruvate dehydrogenase activity and is relatively impaired by low oxygen availability and low mitochondrial oxidative capacity. During exercise lactate is eliminated in liver, heart, and resting and working muscle. In muscle, elimination depends on plasma concentration, fiber type, and fiber conditions. Due to influence on hormonal response, mitochondrial oxidative capacity and fiber recruitment, training diminishes glycogenolysis and lactate production. Training also increases lactate clearance. This reflects increased hepatic capacity for gluconeogenesis as well as increased lactate transport capacity and oxidative capacity and reduced glycogenolysis in muscle. The fact that endurance performance can be predicted from the plasma lactate versus exercise intensity relationship illustrates that the plasma lactate level is a finely balanced result of the interplay between many factors of importance for endurance exercise. (Bente Stallknecht, John Vissing et al 1998)

1.1. PURPOSE OF THE STUDY:

The purpose of the study was to investigate the variation in blood lactate concentration with the progression of football match of tribal football players at district level tournament.

2. METHODOLOGY:

2.1. Selection of Subjects:

For This Study, purposively ten (10) tribal football players from a team, playing semifinal match at district level tournament in Dumka, jharkhand, India, were selected as subjects for this study. The subject age was ranged between 19 to 27 years.

2.2. Collection of Data:

The data on selected physiological variable- blood lactate were collected by employing the standard testing procedures available in the literature with the help of portable blood lactate analyzer-Lactate pro-2. Players were briefed about the purpose of the study. Blood samples were collected just prior to the beginning of match, post half time and just after completion of full time of the semifinal match, by pricking the finger. Reading shown by the Lactate pro-2 in mmol/L was recorded as data.

2.3. Selection of variable and it's criterion measures:

Table 1 represents the blood lactate which was selected as variable for this study.

S. No.	variable	units	Criterion measures
1	Blood Lactate	mmol/L	portable blood lactate analyzer-(Lactate pro-2)

3. STATISTICAL TREATMENT:

Repeated measures Analysis of Variance statistical technique is used at 0.05 level of significance.

4. FINDINGS & DISCUSSION:

Table: 2. Descriptive Statistics

Mean & SD of the Subjects in Pre Test, Post Half Time and Post Full Time in case of Blood Lactate

UNIT		MEAN	STD. DEVIATION	N
mMol/L	Pre Test	02.55	01.09	10
	Post Half Time	06.77	03.52	10
	Post Full Time	11.20	03.86	10

In the table no.-2, means of the subjects in Pre Test, Post Half Time and Post Full Time in case of Blood Lactate are 02.55, 06.77 and 11.20 respectively, whereas SD are 01.09, 03.52 and 03.86.

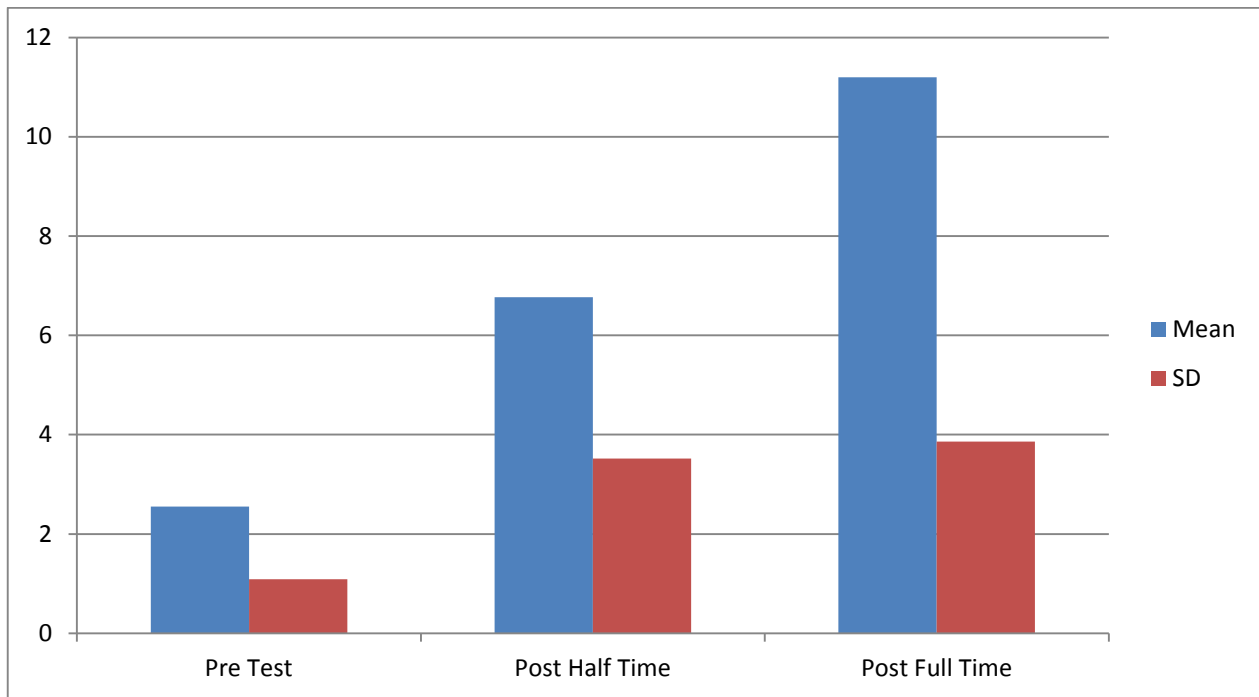


FIGURE 1 GRAPHICAL REPRESENTATIONS OF MEAN AND STANDARD DEVIATION SCORES OF BLOOD LACTATE AT PRE TEST, POST HALF TIME & POST FULL TIME.

Table: 3. Mauchly's Test of Sphericity

Within Subjects Effect	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Blood Lactate	1.564	2	.457	.849	1.000	.500

7. FINDINGS:

In the above table no. 3 (Mauchly's Test of Sphericity) the p-value or significance value is .457 which is greater than 0.05 ($P > 0.05$), so we do not accept the hypothesis that the variances of the differences between levels were not significantly different. In other words the assumption of sphericity has not been violated. If it would be violated then we would have to use Greenhouse-Geisser or Huynh-Feldt or Lower-bound for making an adjustment to the degrees of freedom of the repeated measures ANOVA.

Table: 4. Tests of Within-Subjects Effects

Repeated Measures ANOVA Among the Subjects in Pre Test, Post Half Time and Post Full Time in case of Blood Lactate

Unit	Source	Type III Sum of Squares	df	Mean Square	F	p-value (Sig.)
mMol/L	Blood Lactate	374.186	2	187.093	24.323*	.000*
	Error (Blood Lactate)	138.454	18	7.692		

*Significant at 0.05 level, $F_{0.05}(2,18) = 3.55$, or $p \leq 0.05$

FINDINGS:

In the above table no. 4 (Repeated Measures ANOVA) it has been found that 'F' value and 'P' value are 24.323 and .000 with 2/18 degrees of freedom in **Pre Test, Post Half Time and Post Full Time in case of Blood Lactate** which clearly indicates that 'P' value (.000) is less than 0.05 level of significance ($P < 0.05$). So there is significant difference on blood lactate within the subjects.

Table: 5. Bonferroni Post-Hoc Test Among Pre Test, Post Half Time and Post Full Time in case of Blood Lactate

VARIABLE	GROUP			SEM	Mean Difference	p- value (Sig.)
	Pre Test	Post Half Time	Post Full Time			
Blood Lactate Unit: mMol/L	2.55		11.20	1.143	-8.650	.000*
		6.77	11.20	1.476	-4.430	.045
	2.55	6.77		1.063	-4.220	.010

*Significant at 0.05 level or $p \leq 0.05$

FINDINGS:

From the table no. 5 (Bonferroni Post-Hoc Test) it has been evident that there is significant difference between **Pre Test** and **Post Half Time**, **Pre Test** and **Post Full Time** & **Post Half Time** and **Post Full Time**.

8. DISCUSSION OF FINDINGS:

Discussion Of Findings

The purpose of the study was to investigate the variation in blood lactate concentration with the progression of a football match on tribal football players at district level tournament. Blood sample were taken and tested through Blood Lactate Analyzer- Lactate Pro-2 at just prior to the match, after completion of first half and after completion of full time. From the findings it has been found that there is significant change in the concentration of blood lactate with the progression of a football match. Blood Lactate concentration increases from pre test value to post first half time and it is also increased after post full time of the match. [pre test- 02.55 ± 01.09 mmol/L, (mean \pm SD), post first half time- (06.77 ± 03.52) mmol/L, post full time- (11.20 ± 03.86) mmol/L].

From the results of this study it revealed that there is a significant change in the concentration of blood lactate with the progression of football match. More clearly is to be said that there is significant effect of progression of football match on blood lactate concentration of district level football players. The reason behind significant effect may be the following facts. Accumulation of blood lactate is associated with a corresponding increase in hydrogen ion (H^+) concentration in skeletal muscles, which inhibits glycolytic reactions and interferes with muscle excitation-contraction coupling (Nakamura & Schwartz, 1972). Such interference may result in limitations to muscular contractions through reduced availability of calcium (Baechle & Earle, 2008). In addition, inhibition of glycolytic reactions may result in reduced availability of ATP (Brooks et al., 2005). Therefore, lactate accumulation, and the associated accumulation of H^+ is generally associated with muscular fatigue. Previous researches have shown that lactate production occurs more in type II muscle fibers than type I; and is greater in high intensity, intermittent activities than low intensity, continuous activities. Type I muscle fibers are characterized by large number of mitochondria, high aerobic capacity and dense capillary concentration whereas type II muscle fibers are characterized by low mitochondria, low aerobic but high anaerobic capacity and higher force production (Lexell, Henriksson-Larsen, Wiblud, & Sjostrom, 1983). Thus, the type I muscle fibers are predominant in aerobic activities, while type II muscle fibers play an important role in short duration, explosive power events and/or resistance training. Moreover, it has been observed that the muscle fibers of intermediate and large motor units, which are used in explosive power and resistance events, produce more lactate than small motor units (Jones & Ehrsam, 1982).

. Many studies which directly or indirectly support the present study like Manish Shukla, 2018, Gordon W Schuett and Matthew S Grover, 2000, Paul Menzies, Craig Menzies et al 2010. Bente Stallknecht, John Vissing et al, 1998.

9. CONCLUSIONS:

Within the limitations of the present study following conclusion was drawn: There was a significant difference found on the blood lactate concentration of santhal tribal football players with the progression of a football match.

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Two Day International E-Conference on
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**“EFFECT OF BRISK WALK ON LIPID PROFILE IN SEDENTARY
OBESE MENS”**

Dr. SUBHASH S. DADHE

Director

Dept. of Physical Education and Sports

Dhanwate National College Nagpur, Dist. Nagpur (M.S.)

Email - ssdadhe@gmail.com

Abstract:

Background: The purpose of the study is to analyze the effect of selected exercise on lipid profile including Low-Density Lipoproteins and High-Density Lipoproteins of affected sedentary obese men, previous studies examining the effects of exercise on lipid and lipoprotein levels have reported conflicting findings. Thus we aimed at determining the changes in lipid profile in sedentary obese men influenced by exercise.

Methodology: To execute this investigation the investigator randomly selected thirty men in Nagpur Municipal Corporation only belonging to the age group of 45-50 years. They were divided into two equal groups of fifteen subjects each and assigned as an experimental group and control group, each group fifteen candied, out of which group I (N-15) Underwent brisk walking activity, and II (N-15) remained as control.

Outcome Measures: Pre-test was conducted for all two groups on Low-Density Lipoproteins and High-Density Lipoproteins. The experimental group participated in their respective Exercise for a period of six weeks. Post-test were conducted on the above mentioned dependent variables after six weeks of the training period. The training programmed was scheduled in the morning at 6.00 a.m. to 7.00 a.m. and evening from 6.00 p.m. to 7.00 p.m.

Statistical Analysis: Collection of data, blood sample was collected from an individual's ear lobe in the morning with an empty stomach, to check the value of the individual Low-Density Lipoproteins and High-Density Lipoproteins in pre and post-training session. The blood sample was analyzed in the biochemistry lab in Nagpur. Statistical techniques' test was used to find out the effect of exercise on the cholesterol levels of affected individuals in society.

Results: The results of the study indicate that the daily exercise done by those people indicates that there was a higher level of HDL in blood than the sedentary men. It indicates that heart-related problems can be higher in the sedentary people than those who do daily exercise. It reasons are listed below. In short, the Post-test study clearly indicates that there is a significant difference of Low-Density Lipoproteins and High-Density Lipoproteins in blood than the pre-test.

Conclusion: This study suggests that exercise is beneficial for a healthy life. It is finally concluded that sedentary persons may get Coronary Heart Disease or Heart-related problems due to insufficient exercise and advised for individuals who are willing to create time for their health benefits.

Key Words: Exercise, Low-Density Lipoproteins, and High-Density Lipoproteins.

1. INTRODUCTION:

The universal need and importance of daily exercise systematically planned and known as exercise cannot be ignored at least in the present modern high-tech artificial world. Because of the inventions of the man-made machines, the man himself has made its organs so weak, that its survival has been in dangerous situations resulting in less life span and much serious life killing diseases, like Blood sugar, blood cholesterol, Heart Attack, Kidney failure Heart Disease, etc. Heart Disease contains any type of disease like Angina pectoris, Arteriosclerosis, Cordial Arrest, Heart Disease, and Coronary Heart Disease. The present discussion is in relation to Coronary Heart Disease only. Coronary Heart Disease can occur due to deformity from in heart vein. An increase in cholesterol level is one of the reasons of coronary obstruction through balloon treatment and bypass surgery this obstruction can destroy. Balloon treatment and bypass surgery are successful. But it is a very expensive and middle-class person cannot afford this. Researchers aren't entirely sure how exercise lowers cholesterol, but they're starting to have a clearer idea. "Lots of individuals, even many doctors, assume that exercise lowers cholesterol," But until recently, most folks weren't sure just what the connection was." Due to this problem, I made a solution and found a positive way to control the lipid level without expenses and access of the benefit of exercise on person suffering from abnormal cholesterol levels. One way exercise

can help lower cholesterol is by helping you lose or maintain weight. Being overweight tends to extend the quantity of LDL (LDL) in your blood, the type of lipoprotein that's been linked to a heart condition.

What is cholesterol?

Cholesterol the fat-like substance is that the word that the majority people especially the center age bracket and above hate to listen to. The flipped side is that our body needs cholesterol for function such as making hormones. Besides being found in those products above, it is also produced in our body.

Type of cholesterol: - There is good and bad cholesterol. They cannot dissolve in the blood and have to be transported through the bloodstream in different carriers called lipoproteins. Low-Density Lipoproteins (LDL or bad cholesterol) deliver cholesterol to the body, while High-Density Lipoproteins (HDL or good cholesterol) take cholesterol out of the bloodstream to the liver, which will then, passes them out of the body. Various studies show that high blood cholesterol level is a risk factor for coronary heart disease.

What is Exercise?

Exercise is one possible management strategy, for addressing issues related to Coronary Heart Disease. Exercise has the potential prophylactic benefits associated with increased cardiovascular fitness. Exercise has been shown to improve strength, cardiovascular function, and psychological state in the general population. Exercise includes walking, skipping rope, jogging, and brisk walking

1.1. Purpose of the study: The purpose of the study is to study the effect of exercise on lipids profile level Including Low-Density Lipoproteins and High-Density Lipoproteins of affected individuals in society and control cholesterol level without expenditure.

1.2. Significance of the study: The present study would be important for national health. The results of this study will fight on the complicated disease as well as coronary Heart Disease and to control the cholesterol level of the public without expenditure be given positive results for society.

1.3. Sources of data: To execute this investigation the investigator randomly selected thirty men in Nagpur Municipal Corporation only belonging to the age group of 45-50 years. They were divided into two equal groups of fifteen subjects each and assigned as an Experimental Group and Control Group.

1.4. Selection of variables: for this study following variable was selected

1.5. Dependent variables 1) Low-Density Lipoproteins – Blood test
2) High-Density Lipoproteins – Blood test

1.6. Independent variables: 1) Experimental Group – Selected Exercise

2. EXPERIMENTAL DESIGN:

The study was formulated as a truly random group consisting of pre-test and post-test for this purpose in Nagpur Municipal Corporation 40 person examined and declared 30 of them were medically fit for this study and they were selected by lot method and they were divided randomly into two groups as one control and one experimental group. The selected thirty subjects were randomly divided into two groups of fifteen each, out of which group I (N-15) Underwent brisk walking activity remained as control. Pre-test were conducted for all two groups on Low-Density Lipoproteins and High-Density Lipoproteins. The experimental group participated in their respective Exercise for a period of six weeks. Post-test were conducted on the above mentioned dependent variables after six weeks of the training period. The training programmed was scheduled in the morning from 6.00 a.m. to 7.00 a.m. and evening 6.00 p.m. to 7.00 p.m.

2.1. Collection of data

Blood sample was collected from individual's ear lobe in the morning with empty stomach to check the value of the individual Low Density Lipoproteins and High Density Lipoproteins in pre and post- training session. The blood sample was analyzed in the biochemistry lab in Nagpur.

2.2. Statistical technique:

The Analysis of mean values and SD. The 't' test was used. A significance level of $P < 0.05$ was considered significantly different. Data were analyzed using SPSS. 't' test statistical techniques was use to find out the effect of exercise Module on the cholesterol level of affected individuals in society.

Table-1: Comparison of Men Experimental Group pre-training and post-training High-Density Lipid Lipoproteins

Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
HDL (mg/dl)	Pre-Training	25	36.96	5.42	5	1.618	3.0911*	2.0106
	Post -Training	25	41.96	6				

Significant at 0.05 level of confidence

An examination of table -1, revealed that the mean of HDL in pre-training is 36.96 and SD 5.42 and in post-training mean is found 41.96 and SD 6 similarly an examination of the same table revealed that there is a significant difference in the mean for HDL of Pre-training and Post-training as the obtained 't' ratio value 3.0911 is more than the required 't' ratio value 2.0639 at 0.05 level of confidence.

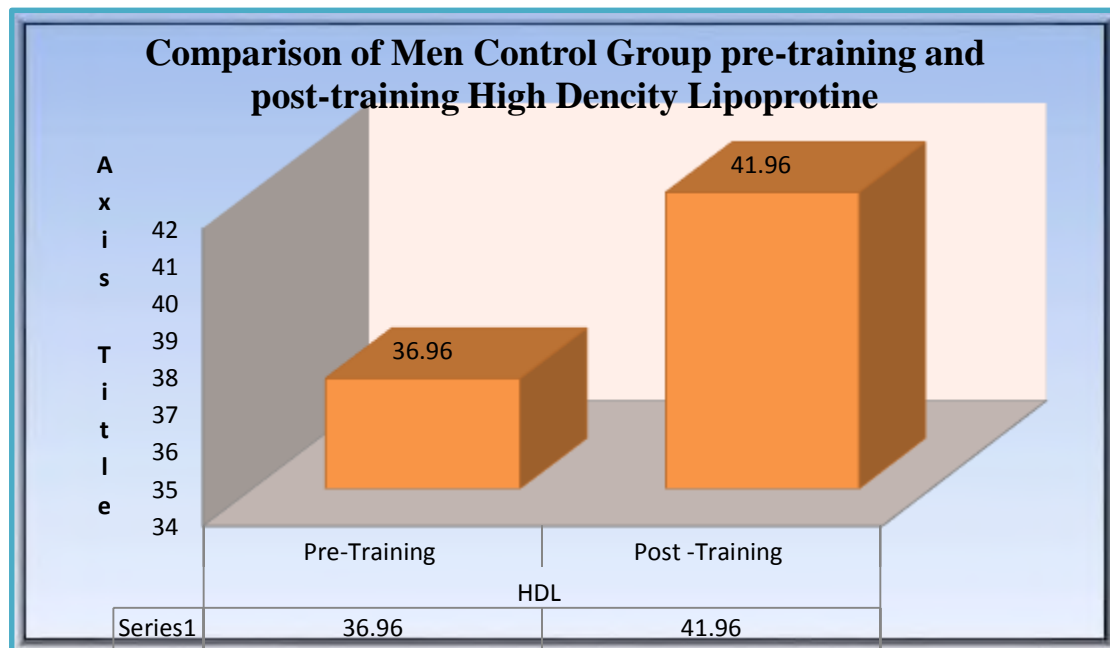
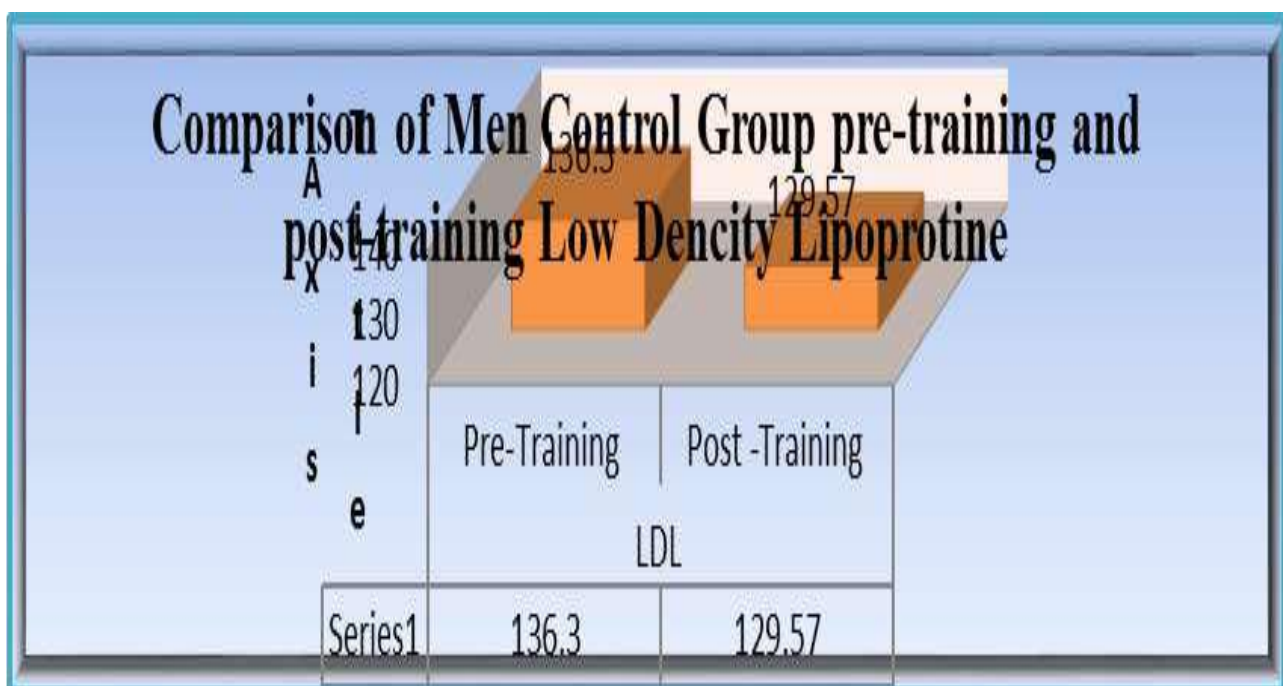


Table2: Comparison of Men Experimental Group pre-training and post-training Low-Density LipidLipoproteins

Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
LDL (mg/dl)	Pre-Training	25	136.30	35.3	6.728	0.699	9.6116 *	2.0106
	Post -Training	25	129.57	34.12				

Significant at 0.05 level of confidence

An examination of the table-2, revealed that the mean of LDL in pre-training is 136.30 and SD 35.3 and in post-training mean is found 129.57 and SD 34.12 similarly an examination of the same table revealed that there is a significance difference in the mean for LDL of Pre-training and Post-training as the obtained 't' ratio value 9.6116 is more than the required 't' ratio value 2.01 is less than the required' ratio value 2.0639 at 0.05 level of confidence.

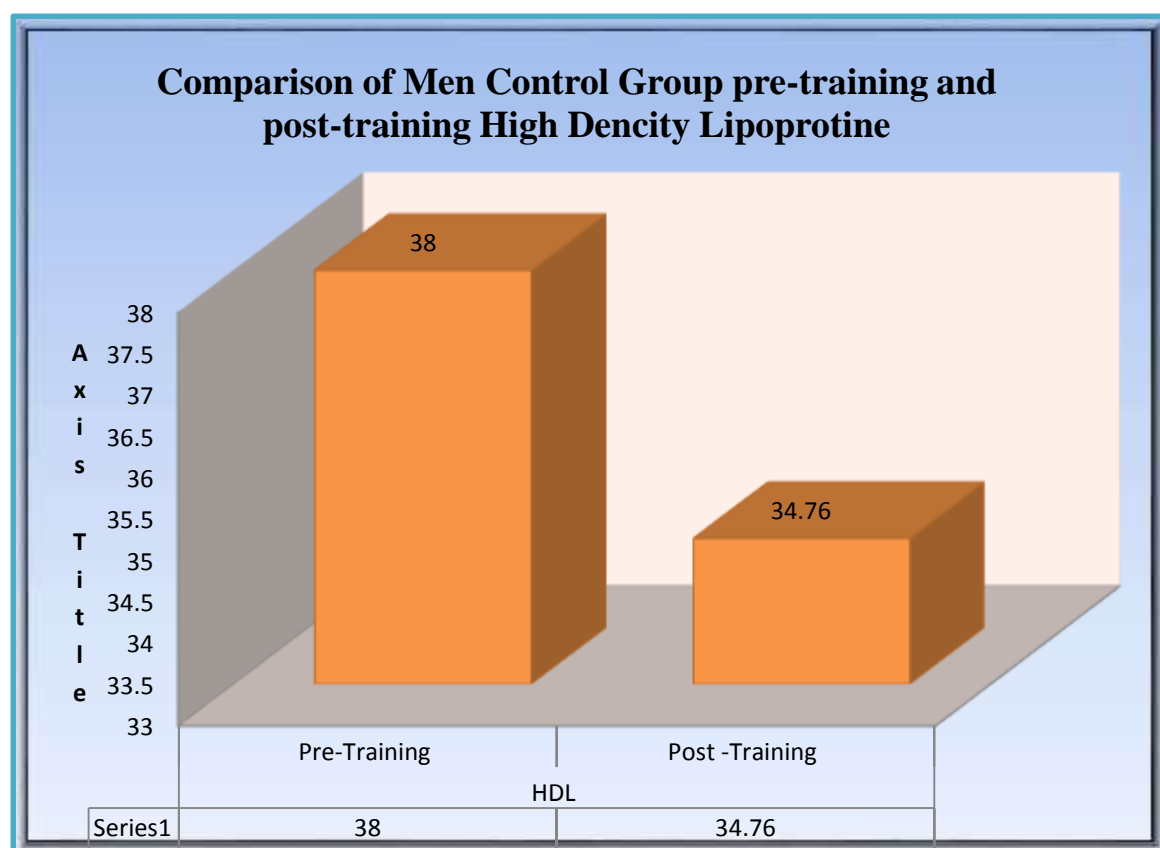


Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
HDL (mg/dl)	Pre-Training	25	38	4.5	5	1.25	2.5796*	2.0106
	Post - Training	25	34.76	4.38				

Table-3 : Comparison of Men Control Group pre-training and post-training High Density Lipid Lipoproteins

Significant at 0.05 level of confidence

The mean of HDL in pre-training is 38 and SD 4.5 and in post-training mean is found 34.76 and SD 4.38 similarly an examination of the same table revealed that there is significant difference in the mean for HDL of Pre-training and Post- training as the obtained 't' ratio value 2.57 is more than the required 't' ratio value 2.0106 at 0.05 level of confidence.

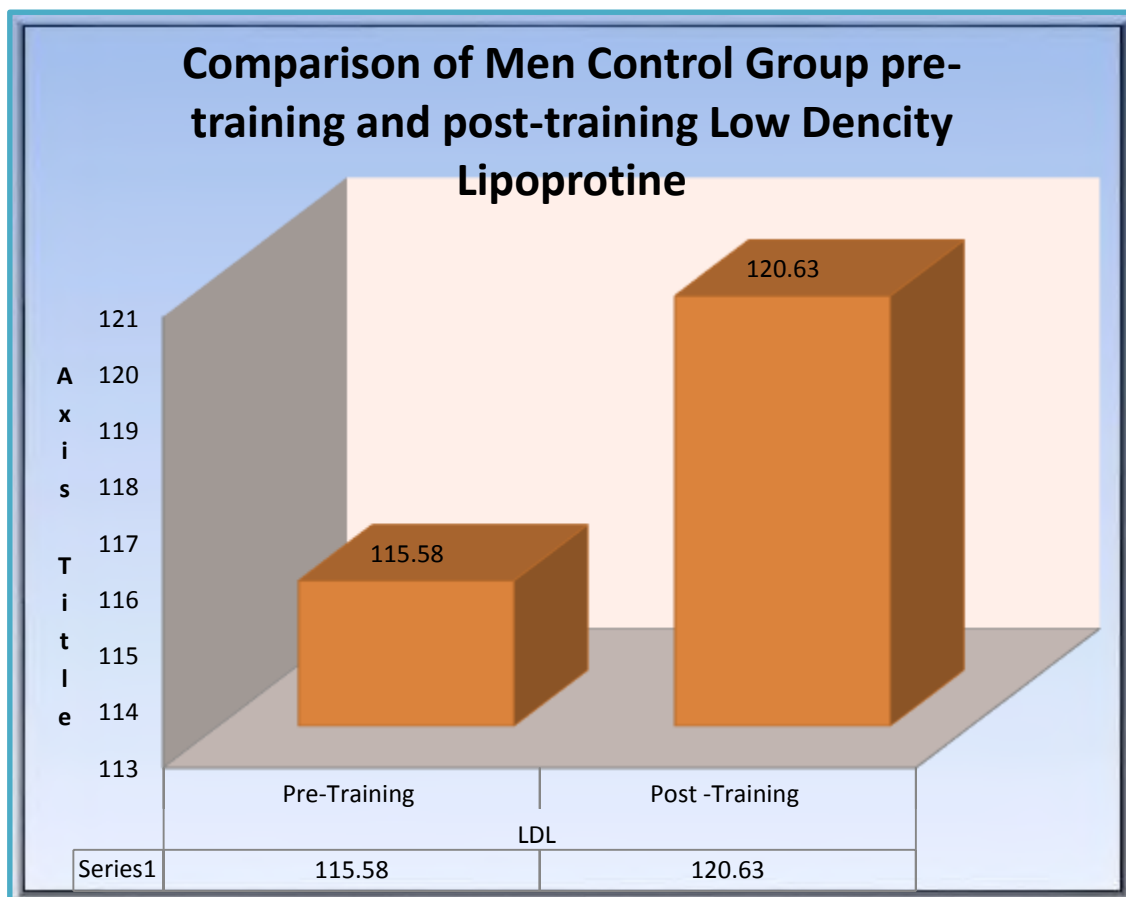


Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
LDL (mg/dl)	Pre-Training	25	115.58	69.40	-5.048	19.67	0.2566	2.0106
	Post -Training	25	120.63	69.69				

Table-4 : Comparison of Men Control Group pre-training and post-training Low Density Lipid Lipoproteins

Significant at 0.05 level of confidence

The mean of LDL in pre-training is 115.58 and SD 69.40 and in post-training mean is found 120.63 and SD 69.69 similarly an examination of the same table revealed that there is no significant difference in the mean for LDL of Pre-training and Post-training as the obtained 't' ratio value 0.2566 is less than the required 't' ratio value 2.0106 at 0.05 level of confidence.



Results Findings of HDL result: - This good cholesterol carries LDL back to the liver, where it is converted to single lipoprotein and helps to prevent cholesterol buildup in blood vessels. Low HDL level increases heart disease risk. The result surprisingly indicated that the sedentary person having (34.76) low HDL than the physically active person (41.96). In a trained person, the result clearly indicated that there was an optimum level of HDL in the blood than the sedentary men.

Findings of LDL result: - There was a significant difference between pre and post-training. The Experimental Groups LDL level is decreased because they are physically more active and their endocrine secretion is more suitable. As the sedentary person is physically less active their secretion of the endocrine gland is less, automatically the chances are more for the cholesterol to get deposited in blood and arteries and leads of block the blood vessels.

Findings of the research: -

Findings indicated that heart-related problems can be higher in the sedentary people than the trained personnel and the reasons are listed below. Within the limitation of the study the following conclusion was drawn

- Result shows that there was a significant reduction in LDL due to training.
- Study indicates the duration of training and changes in HDL levels are directly proportional.
- Study indicates the HDL level and LDL level are indirectly proportional.

Conclusions: - It was concluded that the exercise can improve HDL level and at the same time the LDL level will decrease significantly. If the sedentary person follows the exercise training will improve the good and reduce bad cholesterol.

- Regular brisk walking can help maintain your cholesterol levels
- Change of lifestyle also can help in improving your HDL cholesterol levels

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EFFECTS OF EXERCISE ON ANDROPAUSE: A FOCUSED REVIEW

¹Ms. Puneet Bhattacharya, ²Dr. Sridip Chatterjee

^{1,2}Assistant Professor

Department of Physical Education, Jadavpur University, Kolkata 700032, West Bengal, India

Email - ¹Puneet.kochar54@gmail.com ²sridipchatterjee.ped@jadavpuruniversity.in

Abstract:

Introduction: Andropause is a natural biological process mainly associated with decrease in the male anabolic-androgenic hormone testosterone. It is a physiological condition with several complex symptoms and hormonal changes along the various axis in the aging male population. Exercise is an effective intervention to delay this process and provide a smooth passage through this phase of life. **Purpose of the study:** The main purpose of this review article is to discover the role of exercise and its significant impact on andropause in aging male populations. **Methodology:** Several related literature were gathered, selected and matched from various depositories and search engines based on the Preferred Reporting Items for Systematic Reviews and Meta- Analysis (PRISMA) suitability criteria. Studies that matched and satisfied the objective of the study were considered and presented systematically. **Results:** Andropause or late-onset hypogonadism comes with several negative changes in the body, which can be coped up or delayed with regular exercise of various types. Regular aerobic exercise training methods have shown to yield best results in improving the secretions of testosterone hormone which directly improves the andropausal symptomatology of aging men. **Conclusion:** Renewal of an active exercise programme has shown to bring positive effects in men undergoing andropause in their natural epoch. Transformation to an energetic lifestyle improves the general well-being as well. However, investigation in this area on the type of protocols, intensities of exercise may be an avenue of further research.

Key Words: natural, aging, testosterone, exercise, late onset hypogonadism, well-being

1. INTRODUCTION:

The phenomenon of aging is associated with health challenges, more pronounced in women as menopause and a slow latent spell in men as Andropause. Hormonal and physical imbalance cause muscle loss, sleep disorder, fatigue, osteoporosis to high risk of metabolic syndrome, obesity and cardiovascular diseases.^{[1][2]} Testosterone replacement and drug therapy are options, ^[3] but considered contentious due to their side effects and feasibility. ^[4] Several studies demonstrate rise in anabolic hormones with regular exercise as a probable relief. ^[5] This article highlights the physiological changes in the aging male body in response to exercise, to delay andropause.

1.1. Purpose of the review

The major objective of this focused review is to portray the potential effects of physical exercise on andropause in aging men.

2. METHOD:

2.1. Acquisition of Evidence:

A wide ranged evidence-based search was performed in electronic data base search engines; PubMed, Scopus, Web of Science and Google Scholar. The Preferred reporting items for systematic reviews and meta-analysis guideline was adhered to for the review process of selecting relevant studies.^[6] The key words searched for were “ andropause” and “exercise”, “testosterone” and “training” or “exercise”, and individual types of training methods were written in combination with andropause and testosterone. The inclusion criteria to be met with comprised of the following: All full paper experimental studies, literature in the English language, studies till march 2020 and only those papers where exercise was the only intervention were taken into account. Result

compilation was based on a close relationship among the hypothalamic-pituitary-gonadal axis, aging and exercise in men. [Figure 1]

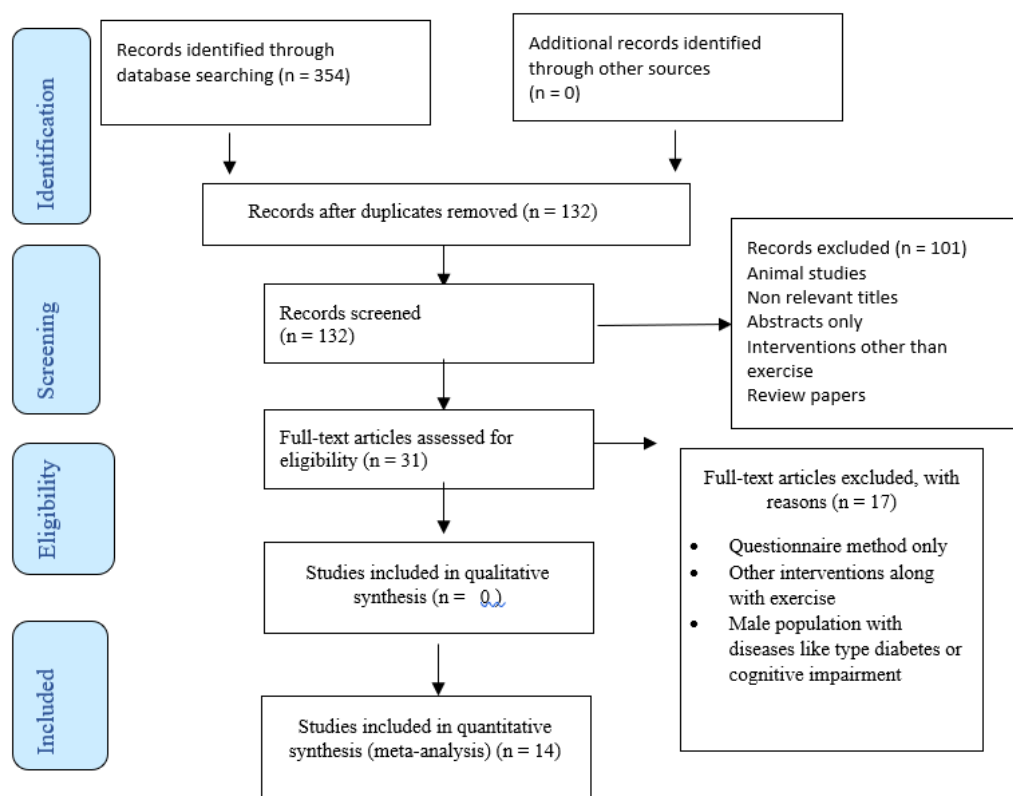


Figure 1: The Preferred Reporting Items for Systematic Reviews and Meta-Analysis Guideline applied to this study

3. MECHANISM AND FINDINGS:

3.1. Reduction in Testosterone with Age:

The entire andropausal process follows the hypothalamic -pituitary – gonadal axis. There is a decrease in testosterone levels due to impaired hypothalamic secretion of (GnRH) which results in diminished stimulation of luteinizing hormone (LH) secretion from the pituitary gland.

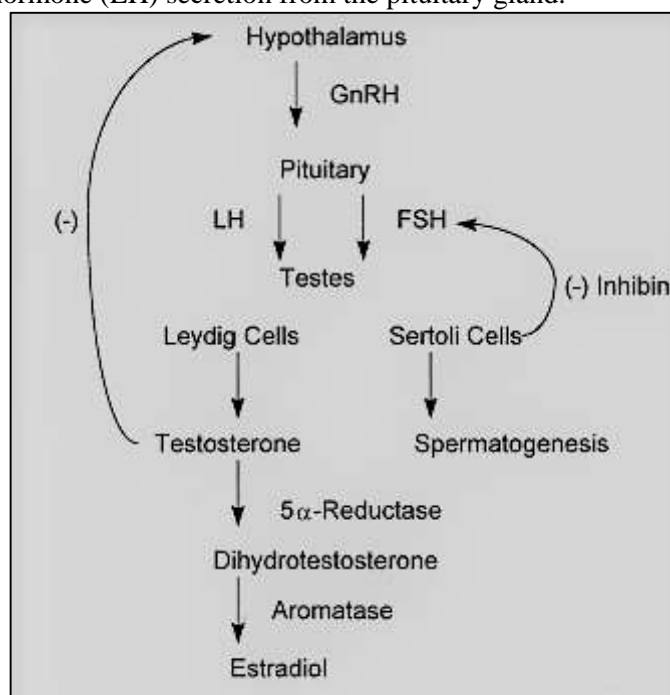


Figure 2: Hypothalamic-Pituitary-Gonadal-Axis^[7]

There is a reduction in the number of Leydig cells which produce testosterone and a decline in the functioning of the seminiferous tubules. All these result impaired spermatogenesis and reduction in the quality of the sperm. [1] These structural and functional changes result in the late late-onset hypogonadism. The hypothalamic-pituitary -gonadal axis is the backbone for the male reproductive functions, [Figure 2] shows clearly the mechanism of action following which two percent of free testosterone is normally produced while the remaining is bound to sex hormone binding globulin (SHBG) some fragmented percentages are also affined to albumin and cortisol binding globulin. [8] With age there is a reduction of 1% free testosterone levels every year the major reason being alteration in the sex hormone binding globulin (SBGH). [9] The rate of reduction in the levels varies in different individuals depending on their physical and metabolic conditions like obesity, insulin resistance levels, stress and medication they consume. [10] However, this fall in levels can be checked and slowed down by embracing healthy lifestyle which is active and creates enriched environment. [11]

3.2. Physiology underlying the relation between Andropause and Exercise:

Andropause is accompanied with multifaceted changes in quality of life and declining physiological functions of the body. These fluctuating changes are associated with fall in serum testosterone levels as seen in the figure below. The negative impact on the physical aspects of the body include sarcopenia, reduced muscle strength and bone mineral density, fall in lean body mass, reduced aerobic capacity, increased visceral fat and obesity. These lead to risk of insulin resistance, type two diabetes, osteoporosis, hypertension and cardiovascular diseases. [12] There is a fall in the sexual drive, decreased libido along with hormonal changes which are the first to occur during this phase as the body transits into andropause and anabolic resistance. testosterone gets converted to estrogen and a cascade of cyclic reactions including insulin resistance, cortisol spurt ups occur leading to a complete hormonal imbalance. [1], [7] These directly take a toll on the psychological set up of the mind and symptoms like mood swings, cognitive decline which include irritability, memory problems and depressions get seemingly visible. [9] [13] These changes can be countered with regular aerobic and resistance exercise. [14] Regular physical exercise can lead to improved levels of testosterone; improved insulin levels and the glucose burn down to produce energy paired with fall in cortisol secretions. These positive effects could improve the physical well-being and energize the mind to function normally. [15] [Figure 3]

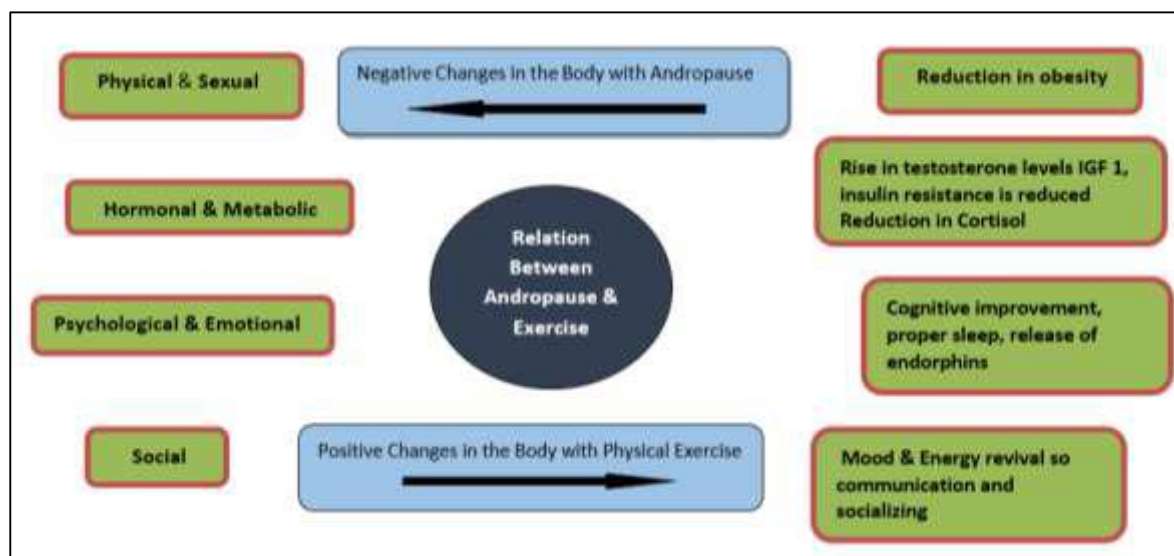


Figure 3: Relation between Andropause and Exercise

3.3. Effects of exercise on Andropause:

There are numerous studies which show that physical exercise in various forms like aerobic exercise [16] [17], concurrent training [18] or HIIT training [13] and resistance training [19][20], can result in improvement of testosterone levels and other related hormones. This non pharmacological intervention also helps in the reduction of some of other risk causal symptoms of andropause like obesity, body mass index, insulin resistance [21] bone mineral density [22] and several other orchestras of hormones [5] involving a complete improvement in the well-being of such populations. Present below is the tabulation of the various studies which show such improvements in andropausal symptomatology with different exercise adjuncts. [Table 1]

Table 1 Summary of Studies showing the Effects of Exercise of Andropausal Symptomatology

Sl NO	Reference	Method	Findings	Conclusion
1	Hawkins VN, Foster - Schubert K, Chubak J, Sorenson B, Ulrich CM, Stanczyk FZ et al. 2008. [23]	Subjects: One hundred and two sedentary male (40 to 75years) Intervention: 12 months exercise protocol moderate to vigorous exercise one hour a day six days a week Measurements: Free testosterone, dihydrotestosterone (DHT), 3 alpha-androstane diol glucuronide (3alpha-diol-G), oestradiol, free oestradiol and sex hormone binding globulin(SHBG) measured at baseline, 3months and 12months	Significant increases in DHT and SHBG, with greater increase in VO2Max at 3months and 12months in the exercise group. No statistically significant differences for testosterone, free testosterone, 3 alpha-diol-G, Oestradiol or free oestradiol in exercise group.	A twelve-month moderate intensity aerobic exercise programme increased the DHT and SHBG, but had no significant effects on the other androgen variables.
2	Kumagi H, Yoshikawa T, Zempo-Miyaki A, Myoenzono K, Tsujimoto T, Tanaka K et al. 2018. [24]	Subjects: Sixteen normal weight men(48.8±2.6years), Twenty-eight overweight or obese men. (50.0±1.2 years) Intervention: Twelve-week aerobic exercise (light, moderate or vigorous) Measurement: Before and After intervention, serum testosterone (total), free testosterone and bioavailable testosterone levels	Serum total testosterone, free testosterone, and bioavailable testosterone levels increased significantly in overweight/ obese men. Multivariable linear regression showed that vigorous physical activity was independently associated with increased serum total testosterone.	Vigorous physical exercise intervention increased the circulating testosterone levels in overweight/ obese men.
3	Vieira MCS, Leitao AE, Vieira G, Moratelli J, Boing L, Seemann T et al. 2018. [18]	Subjects: Experimental Group and Control group Intervention: Six months randomised control trial, with four evaluations: * Pre-Intervention *In the first month of intervention *In the third month of intervention * Post intervention. Concurrent training three times a week sixty minutes session. Measurements: Physical, Psychological, Sexual and hormonal aspects	Two-way ANOVA revealed and comparison tests revealed concurrent training gave positive significant results.	Concurrent training programme was capable in recovering the physical, hormonal, sexual and psychological aspects of the male population with ADAM.
4	Ahtiainen P, Nyman K, Huhtaniemi I, Parviainen T, Helste M, Rannikko A et al. 2015. [25]	Subjects: Five Young men (28±3years) and Eight older men (70±2years) Intervention: Heavy resistance exercise 95x10RM leg press) before and after twelve months of resistance training (RT).	The study showed that RT has acute effects on Testosterone production and clearance rates. The T production capacity response was lower in older men in comparison to younger.	RT did not show any changes in T metabolism which prove the homeostatic stability of the hormone at different ages. But there was a rise in T production capacity according to age groups.
5	Rudman D, Drinka PJ, Wilsont CR, Mattson DE, Scherman F,	Subjects: Forty-nine independent community dwelling old men and Forty-nine institutionalized men. Avg age: 58-95years Measurements: Serum IGF-1 and	BMD and TBBMC values of the free-living men to be 4-20% higher than the institutionalised men. This correlated with	Low levels of testosterone are associated with demineralisation of the skeletal system

	Cuisinier MC. 1994. [22]	serum testosterone, Lean body mass (LBM), Total body bone mineral content (TBBMC), Bone mineral density (BMD). Interventions: Habitual activity in independent men and mobility activity in institutionalised men.	higher testosterone values in independent men, while immobility in the institutionalised men showed lower testosterone, body composition and BMD.	which could be seen in the immobile and underweight residents of the institutionalised men.
6	Hayes LD, Herbert P, Sculthorpe NF, Grace FM. 2017. [14]	Subjects: Twenty healthy sedentary males (...) Intervention: Three phase testing in a total duration of six weeks A: Baseline B: Post Conditioning Exercise (Consisted 150 mins per week moderate aerobic exercise under ACSM guidelines for older adults C: Post HIIT Exercise (Same duration and guidelines as phase B) Method: Blood sample of serum testosterone, sex hormone binding globulin (SHBG) and cortisol drawn 7am to 9am, 48-72 hours following the last exercise session.	Significant increase in testosterone and SHBG following the intervention. Preconditioning exercise and HIIT increase T by 17% Despite a reduction according to the researcher in the 150min/week to 3-6mins/week during the final phase of training.	HIIT exercise may be a time efficient non pharmacological strategy in older males to maintain or increase the testosterone levels.
7	Kumagi H, Zempo-Miyaki A, Yoshikawa T, Tsujimoto T, Tanaka K, Maeda S. 2016. [26]	Subjects: Forty-One overweight obese men. (Avg age: 49+ years) Intervention: Twelve-week lifestyle modification programme with aerobic exercise and some dietary modification Method: Before and after the programme serum testosterone measured related to energy intake. Study 1: Physical Activity group based on the no. of steps taken: LPA: Low physical activity group & HPA: High physical activity group Study2: Change in total energy intake made into: LCR: Low calorie restriction group HCR: high calorie restriction group Measurements: After a fasting morning & twenty-minute complete rest serum testosterone, HDL, LDL, triglycerides and insulin were measured.	The results indicated that the High Physical Activity group showed significant rise in the serum testosterone levels than in the low activity group. The effect between groups based on calorie restriction was not observed.	Significant positive correlation between changes in serum testosterone levels and the number of steps taken. Increase in physical activity greatly affected the serum testosterone levels positively among obese overweight men during life style modification.
8	Hayes LD, Grace FM, Sculthorpe N, Herbert P, Ratcliffe JWT, Kilduff LP	Subjects: Twenty – Eight previously sedentary males (62.5 \pm 5.3 years) Intervention: Aerobic exercise under ACSM guidelines for six weeks These results suggest that despite	The research showed salivary testosterone, VO2Max (Absolute and relative) increased while the body fat % and body mass decreased. Peak power output, fat	Despite previous inactivity older males achieve improvements in salivary testosterone, cardiorespiratory fitness, body

	et al. 2013. [27]	previous inactivity, older males can achieve improvements in cardiorespiratory fitness, body composition and anabolism by adhering to simple lifestyle changes.	free mass and cortisol values were not significantly different.	composition and anabolism with simple life style changes.
9	Lovell DI, Cuneo R, Wallace J, Mc Lellan C. 2012 [17]	Subjects: Thirty-two older men (70-80 years). Intervention: Bout of sub maximum aerobic exercise before and after sixteen weeks of resistance and aerobic training and again four weeks after detraining. Measurements: Growth Hormone (GH), Insulin like growth factor 1 (IGF-1), Testosterone(test), sex hormone binding globulin (SHBG) and calculation of free testosterone (FT)	Both the training groups showed significant increase in Test and FT immediately Post sub maximum exercise within all the groups after sixteen weeks of training. The increased responsiveness of Test and FT after sixteen weeks of resistance training was lost after four weeks of detraining.	Sub maximum training gave positive increment in Test and FT.
10	Sato K, Iemitsu M, Matsutani K, Kurihara T, Hamaoka T, Fujita S. 2014. [28]	Subjects: Six young men (24.3 ± 1.3 years) and thirteen older men (67.2±1.8years) Intervention: Muscle biopsies on vastus lateralis at basal state. Knee extension and flexion exercises for twelve weeks Post training biopsies four to five days after the last training session.	Muscle sex steroid level sex steroidogenesis related enzyme expressions were significantly restored in older populations post resistance training.	Testosterone, 5α- dihydrotestosterone and dehydro-epiandrosterone decline with aging but resistance exercise has shown to increase the plasma sex steroid hormone levels.
11	Kraemer WJ, Hakkinen K, Newton RU, Nindl BC, Volek JS, Mc Cormick M et al. 1999.[29]	Subjects: Two groups of men (30years and 62years) Intervention: Ten-week strength – power training programme. Method: Blood samples were measured immediately after and five, fifteen and thirty minutes after exercise at rest, before and after training and at rest at three, six and ten weeks for analysis of testosterone, free testosterone, cortisol, growth hormone, lactate and ACTH analysis.	The results of the older group demonstrated significant increase in total testosterone in response to exercise and decrease in cortisol	The researcher concludes that older men do show positive response to an early phase of resistance training.
12	Izquierdo M, Hakkinen K, Ibanez J, Anton A, Garrues M, Ruesta M. 2003. [30]	Subjects: Eleven middle aged (46±2years) and eleven older men (64±2years) Intervention: Sixteen weeks strength training on maximal strength and power. Method: Serum concentrations of testosterone, Free testosterone, and cortisol were measured.	Results showed no significant changes in testosterone and free testosterone concentrations. However, serum FT concentrations tend to decrease in the older group and increase in the middle-aged group.	Significant correlations between mean level of individual serum T and FT concentrations. Prolonged training programme would give better gains because the groups contain neuromuscular &

				age-related impairments so progress is slow.
13	Villareal A, Aguirre LE, Qualls C, Villareal DT. 2016. [31]	Subjects: Forty frail elderly men (above 65 years) Intervention: Fifty-two-week treatment to 1. control group 2. Diet induced weight loss group 3. Exercise training group 4. Diet induced weight loss and training group Method: Aerobic lifestyle change physical performance testing to measure physical function, Oestradiol, sex hormone binding globulin and testosterone were measured.	Results showed a significant decrease in total oestradiol compared to baseline among all the groups. Free testosterone also increased in all the groups but the increase was not significant.	Life style intervention in frail obese men showed that the total testosterone and free testosterone levels do increase in such men, however the increase was not significant.
14	Hayes LD, Sculphorpe N, Herbet P, Baker JS, Spagna R, Grace FM. 2015 [32]	Subjects: Twenty-eight lifelong sedentary men (SED) age (62.5 \pm 5.3 years), Twenty lifelong exercisers (LE) age (60.4 \pm 4.7 years). Intervention: six weeks supervised exercise Method: Pre and post intervention blood samples	No significant change in the LE group but the SED group significant rise in total testosterone and concurrent increase in sex hormone binding globulin	Cardiorespiratory parameters improved along with testosterone.

4. DISCUSSION:

This low testosterone syndrome as discussed earlier comes with several other negative attributable changes in the human aging male. Through this collection of studies, we can clearly accomplish that exercise in its various forms provides significant rise in the testosterone levels along with other associated androgenic hormones. A rise in free testosterone and testosterone production elevation was seen thirteen selected studies, [14][17][18][22][23][24][25][26][27][28][29][30][31] the exception being one study where life long exercisers showed no change while sedentary group which was made to undergo exercise showed a significant rise in male sex hormones. [32] All types of training exercise did show improvement in testosterone levels, however high intensity activity when performed for prolonged period of time as long as fifty two weeks seen in two studies showed promising results which clearly indicate that male sex hormones can be positively instigated through regular exercise. [25][31] These positive changes can be seen in sedentary elderly communities which is remarkable. Another aspect which can be pointed out from the outcomes of the collected studies that aerobic exercise interventions and HIIT training fetched most positive results in terms of rise in the male hormonal secretions. However, all exercises and training methods must follow a dose response relationship to avoid injury and chronic over use. [33]

5. CONCLUSION:

Most exercise protocols have shown positive results in increase of testosterone and may be considered constructive adjuncts. Thus, we can conclude that exercise in various forms if performed regularly may reduce the severity of the various andropausal symptoms and provide a positive and healthy aging phase in life.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

**THE INVESTIGATION OF MOTIVATION FOR PARTICIPATION
IN TUG OF WAR AND UNDERARM BOWLING CRICKET**

¹Miss.ShambhaviGunaga, ²Mr.Madhu G R

Assistant Professor,

Alva's college of Physical education, Moodbidri, Karnataka, 574227

Abstract:

This study was attempted to investigate the motivation for participation in Tug of war and underarm bowling cricket in Dakshina Kannada district. To achieve the necessary data 74 male subjects of which 37 from Tug of War and 37 from Underarm bowling cricket were selected. The selected subjects were from Dakshina Kannada district, during the year 2018-19. The subject's age ranged between 18 to 25 years. To assess the Data on motivation for participation in tug of war and underarm bowling cricket was collected through The 24-item "Sport Motivation Scale", The answers were scored on a 7 point Likert scale and ranged from 1 (does not correspond at all) and 7 (corresponds exactly). There are total six sub scales in the questionnaire: A motivation, External regulation, Interjected regulation, Identified regulation, integrated regulation and intrinsic motivation. All the statistical calculation was carried out with the help of SPSS Windows package. The result shown by suitable graphs and tables.

Key Words: motivation, Dakshina Kannada, Tug of war, underarm bowling cricket etc...

1. INTRODUCTION:

Tug of war:

The sport of tug of war has a long regional, dating back to approximately 2000 BC. The term originates from the German *toggawerra* which denotes a contest in tugging or pulling. In some countries, tug of war was included in ceremonial rituals for example, in Korea a tug of war competition was organised in advance of harvest time. In later times, tug of war became a competition of physical strength and it was included in the Olympic Games until 1920 (<http://www.stowa.pwp.blueyonder.co.uk>). More recently, the sport has become organised on a worldwide basis. The Tug of War International Federation (TWIF) was formed in 1960 and has 25 member nations. Regional and World Championships are staged on a yearly basis. Tug of war involves two teams of eight, pulling against one another on a rope of not less than 33.5 m. The object is to pull the opposing team towards a centre line for a distance of 4 m. Two types of competition are used: knockout and points. Teams are categorised by weight, varying from lightweight (not exceeding 560kg) to catch weight (not exceeding 720 kg). Typically, matches are decided over a best of three pulls. The duration of each pull varies, with a mean time of two minutes 30 seconds, but pulls lasting as long as 45±46 minutes have been recorded (Ireland v England, World Championships, Malmo, Sweden, 1988). Rest periods of up to six minutes are permitted between pulls.

Cricket:

Cricket is basically a bat and ball game played between two teams of eleven players. It is one of the oldest sports in the world and has its origin in 16th century in England. The expansion of the British Empire spread this once colonial recreational sport into a spirited game to all corners. Early cricket was at some time or another described as "a club striking a ball (like) the ancient games of club-ball, stool-ball, trap-ball, stob-ball" Cricket can definitely be traced back to Tudor times in early 16th-century England. A number of other words have been suggested as sources for the term "cricket". The first English touring team on board ship at Liverpool in 1859. During the 17th century, numerous references indicate the growth of cricket in the south-east of England. By the end of the century, it had become an organized activity being played for high stakes and it is believed that the first professionals appeared in the years following the restoration in 1660. In the beginning all bowling was underarm, but there were always tensions. As time passed bowlers increasingly wanted to raise the level of their arms and eventually, in 1827, something else that is never seen today, round arm bowling, became

legal. At a stroke the majority of bowlers switched their style. There remained just one great exponent of underarm to come. In 1864, the law changed again and the over arm bowling that we know today was legalised. This had much the same effect on round arm as that style had on underarm back in 1827. By now the underarm, or “lob” bowler had become a curiosity. Not quite extinct, but distinctly uncommon.

Motivation level of the game:

Motivation refers to “the reasons underlying behavior” (Guay *et al.*, 2010). Paraphrasing Gredler, Broussard and Garrison (2004) broadly define motivation as “the attribute that moves us to do or not to do something”. Intrinsic motivation is motivation that is animated by personal enjoyment, interest, or pleasure. As Deci *et al.* (1999) observe, “Intrinsic motivation energizes and sustains activities through the spontaneous satisfactions inherent in effective volitional action. It is manifest in behaviours such as play, exploration, and challenge seeking that people often do for external rewards”.

2. METHODOLOGY:

2.1. Selection of the subjects:

To achieve the necessary data 74 male subjects of which 37 from Tug of War and 37 from Underarm bowling cricket were selected. The selected subjects were from Dakshina Kannada district, during the year 2018-19. The subject’s age ranged between 18 to 25 years.

2.2. Selection of the test items:

To assess the Data on motivation for participation in tug of war and underarm bowling cricket was collected through The 24-item “Sport Motivation Scale”, The answers were scored on a 7 point Likert scale and ranged from 1 (does not correspond at all) and 7 (corresponds exactly). There are total six sub scales in the questionnaire: A motivation, External regulation, Interjected regulation, Identified regulation, integrated regulation and intrinsic motivation.

2.3. Procedure for administration the test collection of data:

The researcher along with a trained helper collected necessary data related to the present investigation in out of field area set up. Data was collected by the investigator during spare time of the subjects at their competition venue. Objectives of the tests were made clear to the subjects at the outset. The researcher oriented the subjects regarding the procedure of all the tests to be conducted. An informed written consent was received from each subject to ensure their willingness to take part in the study as subjects. Honest responses were sought from the subjects and doubts were timely clarified. Each written test tool took back with in 20 minutes each.

2.4. Statistical techniques:

The collected data were tabulated for the purpose of analysis. The t-test was used for testing the hypothesis for significance of mean and standard deviation for testing difference in the statistical formula. All the statistical calculation was carried out with the help of SPSS Windows package.

3. ANALYSIS OF DATA AND RESULTS OF THE STUDY

Table 1. Summary of ‘t’ test on differences in sports motivation between under arm cricket and tug of war.

Underarm cricket and Tug of War							
	Type of Sports	N	Mean	Std. Deviation	Std. Error Mean	T	Sig. (2-Tailed)
A motivation Scale	Underarm Cricket	37	16.4865	6.08560	1.00047	.491	.625
	Tug of War	37	15.8378	5.25734	.86430		
External Regulation Scale	Underarm Cricket	37	20.0270	3.86211	.63493	.574	.568
	Tug of War	37	19.4595	4.61034	.75794		
Interjected Regulation Scale	Underarm Cricket	37	21.5135	3.64860	.59983	1.513	.135
	Tug of War	37	19.9459	5.13672	.84447		
Identified Regulation Scale	Underarm Cricket	37	22.5405	3.61782	.59477	1.927	.058
	Tug of War	37	20.5405	5.17255	.85036		
Integrated Regulation Scale	Underarm Cricket	37	21.3784	4.00937	.65914	2.160	.034
	Tug of War	37	18.9189	5.64889	.92867		

Intrinsic Motivation Scale	Underarm Cricket	37	21.3514	4.33472	.71262	1.309	.195
	Tug of War	37	19.9730	4.71691	.77546		

From table 1. It is evident that there is significant difference in Identified Regulation and Integrated Regulation, among male participants of Dakshinakannada district participating in Underarm cricket and tug of war sports events. The information related to Identified Regulation in male sports persons belonging to Underarm cricket and tug of war sports is graphically depicted in figure 1.

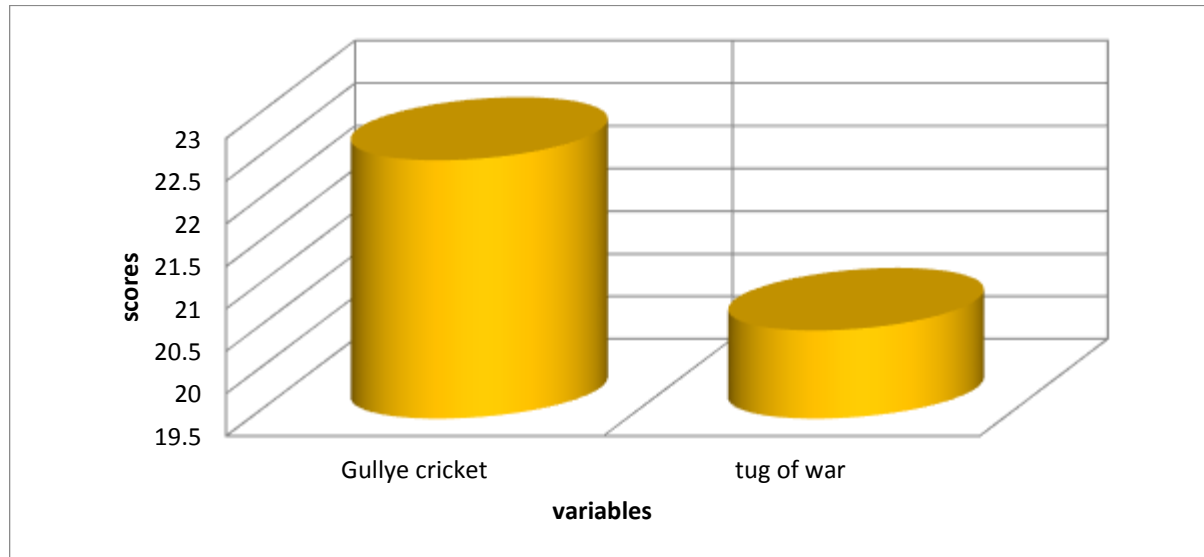


Figure 1. Graphically illustration on Identified Regulation of underarm bowling cricket and tug of war players.

From figure 1 it becomes clear that the sportspersons of Dakshinakannada district belonging to underarm cricket sports have higher identified motivation than tug of war sports events. The information related integrated regulation motivation in male sports persons belonging to underarm cricket sports and tug of war sports is graphically depicted in figure 2.

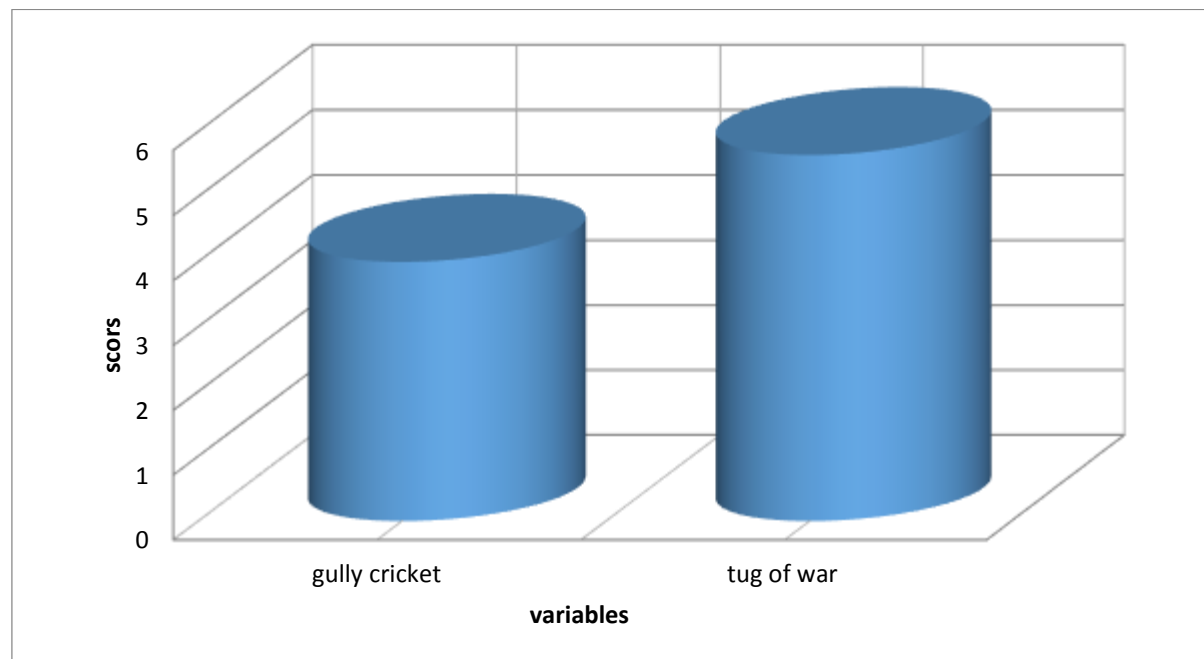


Figure 2. Graphically illustration on Integrated Regulation of underarm bowling cricket and tug of war sports person.

From figure 2 it becomes clear that the sportspersons of Dakshin Kannada district belonging to tug of war sports have higher integrated regulation than underarm cricket sports events.

4. SUMMARY CONCLUSION AND RECOMMENDATIONS:

This study attempted to evaluate the psychological background of tug of war and underarm bowling cricket participants as well as to discover the relationship between motivation and level of tug of war and cricket performance in the underarm bowling cricket format.

The conclusion was that there is significant difference in the psychological background information on sports motivation for participation of tug of war and under arm bowling cricket players competing at traditional, local and open tournaments level. Finally concluded to underarm cricket sports have higher identified motivation than tug of war sports events and Dakshina Kannada district belonging to tug of war sports have higher integrated regulation than underarm cricket sports events. Motivation of other aspects of a motivation, External Regulation, interjected regulation, intrinsic motivation to their well be no significance difference between underarm bowling cricket and tug of war sports participants.

The following recommendations arise from this investigation:

- This will be useful for the further any other traditional sports investigation.
- Extend knowledge of the role of motivation in success: successful and less successful underarm cricket participants from the same level of tug of war participation should be compared with one another.
- The effects of individualised psychological-skills training on tug of war and cricket performance should be investigated to determine their performance-enhancing effects on participants from various levels of traditional, local tournaments.
- Sports psychologists of tug of war coaches and cricket coaches ranging from amateur to professional level are advised to collate their efforts to develop and implement sports psychological skills training (PST) programmes specifically for the needs of tug of war and underarm cricket players.

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**YOGIC PRACTICES AND PHYSICAL MOVEMENTS:
DEVELOPING HEALTH AND WELLNESS**

GOWARDHAN YADORAO WANKHEDE

Asso. Professor

R S Mundle Dharampeth Art & Commerce College

North Ambazari Road Nagpur

Email - gowardhanwankhede1968@gmail.com

Abstract:

Normal exercise, yoga and physical movement advances solid muscles and bones. It improves respiratory, cardiovascular wellbeing, and generally speaking wellbeing. Remaining dynamic can likewise assist you with keeping up a solid weight, decrease your hazard for type 2 diabetes, coronary illness, and diminish your hazard for certain diseases.

Key Words: Exercise, yoga, wellbeing

1. INTRODUCTION:

Yoga is basically a profound order dependent on a very unpretentious science, which centers around bringing congruity among brain and body. It is a craftsmanship and science of sound living. The word 'Yoga' is gotten from the Sanskrit root 'Yuj', signifying 'to join' or 'to burden' or 'to join together'. According to Yogic sacred texts the act of Yoga prompts the association of individual awareness with that of the Universal Consciousness, showing an ideal concordance between the brain and body, Man and Nature. As indicated by current researchers, everything known to mankind is only a sign of a similar quantum atmosphere. One who encounters this unity of presence is supposed to be in yoga, and is named as a yogi, having achieved a condition of opportunity alluded to as mukti, nirvana or moksha. Along these lines the point of Yoga is Self-acknowledgment, to beat a wide range of sufferings prompting 'the condition of freedom' (Moksha) or 'opportunity' (Kaivalya). "Yoga" additionally alludes to an inward science containing an assortment of techniques through which individuals can understand this association and accomplish dominance over their destiny. Yoga, being generally considered as an 'eternal social result' of Indus Saraswati Valley progress – going back to 2700 B.C., has substantiated itself taking into account both material and otherworldly upliftment of humanity. Basic sympathetic qualities are the very personality of Yoga Sadhana.

1.2. The Fundamentals of Yoga Sadhana:

Yoga chips away at the degree of one's body, psyche, feeling and vitality. This has offered ascend to four wide groupings of Yoga: karma yoga, where we use the body; bhakti yoga, where we use the feelings; gyana yoga, where we use the psyche and intellect; and kriya yoga, where we use the vitality. Every arrangement of Yoga we practice would fall inside the range of at least one of these classifications. Each individual is a remarkable mix of these four variables. "All the antiquated analyses on Yoga have focused on that it is basic to work under the bearing of a Guru." The explanation being that solitary a Guru can blend the proper mix of the four principal ways, as is essential for each seeker. Yoga Education: Traditionally, Yoga Education was conferred by learned, experienced, and astute people in the families (practically identical with the instruction granted in communities in the west) and afterward by the Seers (Rishis/Munis/Acharyas) in Ashramas (contrasted and monasteries). Yoga Education, then again, targets dealing with the individual, the 'Being'. It is assumed that a decent, adjusted, coordinated, honest, spotless, straightforward individual will be progressively valuable to oneself, family, society, country, nature and mankind on the loose. Yoga instruction is 'Being focused'. Subtleties of working with 'being focused' viewpoint have been illustrated in different living customs and messages and the technique adding to this significant field is known as 'Yoga'. Distinctive social traditions and customs in India, the place that is known for Yoga, mirror an adoration for biological equalization, resistance towards different frameworks of thought and a merciful viewpoint towards all

creations. Yoga Sadhana everything being equal and hues is viewed as panacea for an important life and living. Its direction to a complete wellbeing, both individual and social, makes it a commendable practice for the individuals all things considered, races and nationalities.

1.3. Significance of Yoga in Our Daily Life

Yoga isn't a religion, it is a method of living that points towards a sound brain in a solid body. Man is a physical, mental and otherworldly being; yoga advances a fair improvement of all the three.

Yogic exercises

- Attainment of perfect equilibrium and harmony
- Promotes self- healing.
- Enhances personal power
- Yoga to live with greater awareness
- Yoga for better relationships

2. METHODS OF FITNESS:

High-intensity aerobics

High power style exercises that consolidate both oxygen consuming activity and quality preparing. These circuit exercises should be possible with or without gear.

- Target: Building quality and strong perseverance. These exercises will in general keep you on the higher finish of your pulse zones and are typically structured in stations for time, with practically zero rest in the middle.
- Goals: The high-intensity aerobics technique for practice is useful for those individuals who are searching for weight reduction, are in a period crunch, or are searching for in general broad wellness, an all out body exercise, and conditioning. Many state this is the place you get the most value for your money since you can get the outcomes you are searching for in less time.

3. Oxygen consuming Training:

This kind of preparing is by and large summed up as signifying "with oxygen" or cardio preparing.

- Target: These exercises will in general objective the cardiovascular framework, essentially the heart and lungs. Much of the time it's related with running, biking, swimming, jump rope, step class, and other cardio-based activities. This style of preparing assists with expanding your cardiovascular continuance and open the hole in your pulse zones.
- Goals: The high-impact preparing style is useful for those hoping to get more fit, for explicit preparing programs like long distance races, for competitors hoping to expand execution and perseverance just as recuperate fittingly, and for those attempting to decrease the danger of incessant ailment like corpulence, coronary illness, and diabetes.

4. Pulse Training:

This kind of preparing is explicit to every person and their own zones. You can peruse progressively here about HR preparing, however this preparation technique is centered in around zones like fat consume, cardiovascular continuance, top execution, and recuperation. Much of the time, HR preparing is seen as the inside and out best preparing strategy there is.

- Target: Heart rate preparing assists with expanding continuance and manageability in exercises by permitting you to top and recuperate in a manner that is explicit to your body. Preparing zones are recognized by doing a VO2 test.
- Goals: For anybody and everybody! Ordinarily individuals preparing for perseverance races like Spartans or long distance races, or competitors focusing on max results and recuperation, for the individual who is completely worn out after every exercise, and right to individuals who are on meds that influence their pulse.

5. Adaptability Training:

In spite of what I realize everybody is thinking, it's not simply yoga! Disregard the overall generalization of mothers strolling into the rec center with lattes, flip-flops, and their yoga tangle; this preparation style is likely the most significant, yet the most dismissed. It consolidates restorative activities, extending (both static and dynamic), and developments from head to toe.

- Target: To improve adaptability, portability, scope of movement, equalization, and better stance.

- Goals: Another strategy for preparing that is for everybody! On the off chance that you are not a yoga individual, it's an ideal opportunity to begin! Yoga people, artists, sprinters, nitwits: this is for you, as well! Adaptability preparing is for everyone who needs to improve their preparation in any capacity.

6. Quality Training:

Quality preparing commonly is finished with substantial weight however should be possible with lighter ones too. This style of preparing is legitimately connected with Newton's law: mass x quickening = power.

- Target: To expand muscle quality.
- Goals: Perfect for those hoping to put on mass; can be useful for the individuals who don't have a lot of time to prepare; additionally great on the off chance that you want to move substantial things.

7. CONCLUSION:

The specialty of rehearsing yoga helps in controlling a person's psyche, body and soul. It unites physical and mental controls to accomplish a serene body and psyche; it oversees pressure and nervousness and keeps you unwinding. It additionally helps in expanding adaptability, muscle quality and body tone. It improves breath, vitality and imperativeness. Rehearsing yoga may appear simply extending, yet it can do significantly more for your body from the manner in which you feel, look and move. Yoga asanas assemble quality, adaptability and certainty. Customary act of yoga can help get in shape, calm pressure, improve insusceptibility and keep up a more beneficial way of life.

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**EFFECT OF PLYOMETRIC TRAINING AND CIRCUIT TRAINING
ON MOTOR ABILITY COMPONENTS AMONG COLLEGE LEVEL
WOMEN BASKETBALL PLAYERS**

¹Mr. Vaka. Ajay Krishna, ²Dr. N. Vijay Mohan

¹Research Scholar, ²Professor & Director of

^{1,2}Physical Education, Department of Physical Education, Andhra University, Visakhapatnam.

Abstract:

The purpose of the study was to find out the effect of plyometric training and circuit training on motor ability components among college level women Basketball players. To achieve this purpose 45 college students were selected randomly as subjects from Andhra University, Visakhapatnam. Plyometric training and circuit training was given to the experimental group for a period of 6 weeks for 3 days in a week. After 6 weeks of training the post-test was taken from the subjects of three groups. Wherever significant differences is found scheffe's post hoc test was used. The result of the study reveals that the plyometric training showed greater improvement on explosive power than the circuit training. On muscular strength further the circuit training showed greater improvement on muscular strength than the plyometric training.

Key Words: *Plyometric training, circuit training, motor ability, explosive power, muscular strength.*

1. INTRODUCTION:

Sports training aims to improving the performance of sports people's weight training and plyometric training are very popular now a days and effective training methods to promote higher performance in sprinting and jumping events. Plyometric exercises are included depth jumping hopping boundary drills etc are less plyometric and medicine balls exercise are arms plyometric exercise. The exercises are used to improve speed explosive strength and their motor ability components. Sport training is the basic form of an athlete's training it is the preparation systematically organized with the help of exercises, which is face is a pedagogically organized process of controlling an athlete's development (Johnson Barry Land Jack Nelson, 1986).

1.1. Plyometric training:

Plyometric exercises are the rapid deceleration and acceleration of muscles that create a stretch shortening cycle. The exercise training the muscles, connective tissue and nervous system to effectively carry out the stretch-shortening cycle, thereby improves and athlete's performance (James et al., 1976).

1.2. Circuit training:

The method was originally introduced by Morgan and Adamson in the late 1930s at the University of Leeds, England. The intensity and vigour of circuit training are indeed challenging enjoyable to the performer. This system produced positive changes in future in motor performance. General fitness, muscular power, endurance and speed have shown decided improvement as well.

2. METHODOLOGY:

The sample for the present study consisting of 45 college women Basketball players were selected from Andhra University, Visakhapatnam. The subjects were selected using random sampling method. Their age ranged between 18 to 25 years. They were divided into three equal groups. Experimental group I underwent plyometric training group, experimental group II underwent circuit training group, and control group was not exposed to any training. The training for the period of 6 weeks 3 days per week both morning as well as evening the training programme was administered for 2 hours per session. The load was fixed based on the pilot study. The pre-test and post-test were taken before and after the training programme. Tests were conducted on

explosive power and muscular strength at the end of each session and data were recorded. Analysis of covariance was used for test of significance. Wherever significant difference found scheffe's post hoc test was used.

3. RESULT:

Table I.

Analysis of Covariance for pre and post tests on explosive power I Plyometric training group Circuit training group and control groups

Test	Control group	Plyometric training	Circuit training	Source of variance	Sum of squares	Df	Mean square	'F' ratio
Pre-test Mean	2.489	2.59	2.58	Between	0.10	2	0.048	0.86
				Within	2.35	42	0.06	
Post-test Mean	2.488	2.70	2.65	Between	0.36	2	0.18	3.44*
				Within	2.23	42	0.05	
Adjusted Post-test Mean	2.55	2.66	2.62	Between	0.09	2	0.05	83.00*
				Within	0.023	41	0.00	

*significant at 0.05 level of confidence with $df=df(2,42)=3.22$, $df(2,41)=3.23$

The result of scheffe's post-hoc test was applied to find out is presented in table II.

Table 2.

Ordered scheffe's post hoc test means and differences between the means for explosive power of three groups.

Circuit training	Plyometric training	Control group	Mean difference	CI
2.62	2.55	-	0.07	0.02*
2.62	-	2.66	0.04	0.02*
-	2.55	2.66	0.11	0.02*

*significant at 0.05 level of confidence

The result of the study shows that was significant improvement on explosive power due to plyometric and circuit training.

Table 3.

Analysis of Covariance for pre and post tests on muscular strength in Plyometric training group Circuit training group and control group.

Test	Control group	Plyometric training	Circuit training	Source of variance	Sum of squares	Df	Mean square	'F' ratio
Per-test mean	20.600	20.268	20.000	Between	2.711	2	1.356	0.11
				within	478.533	42	11.394	
Post-test mean	20.667	23.200	24.867	Between	509.467	2	12.130	5.53*
				within	134.178	42	67.089	
Adjusted Post-test mean	20.667	23.200	24.867	Between	174.145	2	87.072	129.37*
				within	27.594	41	673	

*significant at 0.05 level of confidence with $df(2,42)=3.22$, $df(2,41)=3.23$

Table III shows that the obtained 'F' ratio value of 0.11 for pre-test mean on muscular strength is not significant. It reveals that there is statistically n significant difference among experimental and control groups on muscular strength before the commencement of training.

The 'F' ratio value of 5.53 for post-test data on muscular strength is significant at 0.05 level.

The 'F' ratio value of 129.37 for adjusted post- test on muscular strength is significant at 0.05 level. It reveals that there is significant difference among the groups on muscular strength. The result of scheffe's post-hoc test was applied to find out is presented in the table IV.

Table 4

Ordered scheffe's post hoc test means and differences between the means for muscular strength of three groups.

Circuit training	Plyometric training	Control group	Mean difference	CI
24.867	23.200	-	1.667	1.185*
24.867	-	20.667	4.2	1.185*
-	23.200	20.667	2.533	1.185*

*significant at 0.05 level of confidence.

Table – IV shows that the adjusted post-test mean difference in muscular strength between circuit training and plyometric training was 1.667 which is significant at .05 level f confidence. The adjusted post-test mean difference between circuit training group and control group was 4.2 which is significant at .05 level of confidence. The adjusted post-test mean of plyometric training group and control group was 2.533 which is also significant at .05 level of confidence.

4. DISCUSSION:

The purpose of the study was to find out the effect of training and circuit training on selected motor components among college level women Basketball players. The result of the study shows that there was a significant improvement of muscular strength due to plyometric and circuit training.

5. FINDINGS & CONCLUSION:

- Bothe experimental groups have significantly increased the explosive power as compared to control group. Further, the improvement of explosive power was significantly higher due to plyometric training than circuit training.
- Both experimental groups have significantly increased the muscular strength as compared to control group. Further, the improvement of muscular strength was significantly higher due to circuit training than plyometric training.

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A COMPARISON OF ANTHROPOMETRICAL PROFILE OF NATIONAL LEVEL SENIOR WUSHU PLAYERS

¹Mr. Prakash Pagare, ²Dr. Manohar M. Mane

¹PhD. Scholar, ²Assistant Professor & Head

¹K.E.S. Shroff College of Arts & Commerce, Kandivali (w) Mumbai,

^{1,2}Department of Physical Education, University of Mumbai,

Email -¹prakash.p809@gmail.com, ²manoharamane14@yahoo.com

Abstract:

Background: The purpose of this study was to examine the Anthropometrical profile of Senior national level Wushu players to compare the Anthropometrical variables among different weight categories.

Methods: The sample was composed by 129 senior male national level Wushu players represent to state of Madhya Pradesh, Chhattisgarh, Maharashtra, Rajasthan, Gujarat, Goa, Punjab, Delhi, Jammu & Kashmir, Uttar Pradesh, Jharkhand, Bihar, Assam, Mizoram, Manipur and Meghalaya. from belonging to 10 different weight categories: (below 48, 52kg, 56kg, 60kg, 65kg, 70kg, 75kg, 80kg, 85kg, 90kg). The following Anthropometrical Variables Measurements were carried out: Body weight, Standing Height, Chest Circumference, Relaxed Upper Arm Circumference, Forearm Circumference, Thigh Circumference, Calf Circumference, Abdominal Circumference and Body Composition were assessed and compared among totally different weight categories.

Result: While comparing the selected components of Anthropometrical variables between different weight categories of national level senior Wushu players, it was observed that the national level Wushu players was founded significant difference in Bodyweight, Standing Height, Chest Circumference, Forearm Circumference, Thigh Circumference, Calf Circumference, Abdominal Circumference and Body Composition among different weight categories.

Key Words: Anthropometry, Profile, Senior National Level, Wushu

1. INTRODUCTION:

The practice of Wushu not solely develops a powerful and healthy body, however additionally a powerful mind with high ethical values, as it's applied focuses on "Wu De" or martial ethics. Now a days Wushu has developed into numerous styles of apply, every with its own focus and goals. Some practices highlight health and well-being as their primary goal, whereas others stress maintaining the normal culture and skills from that the humanities originated Wushu has developed into over simply a straightforward system of attack and defense and has become same way to cultivate the body, mind and spirit during a positive method that's helpful to all or any that practice it. Considering that Wushu training programs area unit generally supported intuition, tradition, and personal experience, as is that the case in several martial arts, research-based info concerning Anthropometrical, physical fitness, physiological, nutritious, and performance characteristics of elite athletes are needed to improve training programs. So as to achieve perfection excellence and higher work potency elite anthropometrical variables might play important role in Wushu performance, the investigator is tempted and impressed to undertake the study, A Comparison of Anthropometrical Profile of National Level Senior Wushu Players". To look at the homogeneity of various weight categories of male Wushu players in relationship with elite anthropometric variables.

Aim: The aim of the study is to assess Anthropometrical variables of male National level senior Wushu players.

1.1. Objectives:

- To conduct the Anthropometrical test and collect the Anthropometrical Variables measurements of National level Senior Wushu players.

- To compare among the different weight categories of National level senior Wushu players regard to their Anthropometrical Variables measurements.

1.2. Hypotheses of the Study:

Ho₁ There may be no significant difference among the different weight categories of national level senior wushu players in their Anthropometrical variables.

2. METHODOLOGY:

Participants: The sample was composed by 129 senior male national level wushu players represent to state of Madhya Pradesh, Chhattisgarh, Maharashtra, Rajasthan, Gujarat, Goa, Punjab, Delhi, Jammu & Kashmir, Uttar Pradesh, Jharkhand, Bihar, Assam, Mizoram, Manipur and Meghalaya. from belonging to 10 different weight categories: (below 48, 52kg, 56kg, 60kg, 65kg, 70kg, 75kg, 80kg, 85kg, 90kg). data was collected during the competition of 27th senior national Wushu championship at Assam Rifles, Shillong, Meghalaya 10th to 13th October 2018.

Measures: Anthropometric Measurements taken from every subject were as follows:

Body weight, Standing Height, Chest Circumference, Forearm Circumference, Thigh Circumference, Calf Circumference, Abdominal Circumference and Body Composition were assessed and compared among different weight categories. Measurement of body weight by measure standardized electronic weighing machine, standing height by stadiometer and body circumference by measure non stretchable measuring tape.

3. STATISTICAL ANALYSIS:

Descriptive statistics were performed for all measures of the participants. The Mean, Standard Deviation and “t” test were calculated as descriptive statistics. Technique of One-Way Analysis of Variance (ANOVA) was also used to study the significance of difference in selected Anthropometrical Variables between different weight categories. Scheffe’s Posthoc test was applied to find out Mean Differences among different weight categories. So as to check the significance, level of significance was set at 0.05.

4. RESULT, ANALYSIS OF DATA & DISCUSSION:

The descriptive analysis of different weight categories of national level Senior Wushu players concerning Anthropometric measurements as presented in table-01.

Table-1. Mean & SD of Anthropometric variables of different weight categories of national level Senior Wushu players.

	Body Weight		Standing Height		Chest Circumference		Upper Arm Relaxed Circumference		Fore Arm Circumference	
W.C	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
48 kg	47.54	.87	161.50	5.12	79.92	3.99	27.54	11.85	22.76	1.28
52 kg	50.72	1.05	166.19	5.13	80.72	3.67	26.50	9.71	24.13	5.77
56 kg	55.34	.83	167.38	7.17	82.30	4.21	26.88	6.55	23.70	1.26
60 kg	59.50	1.06	167.00	5.34	87.03	4.80	26.20	1.15	24.63	1.00
65 kg	63.25	1.35	171.78	5.79	87.28	2.90	28.12	6.26	25.03	1.27
70 kg	68.01	1.49	173.94	6.59	88.70	4.59	28.35	3.01	25.59	1.45
75 kg	73.21	1.74	169.64	12.18	86.82	18.44	29.09	1.51	26.50	2.12
80 kg	78.57	1.59	172.20	6.37	94.40	5.50	30.00	1.97	27.35	1.33
85 kg	83.42	1.29	176.50	5.55	97.63	7.06	31.26	1.28	27.69	1.22
90 kg	94.80	7.99	183.60	8.50	105.40	2.89	33.20	1.30	29.60	1.29
	Thigh Circumference		Calf Circumference		Abdominal Circumference		Body Composition			
W.C	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
48 kg	42.50	6.39	32.08	4.68	62.92	10.77	18.27	1.11		
52 kg	43.92	5.82	32.05	3.93	63.04	11.19	18.41	1.22		
56 kg	45.41	3.02	31.68	2.14	70.82	3.57	19.85	1.79		
60 kg	48.13	3.07	33.70	1.48	71.50	3.20	21.41	1.62		
65 kg	49.12	5.01	34.94	5.53	74.06	4.04	21.51	1.60		

70 kg	48.94	5.68	35.06	1.82	76.18	3.02	22.55	1.42
75 kg	53.82	3.03	36.54	4.68	83.14	3.79	25.80	3.68
80 kg	56.55	2.31	37.26	1.83	82.60	4.31	26.61	2.21
85 kg	57.87	3.76	38.37	1.41	89.12	4.58	26.83	1.38
90 kg	57.90	4.45	37.40	2.70	91.20	8.81	28.27	3.55

The analysis of variance (ANOVA) was used among different weight categories of national level senior wushu players concerning Anthropometric measurements are presented in Table-02.

Table-2. Analysis of Variance (ANOVA) of different Weight Categories of National Level Senior Wushu players regard to Anthropometric variables.

Variables	Groups	Sum of squares	df	Mean square	F	Sig.
Body Weight	Between Groups	19090.866	9	2121.207	583.471	.000
	Within Groups	432.624	119	3.635		
	Total	19523.490	128			
Standing Height	Between Groups	3001.201	9	333.467	7.202	.000
	Within Groups	5510.105	119	46.303		
	Total	8511.306	128			
Chest Circumference	Between Groups	4883.449	9	542.605	11.680	.000
	Within Groups	5528.055	119	46.454		
	Total	10411.505	128			
Fore Arm Circumference	Between Groups	348.706	9	38.745	6.072	.000
	Within Groups	759.315	119	6.381		
	Total	1108.021	128			
Thigh Circumference	Between Groups	3054.129	9	339.348	16.053	.000
	Within Groups	2515.604	119	21.140		
	Total	5569.733	128			
Calf Circumference	Between Groups	612.187	9	68.021	5.731	.000
	Within Groups	1412.405	119	11.869		
	Total	2024.593	128			
Abdominal Circumference	Between Groups	8950.795	9	994.533	24.094	.000
	Within Groups	4912.060	119	41.278		
	Total	13862.856	128			
Body Composition	Between Groups	1244.025	9	138.225	37.230	.000
	Within Groups	441.816	119	3.713		
	Total	1685.841	128			

F.0.05 (9,119) = 1.93

5. CONCLUSIONS:

While comparing the selected components of Anthropometrical variables between different weight categories of national level senior wushu players, it was observed that the national level wushu players was found significant difference in Body weight, Standing Height, Chest Circumference, Forearm Circumference, Thigh Circumference, Calf Circumference, Abdominal Circumference and Body Composition among different weight categories.

5.1. Discussion on Hypothesis: There may be no significant difference among the different weight categories of national-level Senior Wushu players in their Anthropometric measurement's variables. This hypothesis is unaccepted/ rejected because significant differences were reported in among the different weight categories of national Level Senior Wushu players in their Anthropometric measurement's variables.

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EFFECT OF GYMNASTICS EXERCISES ON REACTION ABILITY OF AUTISTIC CHILDREN

¹Mr. Parveen Kumar Sharma, ²Dr. Dalwinder Singh

¹Ph.D. Research Scholar, ²Professor,

^{1,2}Dept. of Physical Education, Panjab University, Chandigarh.

Abstract:

The objective of the study was to find out the effects of Gymnastics Exercises on Reaction Ability of Autistic Children. A sample of twenty-four (N= 24) boys age ranged between 10 to 14 years from Astha Rehabilitation Centre, Mohali, (Punjab) were purposively selected to act as participants for this experimental investigation. The chosen subjects were divided into four groups with six children in each group namely Group-A, B, C and Group D (Control Group). The daily, weekly and monthly Gymnastics exercise training schedule was prepared with the help of experts for all three experimental groups. Group-A was given gymnastics exercises training programme for six days in a week, Group-B was given this treatment (gymnastics exercises training) thrice a week and Group-C was exposed to the gymnastics exercises training programme only once in a week for sixteen weeks. Group-D as a control group did not receive any treatment except their daily routine programme of the institute. Nelson Hand Reaction Test for reaction ability, (Johnson & Nelson 1982) was conducted to evaluate the Reaction ability of the subjects. To observe the significance of the mean difference in scores of the Reaction ability of autistic subjects of each group, Analysis of Covariance (ANCOVA) was applied. Results revealed insignificant differences F-ratio [$F_{(3,19)} = 1.08, p=0.379$]. Autistic children did not show noteworthy gains in their reaction ability as a consequence of structured gymnastics exercise training programmes.

Key Words: Autistic, Reaction ability, and Gymnastics

1. INTRODUCTION:

Autism is a complex neurological, developmental disorder that is typically diagnosed in childhood and often lasts throughout a person's lifetime. It is unclear whether ASD (Autism Spectrum Disorder) is explained more by rare mutations, or by rare combinations of common genetic variants. While the causes of autism are unknown and preventative measures have yet to be discovered (Geraldine & Michael, 2009). There does exist effective behavioral therapy that can result in significant improvements for many young children with autism. Exercise is especially important for children with autism early, during their sensitive period of development when their brain and behavior have the most plasticity (Lewis, 2004) and especially gymnastic programmes provide many social benefits. Gymnastics is a great sport for kids being a basic body movement-oriented activity and thus, it has lots of benefits both physical and mental. A combination of gymnastics exercises can strengthen the child's nervous system, increase overall health and facilitate the development of body awareness and concentration (Saunders, 2011). Therefore, keeping the importance of gymnastics exercises in mind for the development of children with autism, the investigators designed this study to assess the effects of Gymnastics exercises on the reaction ability of children having autism.

2. METHODOLOGY:

Based on a purposive sampling technique, a total of twenty-four N= 24 boys of 10 to 14 years were selected from Astha Rehabilitation Centre, Mohali, (Punjab). They were divided into four groups with six children in each group namely Group-A, B, C and Group-D (Control Group). A specific daily, weekly and monthly Gymnastics exercise training schedule was prepared with the help of experts for all three experimental groups. Group-A was given gymnastics exercises training programme six days a week, Group-B was given this training programme thrice a week, and Group-C was given gymnastics exercises training programme only once a week for sixteen weeks. Group-D as a control group did not get any gymnastics exercises training programme except their daily routine programme of the institute. The reaction ability of the subjects was evaluated by

conducting the Nelson hand reaction time test (Johnson & Nelson, 1982). To observed pre and post-test mean differences the 't' test was applied. Analysis of Covariance (ANCOVA) was applied to observe the significance of the mean difference in scores of reaction ability of autistic children of each group followed by Scheffe's Post hoc test to see the degree and direction of differences in adjusted means. The level of significance was set at 0.05.

3. RESULTS:

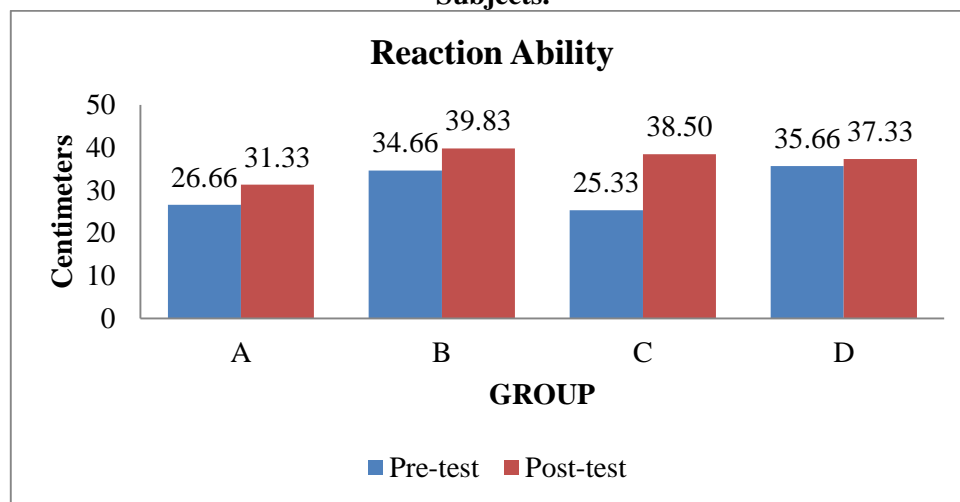
Descriptive statistics of variable reaction ability measured by Nelson hand reaction time test of three experimental and control group has been given in table-1.

Table-1: Descriptive Statistics of Reaction Ability among various Groups of Autistic Children.

GROUP	N	Pre-Test	Post-Test	't'	P Value
		Mean \pm S.D	Mean \pm S.D		
A	6	26.66 \pm 15.43	31.33 \pm 9.81	1.57	0.175
B	6	34.66 \pm 18.32	39.83 \pm 6.79	1.37	0.228
C	6	25.33 \pm 20.95	38.50 \pm 10.03	1.98	0.103
D	6	35.66 \pm 7.20	37.33 \pm 8.52	1.18	0.289

An examination of table 1 revealed that pre-testing Means \pm SDs of reaction ability (Nelson hand reaction time test) ranged from 25.33 \pm 7.20 to 35.66 \pm 20.95 in different groups of autistic children whereas post-test Means \pm SDs after experiment ranged from 31.33 \pm 6.79 to 39.83 \pm 10.03 within these investigated groups and resulted insignificant 't' values that indicated no pre and post mean differences. The graphical representation of pre and post-test means of these four groups has been depicted in figure 1.

Figure 1: Graphical representation of Pre and Post Test Mean Scores of Reaction Ability among Autistic Subjects.



To observe the significance of the mean difference in scores of Reaction Ability (Fine motor skill variable) of autistic subjects of three experimental and a control group, Analysis of Covariance (ANCOVA) was computed for the pre and post-testing means of these groups and results thereof has been given in table 2.

Table 2: Analysis of Covariance (ANCOVA) for Reaction Ability among various Groups of Autistic Children.

Protocol	Source of Variation	Sum of Squares	DF	Mean Square	F Ratio	P Value
Pre-Test	Between	512.50	3	170.83	0.64	0.597
	Within	5325.33	20	266.26		
	Total	5837.83	23	-----		
Post-Test	Between	253.50	3	84.50	1.07	0.384
	Within	1579.00	20	78.95		
	Total	1832.50	23	-----		
Adjusted Mean	Between	267.63	3	89.212	1.08	0.379
	Within	1561.53	19	82.186		
	Total	1829.16	22	-----		

It may be observed from table 2 that there was no significant difference among three experimental groups and a control group on pre-test mean scores of reaction ability measured by Nelson Hand Reaction Time Test as the obtained F-ratio of 0.64 was statistically insignificant ($p=0.597$). Similarly in post-test mean scores of reaction

ability among these four groups the obtained F-ratio of 1.07 was also insignificant ($p=0.384$). Whereas mean gains in reaction ability in the form of adjusted means also did not differ significantly among three experimental and control groups of autistic subjects as visible from insignificant ANCOVA results [$F_{(3,19)}=1.08$, $p=0.379$]. As the F-ratio in Analysis of Covariance was insignificant thus, Scheffe's Post hoc test was not carried out.

4. DISCUSSION AND FINDINGS:

Autistic children did not show noteworthy gains in their reaction ability as a consequence of structured gymnastics exercise training programmes. Similar trends reported by Pezhman (2017) indicated that a six-week gymnastics intervention, once a week for 45 minutes per session, did not lead to a significant improvement in motor skills of children ages 5-9 with autism spectrum disorders. However, Zamani et al. (2017) advocated that gymnastic exercises might have an effective role in improving the motor skills of children with autism.

5. CONCLUSION:

Autistic children of experimental Group-A, B and C had not shown beneficial gains in their reaction ability after completion of sixteen weeks training programme. As a result of specific gymnastics exercise training programme, it was concluded that there could be a need for some more specific exercises of reaction ability to get a significant improvement in autistic children.

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**RELEVANCE OF AEROBIC EXERCISES TO REDUCE THE RISK
FACTORS OF NEWLY DETECTED CORONAVIRUS DISEASE
(COVID-19) OUTBREAK**

Dr. Sinku Kumar Singh

Swami Ramanand Teerth Marathwada University, Nanded (Maharashtra)

Abstract:

COVID-19 is a newly identified fatal disease and there is limited information regarding risk factors for are available in the globe. The coronavirus pandemic is an ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS - CoV - 2). Coronavirus disease (COVID-19) is a more serious and fatal disease caused by a coronavirus discovered in the year 2019 in Wuhan. There is no specific treatment available in the world but the risk of coronavirus disease may be reduce through enhancing the physical exercise and immunity system of the body. Asthma, Diabetes, severe obesity, chronic lung disease, serious heart conditions are the common risk factors of COvid-19 and exercise is natural medicine to prevent and control the , Diabetes, Asthma , severe obesity, chronic lung disease, serious heart conditions

Key Words: *Aerobic Exercise ,relevance t , Covid-19 , Immunity*

1. INTRODUCTION:

Although regular involvement of aerobic exercise reduces the risk of life-threatening non-communicable diseases such as hypertension, stroke, heart attack and diabetes but the regular practice of aerobic exercise also helps to reduce the risk of communicable disease such as like, Ebola, swine flu and coronavirus disease-2019 through improve the immunity system. The coronavirus is an ongoing pandemic disease, 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS- CoV- 2). The virus is primarily spread between people during close contact through coughing, sneezing, or talking (Reich, 2020; Loh et. al. 2020). People may also become infected by touching a contaminated surface and then touching their eyes, nose, or mouth (Coronavirus Disease 2019 (COVID-19)—Transmission). Coronavirus disease (COVID-19) is an infectious disease caused by a newly detected coronavirus (WHO 2020). This Disease traced in Wuhan city of China, in December 2019 and declared coronavirus as a pandemic on 11 March of 2020 (Who 2020). The two most common symptoms are fever and dry cough. Less common symptoms include fatigue, respiratory sputum production (phlegm), loss of the sense of smell. Coronavirus Disease 2019 (COVID-19)—Symptoms), shortness of breath, muscle and joint pain, sore throat, headache, chills, vomiting, hemoptysis, and diarrhoea (Hopkins 2020). “Corona”, in Latin, means crown. The virus is adorned with an outer layer of protein covered in spikes, like a crown. These spikes help the virus attach itself to target cells (Stamataki, 2020). At this time, there are no specific vaccines or treatments for COVID-19 but healthy life style through exercise is usually able to eliminate infection in a couple of weeks. Aerobic exercise also helps to increase endorphins, decrease cortisol levels, and fosters positive states of mind to promote better health enhancing functioning of human psychological and physiological system.

2. AEROBIC EXERCISE, IMMUNE SYSTEM AND COVID-19:

The Coronavirus Disease -2019 (Covid-19) has attract the world's towards in importance of immune system due to *no specific treatment or vaccine available in the world*, the body's defence force against disease-causing bacteria, viruses and other organisms that we touch, ingest and inhale every day (Stamataki, 2020). The **immune system** is a host defence system comprising many biological structures and processes within an organism that protects against disease. Small amount of sleep chronic stress, anxiety, depression, sedentary life style, all lead to a weakened immune system and vulnerability to sickness. Stress and anxiety, more than anything, leads to a breakdown in the body's ability to defend itself against viruses. When stressed, the

hormone cortisol stays in the blood for extended periods of time, which the body develops resistance to, leading to increased inflammation. A healthy lifestyle and regular practice of Aerobic exercise at least five days in a week and 45 minutes daily are reducing stress and helps to improve immune systems. Covid-19 is a new virus and people have poor immunity against Covid-19, so the virus spreads rapidly. Regular engagement of aerobic exercise has been effectively prescribed for medical condition for management of severe communicable and non-communicable diseases, flu, cold, cancer, bronchial asthma, colitis, peptic and ulcer. The regular practice of Aerobic exercise improves strength and flexibility, and may help control Asthma, hypertension, diabetes, obesity, etc. In addition, The regular practice of Aerobic exercise enhance the immunity system and helps to reduce the risk of COVID-19.

3. DISCUSSION:

This is an evidence for the effect of Aerobic exercise in helping the co-ordination of breath and movement associated with good posturing for best relaxation of breath muscles. It also helps in controlling the panic attacks which aggravate individual's further deterioration and shortness of breath by letting a way to control physical body, the mind (Psycho somatic) and the autonomic nature of breath control (Mekonnen & Mossie, 2010). The several studies have reported that that Aerobic exercise has significant importance in improving symptoms of asthmatics. Aerobic exercises are used to increase respiratory stamina, relaxation of the chest muscles, expansion of lungs, raising energy levels and calming the body (Jonas 1998). Aerobic exercise improves the blood circulation; which increases the strength of respiratory muscles. The further advantage of Aerobic exercise lies in the fact that it is more of a vertical breathing. By this vertical breathing, all the alveoli of both the lungs open up evenly. Due to the even expansion of all the alveoli, a vast expanse of alveolar membrane is available for exchange of gases. The purpose of Aerobic exercise is to supply the body with oxygen and cleanse it of carbon dioxide and other toxins. Generally, a small portion of lung capacity is been utilized. (Soni et al. 2012). **A regular engagement in Aerobic exercise helps to improve glucose levels, increase insulin sensitivity and lower blood glucose.** Furthermore, insulin can cause weight gain, which is a problem for people with diabetes (especially Type 2). Aerobic exercise helps with both of these things, as it promotes weight loss and mindful eating, so it makes sense that Aerobic exercise **is also great for management of diabetes.** Aerobic exercise is useful for stress reduction, awareness on satiety, awareness on over eating and weight reduction. Aerobic exercise may help lower heart disease risk. Risk factor improvements (in BMI, blood pressure, lipid levels) were significant when Aerobic exercise was used in addition to medication. Among patients with existing coronary heart disease, *COVID-19 is a newly identified fatal disease and there is limited information regarding risk factors for are available in the globe.* provided a statistically significant benefit in lowering LDL cholesterol when added to medication (statins and lipid-lowering drugs). Aerobic exercise may be help to boost human's immune system and decrease inflammation in the body. Aerobic exercise is one of the most effective and naturally immunity boosters that can lead to a physical and mentally fit, illness-free body and healthy body system. Aerobic exercise overcome the stress hormones (Cortisol) and strengthens the nervous system while also stimulating the lymphatic system, which removes toxins from the body (Art of Living). The regular practice of Aerobic exercise stimulate the secretion of Norepinephrine, serotonin and dopamine in brain and contribute to sound sleep, which is attributed for wellness; sleep is one of the most important factors in healing and maintaining a healthy immune system. The several research indicates that 30 minutes of Aerobic exercise in a day increases endorphins, decreases cortisol levels, and fosters positive states of mind to promote better health. Colds and flu attack the bronchial passages, it makes sense that conditioning the lungs and maximizing one's breathing capacity through Aerobic exercise would build resistance to preying organisms (Kraftsow 1999). Cold and flu infections, asthma, allergies, and other chronic respiratory disorders are contribute to a weakened immune system. Aerobic exercise increase the resistance of respiratory tract. A leading researches has recommended Aerobic exercise to address anxiety issues related to the novel coronavirus that has now spread fast across the world.

4. LIMITATION OF THE STUDY:

Coronavirus is newly discovered communicable disease. There is no research conduct on effects of Aerobic exercise on Covid-19 so far.

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VARIOUS TYPES OF ADVANCED TECHNOLOGIES IN SPORTS

¹Mr Rohit Bhairvanath Adling, ²Dr. khushal Pandurang Waghmare

¹Director ²Lecturer

¹Physical Education, DadapatilRjale Arts & Science College, Adinathnager.

²Physical Education, Ujwal Gramin Mahavidhayalaya, Ghonshi.

Email- radling7@gmail.com

Abstract:

Technological advancement may be a natural action, and with its introduction into a sport, athletes simply become “better”. Technologies in sports are man-made means developed to succeed in human interests or goals in or concerning a specific sport. Technology in sports may be a technical means by which athletes decided to improve their training and competitive surroundings to reinforce their overall athletic performance. It is the knowledge and application of using specialized equipment and therefore, the latest modern technologies to perform tasks more efficiently. In this, the paper discussed efficient technologies that will help in enhancing the performance and quality of sports.

Key Words: *Technological advances, Athletes consideration, High-speed cameras*

INTRODUCTION:

Many types of equipment, like monologue racing race and buoyant swimsuits, these same effects were reversed by rule soon after the changes where introduce bike design returned to the traditional divert frames, and swimsuits reverted to less buoyant, and more permeable materials. Yet independent of whether, or not rules are imposed on technological advances, sports technology is nearly always about an equivalent principle: energy. Sports performance is defined by the energy produce by the athlete and released into the environment. The energy must be exclusively produced by the athlete, and must not come from else (example. An external energy sources.) However, not all of the energy produce by the athlete is necessarily released into the environment. basic source energy loss (no-conservative, non-recoverable energy) is external fiction (example sliding friction in skiing or rolling friction in cycling); internal friction; aerodynamic drag; hydrodynamic sound; heat; vibrations; and the energy required for stability, etc. The task of the sports engineer is finding to energy leaks and develop ways to fix them. Solutions are readily at hand. For example, a sports engineer can develop swimsuits that left the body slightly out of the water, thereby reducing water resistance and increasing air drag or perform wind turner tests of skiers to find a way to optimize the tucked racing position.

2. BENEFITS OF ADVANCED SPORTING TECHNOLOGIES:

A recent development in sporting technologies has created a range of products aimed toward improving and increasing athletic performance. Athletic health will be modern sporting technologies like pulse, monitors, pedometers, and bodies- fat monitors, through this a, greater depended on knowledge of the physical body, and its potential has been recognized, allowing athletes to coach complete in sports to a much older age. Participant safety in the least times has also been made possible through the event of certain sporting equipment, like helmets and body protection which are utilized in boxing and ice hockey to help prevent injuries. Modern sporting technologies have also made competition judging easier and more accurate, and spectator interest and excitement is enhanced by broadcasting and in-stadium displays (scoreboard).

3. How Can Technology Are wont to Enhance Athletic Performance:

Sports gear like clothing and footwear should be user-friendly and include valuable properties like strength, flexibility, density, thickness, durability, toughness, resistance to moisture, and more importantly cost. Footwear is usually considered more for comfort and injury avoidance instead of performance enhancement. Whereas clothing like the complete body suits utilized in swimming. Are often claimed to rationalize the competitor’s performance times where winning or losing the race is hundredths of a second. In tennis racket has

been created to supply enhance ball speed, and reduce the potential vibration which will cause a condition referred to as lateral epicondylitis. In other sporting equipment like the golf club, the general mass of the club has decreased which is believed to end in a greater achievable distance and possibly a more precise shot. The bicycle has also undergone modern-day advances with the event of specialist wheels, pneumatic tires; brake levers, and pedals, which are all aimed toward increasing stability and rigidity of the bicycle. The most efficient technology is the high-speed cameras that are utilized in sports. There are various high-speed cameras like high-speed –greater than 100 FDS (frames per second) still cameras, motion cameras. Motion cameras are more useful in medicine, education, and sports, DV Camera-60 FPS, Digital Still Camera-0 to 1 FPS, Multiple Cameras require identical format and frame rate. advance cameras use in sports education and sports for an example; Shorten the training curve, Coaching, training, and Analysis, Kinematic, Biomechanics Research, locomotives and Behavior Analysis, physiotherapy, Injury prevention, In refereeing, Cricket –fourth Umpire, ball, In out, Table-players shots, Equestrian-Horse running analysis, Chest finish (spirits), Correct Technique Model presentation or Animation. Comparison of the technique (trainees) with the elite to speak correct techniques.

4. How Can Technologies By want to Analyze Athletic Performance:

Technologies like CAD (Computer-aided design) can play a serious role in the improvement of sporting equipment. CAD allows virtual design and testing techniques to be applied to all or any aspects of sport and equipment research and development. CAD offers an efficient means of considering an assessing new products and concepts and is primarily wont to improve safety, comfort, and effectiveness of specialized sports types of equipment; CAD is additionally used regularly within the justification of physical fact figures and for both competitive and training circumstances. Other technologies like “smart” equipment are often used to evaluate performance. Examples of types of equipment technologies include devices used for exercise stress testing and cardiovascular assessment, human response time and frequency of movement meters, and jump and run characteristics devices. The use advance technology in sports may mean that competition at the uppermost level is merely affordable to the leading top athletes thanks to the potentially high costs of specialized sports types of equipment, in those sports incorporating individuals with a specific disability, there is a spread of methods during which assistance is often given. for instance, modifications to buildings are often made to form them wheelchair accessible, specialized types of equipment also can be produced, and training to sports members is often offered so as to offer specific assistance to those with a disability.

5. CONCLUSION:

Modern technology also makes better information available to the coach’s athletes and spectators, and this serves the game on many various levels; it enables better match analysis, performance ranking, player selection, sports statistics, and predictions and generally makes the more interesting. The Hawk-Eye system may be a typical example of a beneficial technology that gives a mess of data during cricket and tennis matches. Recent developments in sporting technologies have created a spread of products aimed toward improving and increasing athletic performance.

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**EFFECTS OF SHORT TERM RESISTANCES TRAINING ON
ATHLETIC AND WORK POWER IN VOLLEYBALL PLAYERS**

Dr. Vikram Kunturwar
Director of physical Education,
Rajiv Gandhi College, Mudkhed, Nanded

Abstract:

The purpose of the study was to effects the resistance training to power ability in Volleyball players. The 20 Volleyball Players selected as experimental group who were for interuniversity Volleyball Tournament from Swami Ramanand Teeth Marathawada University Nanded . The resistance training was planned as two weeks conducted at S.R.T.M. University Nanded (2019) . Mean score and standard deviation were taken and T-Test was applied. The result reveals that there was significant effect of resistance training on Athletic power ($t = p < .05$) and work power ($T p < 0.05$) It is found that resistance training improve the athletic and work power performance on Volleyball Players.

1. INTRODUCTION:

The benefits of resistance training in both competitive and recreational athletes have been well documented over the past Two decades. Improvements in muscle strength and power, increase in muscle size, and improvement in sports performance are common benefits resulting from resistance training programs. Volleyball was first developed in 1895 by a physical education instructor, William Morgan, in Massachusetts, USA. He gives in the name ‘Minotnette’. The game really took off as volleyball world-wide because it could be played so easily, All that was needed was a ball and a net. With no need for expensive equipment, it became popular all over the world, especially in countries where finance for sports facilities was limited. Traditionally, strength athletes seeking to improve muscle strength, hypertrophy, power, and sports-specific fitness most exclusively performed resistance training. Although it has been shown to have profound effects on these physical fitness components, only recently have the health-related benefits of resistance training been elucidated. Resistance training is a modality of exercise that has grown in popularity over the past two decades, particularly for its role in improving athletic performance by increasing muscular strength, power and speed, hypertrophy, local muscular endurance, motor performance, balance, and coordination (Aaberg, 1999; Starkey 1996).

2. MATERIALS AND METHODS:

Subjects: The 20 Volleyball Players selected as experimental group who were for interuniversity Volleyball Tournament from Swami Ramanand Teeth Marathawada University Nanded. The resistance training was planned as two weeks Study was conducted at S.R.T.M. University Nanded (2019). Mean score and standard deviation were taken and T-Test was applied. Only one group Experimental group was taken, there were no Control group in this study. This study involves the effects of resistance training on only one group taken, therefore quasi experimental design of the study.

3. DEMOGRAPHIC INFORMATION:

The subjects were free of smoking, alcohol and caffeine consumption, antioxidant supplementation and drugs during the programmes. They completed an informed consent document to participate in the study. The age, height, weights, power ability of all subjects were measured in physical education department laboratory.

4. TRAINING PROGRAMME:

The exercise session should consist of the following

- A warm-up period of approximately 10 minutes this should combine calisthenics' type stretching exercises and progressive aerobic activity that should increase the heart rate close to the prescribed heart rate for the session.
- A cool-down period of 5-10 minutes. Training program would be planned as 2 weeks 5 days a week and 45 min. Day the level of training intensity is increased from initial 20% to 70% during twelve weeks students were trained according to protocol of three sets, 8-12 repeat and 3-5 minutes break between each set training programs were created in the frame of these criteria.

4.1. Parameters measurements:

Power generally measured by two methods Athletic power measured by using the Standing Broad Jump test and work power test would be measured by using the Vertical Power Jump test.

4.2. Measurement of Athletic power:

- **Athletic Power:** Athletic power measured by the Standing Broad Jump.

Standing Broad Jump: This test measures the power of legs in jumping horizontal distance and may be applied to children of both sexes aged seven years above.

Equipment: Floor Mat or long jump pit may be used, measuring tape, marking tape.

Test Administration: A demonstration of the standing Broad jump is given to a group of Subjects to be tested. The Subject is then asked to stand behind the starting line with the feet parallel to each other. He is instructed to jump as farthest as possible by bending knees and swinging arms to take off for the broad jump in the forward direction. The subject is given three trials.

Scoring: The distance between the starting line and the nearest point of landing provides the score of the test. The best trial is used as the final score of the test.

- **Work Power:** work power test measured by the Vertical Power Jump.

Vertical Jump: This test measures the power of legs in jumping vertically and can be applied to children of both sexes aged nine years and above.

Equipment: A Black board of 4.5 feet x 2 feet painted with green and red lines ,one inch apart and one feet apart respectively (The board is fixed firmly to a wall, preferably 6 a weighing scale (optional). In case, the blackboard is not available, a smooth and plain wall may be painted black for use in this test.

4.3. Test Administration:

In the beginning a demonstration of the vertical jump, is given to a group of five to ten subject is asked to stand erect facing the board . His dominant hand's fingertips are marked with chalk powder and the subject is asked to raise the marked fingertips to a maximum height on the blackboard without lifting the heels so as to mark his maximum reach point. The fingertips are rechalked. With the chalked hand side towards the wall, a vertical jump is to be performed by the subject to make another mark at the maximal height of the jump. The subject is not allowed to run or hop. However, the subject is properly instructed to take a good jump by bending the knees and swinging the arms. The subject may be given three to five trials at his will and the best performance is considered.

Scoring: The maximum distance between the reaching height and the jumping height provides the score the test. However, to get the power in foot-pound units, the above distance is multiplied by the subject's body weight. But majority of the testers routinely use directly the distance jumped irrespective of body weight as the score of the test.

5. RESULTS OF THE STUDY:

The results discuss below with using Tables

Table 1. Mean Scores and Standard Deviation of selected Components of volleyball players.

Sr.No.	Components	Volleyball players	
		Mean	Standard Deviation
1.	Age (Year)	21.2	2.31
2.	Weight (Kg)	67.89	7.11
3.	Height (Cm)	176.67	14.10
4.	Competition in one year	9.50	2.17

* Significant at .05 level

Table 1 shows the Mean scores and Standard Deviations of the different components of volleyball players.

Table 1 shows the mean (S.Ds.) age of volleyball players was 21.20(2.31). Their weight was 67.89 (7.11) Kg. and their height was 176.67 (14.10) cm. and **Competition in one year 9.50 (2.17).**

Table-2, Mean Scores and Standard Deviations of Pre and Post-test of Work Power of volleyball players.

components	Test	Number	Mean Scores	S. Ds	T-Value
Work Power	Pre Test	20	53.78	6.68	2.78*
	Post Test	20	56.30	7.41	

Table-2, illustrates the mean scores and standard deviations of work Power using through Vertical Jump test of volleyball players. The mean scores obtained from Table 2, the mean score of Pre-test was 53.78 and the post test was 56.30 respectively of work Power among experimental group. Mean while the standard deviations of Pre-test were 6.68 and the post test was 7.41 respectively of work Power of volleyball players. The findings of study indicates that, there was significant effects of short term resistance training on work Power on volleyball players. Due to short term resistance training on volleyball players, they improve their work Power ability of Volleyball players

Table-3, Mean Scores and Standard Deviations of Pre and Post-test of Athletic power ability in Volleyball players.

components	Test	Number	Mean Scores	S. Ds	T-Value
Athletic Power	Pre Test	20	234.90	14.43	3.45*
	Post Test	20	246.89	15.07	

As per Table-5, illustrates the mean scores and standard deviations of Athletic power using through Standing Broad Jump test among experimental group. The mean scores obtained from Table 5, the mean score of Pre-test was 229.82 and the post test was 220.95 respectively of Athletic power among experimental group. Meanwhile the standard deviations of Pre-test were 12.20 and the post test was 12.56 respectively of Athletic power among experimental group. The findings of study indicates that, there was significant effects of short term resistance training on Athletic power on volleyball players. Due to short term resistance training on volleyball players, they improve their Athletic power ability of Volleyball players

6. DISCUSSION:

The results reveal that there was significant effects of Resistance training was found out on Athletic power among physical education students. Athletic performance in many sports demands the development of muscle strength, which is required for other performance related characteristics, notably speed and power. Muscle strength is routinely developed through prolonged participation in a structured resistance exercise programmes (Andrea, 2007; B.Sankarmani, 2012). It is well recognized that athletic power is very important because poor physical capacity limits the ability to play at a higher level. Ideally, athletes should be selected at a young age then given correct coaching in skills and tactics, as well as a progressive conditioning programme to enable them to perform at high intensities throughout matches. The results reveal that there was significant effects of Resistance training was found out on work power among physical education students. Jump performance has been a standard assessment of athletic strength and power in the lower body (Anderst, 1994; Duke, 1992; Fatourous, 2000). Coaches and athletes have looked on this test as a predictor for athletic potential in many sports including weightlifting, football, basketball, volleyball, and track. Low strength attributable to poor muscular development hinders athletic performance including vertical jump and should be the primary training objective for the less-trained individual (Maffiuletti, 2002; Brown, 1986). resistance training has been shown to improve vertical jump performance. As a result, when training for explosive movements, relatively light ballistic resistance exercises may be the most

appropriate training model and offer the greatest potential for improvement in vertical jump performance (Anderst, 1994, Poole, 1987)

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Psychological Factors Affecting sports injuries

Dr. Pawan Kumar Singh

Assistant Director of Physical education,
Tripura Central University, Agartala

Abstract:

There are many factors responsible for injuries in sports of which psychological factors are one of them. Several studies have shown the impact of psychological characteristics of athletes in determining risk of injuries. The psychological factors reported are for example live-event stress, fighting mentality and risk-taking behavior. The high expectations from the team management and supporters, players will be playing robustly and aggressively therefore; there are many incidences of injury occurrences in football and the possibility of players getting injured. Psychological factors such as stress levels and certain predisposing attitudes have all been identified as psychological antecedents to athletic injuries.

1. INTRODUCTION:

Injury may be defined as any physical complaint caused by during training and matches. Injury is common incidence in sports. Sports injuries refer to the kinds of injury that occur during sports or exercise. While it is possible to injure any part of the body when playing sports, the term sports injuries is commonly used to refer to injuries of the musculoskeletal system. Sportsmen get injured either by accident or intentionally by other players. There are many factors responsible for injuries in sports, of which psychological factors are one of them. Several studies have shown the impact of psychological characteristics of athletes in determining risk of injuries. Weinberg and Gould (2003) and Kellmann and Kallus (2001) have stated that psychological factors such as state-trait anxiety, self-esteem, and stress levels are possible psychological antecedent of injury. In other words, Sports injuries are injuries that occur when engaging in sports or exercise. ... Bruises, strains, sprains, tears, and broken bones can result from sports injuries. Soft tissues like muscles, ligaments, tendons, fascia, and bursae may be affected. Traumatic brain injury (TBI) is another potential type of sports injury

1.1. Psychological factors of injuries

The psychological researchers such as Andersen and Williams (1998a), Smith *et al.* (1990b), Gould and Weinberg (2000) and Junge (2002) have stated that thoughts, perceptions, and aspects of psychological factors may be linked to the occurrences of injury. Psychological factors such as stress levels and certain predisposing attitudes have all been identified as psychological antecedents to athletic injuries. The psychological risk factors reported are for example live-event stress, fighting mentality and risk-taking behavior (Dvorak *et al.* 2000).

1.2. Stress and injuries:

Life stress has been found to be a predictor of possible re-injury. However, stress itself does not cause injury. Psychological research has demonstrated that a high level of major life stress (moving, divorce, death of a family member) or a high level of daily hassles can place the athlete at increased risk for injury. Stress causes attentional changes (e.g., narrowing of attention, general distraction, increased self-consciousness) that interfere with an athlete's performance. Stress has been shown to cause increased muscle tension and coordination difficulties which increase the athlete's risk of injury. The psychological factors and sports injuries emerge from clinical experience or directly from training sessions. Historically, attention regarding the relationship between psychological variables and sport injury was focused toward the study of stress and personality. From a psychological perspective, it is important to consider the causes of injury as a result of many different factors, although on occasion the evidence seems to show an uncaused relationship. However, most authors nowadays assume that sports injuries have a multifactorial origin, with some of these factors having a greater or lesser influence on a certain injury, depending on the reality and the context in which it happens. The model of stress and sports injury by Andersen and Williams (1988) has doubtlessly been the model of reference in the study of

the relationship between psychological factors and sports injuries. There are three great areas included in this model, namely: personality factors, the history of stress and the athlete's coping resources.

2. RISK-TAKING BEHAVIOR:

Professional athletes involved in high-performance sport are at a high injury risk, which may lead to long-term health consequences. Professional athletes often expose themselves to risky behaviours, resulting in a higher acceptance level of occupational risk compared to other occupations.

3. ANXIETY:

Injury is often accompanied by depression, tension, anger and low self-esteem, particularly in competitive, seriously injured athletes. Mood disturbance seems to relate to the athlete's perceived progress in rehabilitation and has been shown to negatively relate to attendance at rehabilitation sessions. Anxiety about symptoms of injury, in contrast, was not clearly linked with an increased risk of injury. Anxiety-arousing signals do not have as strong an impact on athletes who have had problems for a long period. This makes it important to keep a close eye on such athletes.

4. EMOTIONAL RESPONSES:

Emotional responses to injury include sadness, feelings of isolation, irritation, lack of motivation, frustration, anger, alterations in appetite, sleep disturbance, and feeling disengaged

5. CONCLUSIONS:

Psychological factors such as state-trait anxiety, self-esteem, and stress levels are possible psychological antecedent of injury. Based on these situations, this study attempts to look at psychological factors that can influence the occurrence of injury and whether these can be assumed to be predictors of injury occurrence among football players. Sports injuries are injuries that occur during sport, athletic activities.

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Comparison of Mental Health between sportsman and non-Sportsman

Jai Bhagwan Singh Goun

Assistant Professor

Maharana Pratap government P.G College, Hardoi (UP)

Abstract:

The objective of the study is to find out the difference of mental between Sportsman and non-sportsman. 50 sportsman and 50 non-sportsman from Swami Ramanand Teerth Marathwada University had been selected for the present study. Their age ranged from 18-30 . For the present study, Mental health was measured by the using General Health Questionnaire (GHQ -12) . results reveals that there was significant difference of mental health found between sportsman and non-sportsman with regards to been feeling reasonably happy ($t=p<.05$), Lost much sleep ($t=p<.05$), Under strain ($t=p<.05$), and Yourself as a Worthless ($t=p<.05$).

1. INTRODUCTION:

The common belief that sportsman lead to better physical and mental health then non-sportsman students. Sportsman students actively engage in various physical and sporting activities during their studies however non-sportsman not engage in various physical and sporting activities during their studies. mental health as a state of emotional and psychological well-being in which an individual is able to use his or her cognitive and emotional capabilities, function in society and meet the ordinary demands of everyday life. Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity ‘defines the Constitution of the World Health Organization. This concept is very close to the definition of health according to Ayurvedic literature. Sushrut, a prominent proponent of this traditional system of Indian medicine, defines it is a state characterized by a feeling of spiritual, physical and mental well being .Participation in sports has been shown to have a strong and positive influence on mental wellbeing and some mental illnesses. Participation in sports activity can increase self-esteem and reduce stress and anxiety. Regular exercise can have a profoundly positive impact on depression, anxiety, and more. It also relieves stress, improves memory, helps you sleep better, and boosts your overall mood

2. METHODS:

50 Sportsman and 50 non-sportsman selected for the present study. Their age ranged from 18-30 years. The sportsman consider those who have participated at least intercollegiate level sports of ant discipline. The non-sportsman consider those who have not participated sports tournament.

2.1. Tools of the study and Collection of data:

For the present study, Mental health was measured by the using General Health Questionnaire (GHQ -12) . The General Health Questionnaire (GHQ) is a measure of current mental health and since its development by Goldberg in the 1970s it has been extensively used in different settings and different cultures. The 12-item GHQ-12 comprises six ‘positive ’ and six ‘negative’ items .Data was collected individually through a questionnaire from 50 sportsman and 50 non-sportsman in in swami Ramanand Teerth Marathwada University Nanded.Descriptive statistics for all studied variables, and t-value was used and a p-value of <0.05 was considered statistically significant throughout the study.

3. RESULTS AND DISCUSSION:

Comprised and identified of Mental Health between physical and non-sportsman students. The data have been systematically analyzed in the form of Mean Scores, Standard Deviation and T-ratio.

Table 1.Mean Scores and Standard Deviation of selected components Sportsman and non-sportsman of positive health Positive mental health

Mental Health	Students	Number	Mean	S.Ds.	t-ratio
Been able to	Sportsman	50	4.56	0.88	1.22

concentrate	Non-sportsman	50	4.59	0.87	
Plying A Useful Part	Sportsman	50	4.21	0.80	1.66
	Non-sportsman	50	4.22	0.89	
Capable of making Decision	Sportsman	50	3.56	0.67	1.69
	Non-sportsman	50	3.24	0.60	
Been able to enjoy	Sportsman	50	2.87	0.71	1.73
	Non-sportsman	50	2.90	0.69	
Been able to face up	Sportsman	50	3.26	1.01	1.74
	Non-sportsman	50	3.38	1.04	
Been feeling reasonably happy	Sportsman	50	3.47	1.01	3.46*
	Non-sportsman	50	2.60	0.68	

- Significant at .05 levels.

Table 1 shows that Mean Scores and Standard Deviation of selected components Sportsman and non-sportsman of positive health Positive mental health. The mean score and standard deviation obtained from table -1. The results reveals that there was significant difference between mental health with regards to been feeling reasonably happy ($t=, p<.05$) sportsman students was found been have got more feeling happy as compare than non-sportsman students. However insignificant differences were found in Been able to concentrate, Plying a useful Part, Been able to enjoy and Been able to face up.

Table-2. Mean Scores and Standard Deviation of selected components Sportsman and non-sportsman students of Negative mental health

Mental Health	Students	Number	Mean	S.Ds.	t-ratio
Lost much sleep	Sportsman	50	2.78	0.70	3.20*
	Non-sportsman	50	3.24	0.75	
Under strain	Sportsman	50	2.50	0.81	2.78*
	Non-sportsman	50	3.24	0.90	
Couldn't overcome	Sportsman	50	2.90	0.61	1.56NS
	Non-sportsman	50	2.79	0.69	
Unhappy and depressed	Sportsman	50	2.90	0.87	1.68NS
	Non-sportsman	50	2.87	0.82	
Been losing confidence	Sportsman	50	2.70	0.91	1.67NS
	Non-sportsman	50	2.60	0.85	
Yourself as a Worthless	Sportsman	50	2.70	0.86	3.40*
	Non-sportsman	50	3.10	0.68	

- Significant at .05 levels.

Table 2 shows that Mean Scores and Standard Deviation of selected components Sportsman and non-sportsman of negative mental health. The mean score and standard deviation obtained from table -1. the results reveals that there were significant differences of mental health with regards to Lost much sleep ($t=, p<.05$), Under strain ($t=, p<.05$), and Yourself as a Worthless ($t=, p<.05$), which means that there sportsman was found been feeling reasonably happy. However insignificant differences were found in Couldn't overcome, Unhappy & depressed, and Been losing confidence

4. CONCLUSION:

Following conclusions were found in the present study.

- the findings of the study reveals that , Significant differences of positive mental health with regards to been feeling reasonably happy was found between sportsman and non sportsman. Sportsperson have better positive mental health with respect to been feeling reasonably happy , However insignificant difference were found in Been able to concentrate , Plying a Useful Part, Been able to enjoy and Been able to face up between sportsman and non sportsman.
- Significant difference of negative mental health with regards to Last much sleep Under strain and Yourself as a Worthless which means that there sportsman was found been feeling reasonably happy was found between sportsman and non sportsman. However insignificant differences were found in Couldn't overcome, Unhappy and depressed, and Been losing confidence between sportsman and non sportsman

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A CRITICAL STUDY ON THE EFFECT OF INTERVAL TRAINING AND DETRAINING ON CARDIO RESPIRATORY ENDURANCE AND BREATH HOLDING TIME AMONG KHO KHO AND BASKETBALL PLAYERS

¹**Shashikanth Gopu** ²**Dr. P. Ravi Kumar**

¹Research Scholar ²Professor

¹Kakatiya University & Physical Director at Govt. Degree College, Mahabubabad, T.S, India

²Dept. of Physical Education, NIT Warangal, T.S, India

Abstract:

The purpose of the study was to find out the effect of interval training and detraining on cardio respiratory endurance and breathe holding time among male Kho kho and Basketball players. To achieve the purpose of the study, N=90 male Kho kho and Basketball players from Government Junior college(Boys), Mahabubabad and Government Degree college, Mahabubabad, Telangana were selected randomly as samples from total population and aged between 18-25 years. Further the players were divided into three equal groups as n=30 (Basketball group – BBG), n=30 (Kho kho group – KKG), n=30 (Control group – CG). The experimental design for this study were as follows, a pre and posttest was administrated before and after the 12 weeks of interval training on cardio respiratory endurance and breathe holding time. The CG (Control group) was not given any type of training and they are settled for their daily routine workouts. To know the effect of detraining, the coopers 12 min run/walk and breath holding time tests were administrated on 10th, 20th, 30th, 40th and 50th days for the data collection after the training period. With appropriate statistical tests the results was analyzed with the help of the software package of social science (SPSS 20.0). It was found that there was a significant difference found in experimental groups and no significant difference in control group. There was a significant decrease in performance after 20 days in detraining period.

Key Words: Interval training, Detraining, Cardio respiratory endurance and Breath holding time.

1. INTRODUCTION:

Sport Physiology further applies these concepts from exercise physiology specifically to training the athlete and enhancing athlete performance within a specific sport. Exercise and sport physiology is about improving performance, by knowing how the body functions during exercise, and using scientific principles to allow your body to train better, perform better and recover quicker. Studies in exercise physiology help athletes achieve greatness.

1.1. STATEMENT OF THE PROBLEM:

The Purpose of the Study was to investigate the effect of interval training and detraining on cardio respiratory endurance and breathe holding time among Kho kho and Basketball players.

1.2. SIGNIFICANCE OF THE STUDY:

The study is significant in the following ways:

- To find out whether there was any significant difference with the effect of training and detraining in experimental groups.

1.3. DELIMITATIONS:

The study was confined to the following aspects.

- Only male kho kho and basketball players were chosen as the subjects with in the age group of 18-25 years and cardio respiratory endurance and breath holding time were delimited to testing variables.
- The training period was delimited to 12 weeks, 5 days per week and detraining was set up to only 50

days after cessation of training.

1.4. HYPOTHESIS:

- It was hypothesized that there would be no significant difference between Control group and experimental groups after training and in detraining.

2. METHODOLOGY:

2.1. SELECTION OF SUBJECTS:

Total N=90 male kho kho and Basketball players age ranged from 18-25 years was selected randomly and equally selected into three group such as n=30 kho kho players group(KKG), n=30 Basketball players group(BBG) and n=30 Control group(CG) from Government Degree College, Mahabubabad and Government Junior College, Mahabubabad, Mahabubabad district, Telangana, India.

2.2. EXPERIMENTAL DESIGN:

After pre-test was done on three groups on cardio respiratory endurance and breath holding time, 12 weeks of Interval training (5 days/week) was administrated to two experimental groups BBG and KKG and the CG group was not given any type of training. After training post-test data was collected on three groups and to investigate the effect of Detraining, the experimental groups data was collected on every 10th, 20th, 30th, 40th and 50th days.

2.3. SELECTION OF TESTS:

Cardio respiratory endurance – Coopers 12 min run/walk test (in meters), b. Breath holding time - Digital Stop Watch.

3. RESULTS AND ANALYSIS:

3.1. COOPER'S 12Min RUN/WALK:

TABLE - 1 COMPUTATION OF 't' VALUE OF COOPER'S 12Min RUN/WALK

S.No	GROUP	Means		S.D		Obtained 't'	Req. 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	2381.00	2387.00	259.63	261.54	1.22	2.756
2	Basketball	2383.67	2619.00	198.07	205.08	8.89*	
3	Kho Kho	2426.33	2684.67	169.78	165.27	11.73*	

* Significant at 0.01 level

Degrees of Freedom = 29

From the table - 1 it was observed that the pre test mean values of Control group, Basketball group and Kho Kho group were 2381.00, 2383.67, and 2426.33 respectively. Post test mean values of Control group, Basketball group and Kho Kho group were 2387.00, 2619.00 and 2684.67 respectively. The calculated value of 't' for Control group is 1.22, Basketball group is 8.89 and Kho Kho group is 11.73. The required 't' value at 0.01 level of confidence for a degree of freedom 29 is 2.756. Since the obtained 't' values of Basketball group and Kho Kho group are more than the required 't' values, therefore it was found that there is a significant difference between the mean values of pre and post training for the Basketball group and Kho Kho group. It was found that there is no significant difference between the mean values of pre and post training for the Control group as the calculated value is less than the required 't' value. Hence the effect of interval training is visible on Coopers 12min run/walk for Basketball group and Kho Kho group. As there is significant difference, Analysis of covariance (ANCOVA) is used to test the data of adjusted post test mean values of Control group, Kho Kho group and Kabaddi group on Cooper's 12 min Run/Walk.

TABLE - 2 : ANALYSIS OF CO-VARIANCE OF COOPER'S 12Min RUN/WALK

Test	MEANS			Sum of Square	DF	Mean Squares	Obtained F-Ratio	Req. F-Ratio at 0.01
	Control Group	Basketball Group	Kho-Kho Group					
Pre test	2381.00	2383.67	2426.33	B: 38826.667	2	19413.333	0.43	4.86
				W: 3928463.333	87	45154.751		
Post test	2387.00	2619.00	2684.67	B: 1467415.556	2	733707.778	15.98*	
				W: 3995446.667	87	45924.674		
Adjusted post test	2400.99	2630.66	2659.01	B: 1196617.987	2	598308.994	51.97*	
				W: 989977.648	86	11511.368		

* Significant at 0.01 level

B: Between the group

W: Within the group

From the table – 2 it was observed that pre test, post test and adjusted post test mean values of Control group, Kho Kho group and Kabaddi group were 2381.00, 2383.67, 2426.33 and 2387.00, 2619.00, 2684.67 and 2400.99, 2630.66, 2659.01 respectively. As the obtained pre test F-ratio 0.43 is less than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is no significant difference of the pre test mean values between the three groups. As the obtained post test F-ratio 15.98 is greater than the required table F-ratio 4.86 for the df (2, 87) at 0.01 level of significance. Therefore it was found that there is significant difference of the post test mean values between the three groups. As the obtained adjusted post test F-ratio 51.97 is greater than the required table F-ratio 4.86 for the df (2,86) at 0.01 level of confidence. Therefore it was found that there is significant difference of the adjusted post test mean values between the three groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between paired adjusted mean values on cooper's 12 min run/walk were shown in table – 3

TABLE – 3 : SCHEFFE'S POST HOC TEST FOR COOPER'S 12Min RUN/WALK

Control Group	Basketball Group	Kho-Kho Group	Mean Diff.	C.I at 0.01 level
2400.99	2630.66		229.67*	81.93
2400.99		2659.01	258.02*	
	2630.66	2659.01	28.35	

* Significant at 0.01 level

Table – 3 indicates the difference of adjusted post test means between the CG-BBG and CG-KKG was found significant as the mean difference values 229.67 and 258.02 are greater than the C.I value 81.93 at 0.01 level, it was found that there is insignificant difference between BBG-KKG as the mean difference 28.35 is less than 81.93 at 0.01 level. Analysis of variance is used to test the data of post test mean value and detraining post test mean value of Basketball group and Kho Kho group on Coopers 12min run/walk were exhibited in table - 4

TABLE - 4: ANALYSIS OF VARIANCE OF COOPERS 12MIN RUN/WALK ON DETRAINING BASKETBALL GROUP KHO KHO GROUP

Sum of Squares	DF	Mean Square	F-Ratio	Sum of Squares	DF	Mean Square	F-Ratio
B:1164489.444	5	232897.889	79.16*	B:1370844.444	5	274168.889	141.56
W:363144.810	29	12522.235	-	W:232785.524	29	8027.087	-
R:426627.222	145	2942.257	-	R:280822.222	145	1936.705	-

Required table F value for df (5,145) at 0.01 is 3.146

B – Between

W – With in

R -Residual

*Significant at 0.01 level

Table - 4 is the analysis of variance of coopers 12min run/walk on detraining for Basketball and KhoKho groups. As the obtained F-ratio 79.16 and 141.53 are greater than the required table F-ratio 3.146 for the df (5,145) at 0.01 level of confidence. Therefore it was found that there is a significant difference with the effect of detraining on coopers 12min run/walk for basketball and kho kho groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between post test and detraining mean difference of 10th, 20th, 30th, 40th and 50th days of basketball and kho kho groups on coopers 12min run/walk were shown in table–5 & 6.

TABLE – 5 : SCHEFFE'S POST HOC TEST OF COOPERS 12MIN RUN/WALK ON DETRAINING OF BASKETBALL GROUP

Post Test Mean	Detraining Period Mean					MD	C.I (0.01) level
	10 th Day	20 th Day	30 th Day	40 th Day	50 th Day		
2619	2609.33	-	-	-	-	9.67	52.70
2619	-	2598.000	-	-	-	21.00	
2619	-	-	2535.67	-	-	83.33*	
2619	-	-	-	2464.33	-	154.67*	
2619	-	-	-	-	2403.33	215.67*	

*Significant at 0.01 level

MD : Mean Difference

C.I : Confidence Interval

Table – 5 indicates that the posttest mean value is 2619 and detraining mean values of 10th, 20th, 30th, 40th and 50th were 2609.33, 2598.000, 2535.67, 2464.33 and 2403.33 respectively and the mean differences were 9.67, 21.00, 83.33, 154.67 and 215.67 respectively. It was found that there is no significant difference up to 20 days during the detraining period, as the mean differences 9.67 and 21.00 of 10th and 20th days were less than the confidence interval value 52.70 at 0.01 level and it was found that there is a significant difference

after 20 days during the detraining period, as the mean differences 83.33, 154.67 and 215.67 of 30th, 40th and 50th days were greater than the confidence interval value 52.70 at 0.01 level. Hence, the effect of detraining is visible after 20 days during the detraining period on coopers 12min run/walk in basketball group.

TABLE – 6 SCHEFFE'S POST HOC TEST OF COOPERS 12MIN RUN/WALK ON DETRAINING OF KHO KHO GROUP

Post Test Mean	Detraining Period Mean					MD	C.I (0.01) level
	10 th Day	20 th Day	30 th Day	40 th Day	50 th Day		
2684.67	2675.33	-	-	-	-	9.34	42.75
2684.67	-	2662.00	-	-	-	22.67	
2684.67	-	-	2594.00	-	-	90.67*	
2684.67	-	-	-	2519.33	-	165.34*	
2684.67	-	-	-	-	2450.00	234.67*	

*Significant at 0.01 level

MD : Mean Difference

C.I : Confidence Interval

From the above table - 6 it was observed that the post test mean value is 2684.67 and detraining mean values of 10th, 20th, 30th, 40th and 50th were 2675.33, 2662.00, 2594.00, 2519.33 and 2450.00 respectively and the mean differences were 9.34, 22.67, 90.67, 165.34 and 234.67 respectively. It was found that there is no significant difference upto 20 days during the detraining period, as the mean differences 9.34 and 22.67 of 10th and 20th days were less than the confidence interval value 42.75 at 0.01 level and it was found that there is a significant difference after 20 days during the detraining period, as the mean differences 90.67, 165.34 and 234.67 of 30th, 40th and 50th days were greater than the confidence interval value 42.75 at 0.01 level. Hence, the effect of detraining is visible after 20 days during the detraining period on coopers 12min run/walk in kho kho group.

3.2. BREATHE HOLDING TIME:

TABLE – 7 : COMPUTATION OF 't' VALUE OF BREATH HOLDING TIME

S.No	GROUP	Means		S.D		Obtained 't'	Required 't' (0.01 level)
		Pre	Post	Pre	Post		
1	CONTROL	33.67	33.83	3.35	3.35	1.05	2.756
2	BASKETBALL	33.47	38.98	3.03	3.10	11.71*	
3	KHOKHO	33.82	40.73	4.35	4.45	12.97*	

* Significant at 0.01 level

Degrees of Freedom = 29

From the above table – 7 it was observed that the pre test mean values of Control group, Basketball group and Kho Kho group were 33.67, 33.47 and 33.82 respectively. Post test mean values of Control group, Basketball group and Kho Kho group were 33.83, 38.98 and 40.73 respectively. The calculated value of 't' for Control group is 1.05, Basketball group is 11.71 and Kho Kho group is 12.97. The required 't' value at 0.01 level of confidence for a degree of freedom 29 is 2.756. Since the obtained 't' values of Basketball group and Kho Kho group are more than the required 't' values, therefore it was found that there is a significant difference between the mean values of pre and post training for the Basketball group and Kho Kho group. It was found that there is no significant difference between the mean values of pre and post training for the Control group as the calculated value is less than the required 't' value. Hence the effect of interval training is visible on Breath holding time for Basketball group and Kho Kho group. As there is significant difference, Analysis of covariance (ANCOVA) is used to test the data of adjusted posttest mean values of Control group, Kho Kho group and Kabaddi group on Breath holding time.

TABLE - 8 : ANALYSIS OF CO-VARIANCE OF BREATH HOLDING TIME

Test	MEANS			Sum of Square	DF	Mean Squares	Obtained F-Ratio	Req. F-Ratio at 0.01
	Control Group	Basketball Group	Kho-Kho Group					
Pre test	33.67	33.47	33.82	B: 1.814	2	0.907	0.07	4.86
				W: 1141.731	87	13.123		
Post test	33.83	38.98	40.73	B: 771.374	2	385.687	28.52*	
				W: 1176.351	87	13.521		
Adjusted post test	33.82	39.13	40.59	B: 762.355	2	381.177	77.71*	
				W: 421.839	86	4.905		

* Significant at 0.01 level

B: Between the group

W: Within the group

From the table – 8 it was observed that pre test, post test and adjusted post test mean values of Control group, Kho Kho group and Kabaddi group were 33.67, 33.47, 33.82 and 33.83, 38.98, 40.73 and 33.82, 39.13, 40.59 respectively. As the obtained pre test F-ratio 0.07 is less than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is no significant difference of the pre test mean values between the three groups. As the obtained post test F-ratio 28.52 is greater than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of significance. Therefore it was found that there is significant difference of the post test mean values between the three groups. As the obtained adjusted post test F-ratio 77.71 is greater than the required table F-ratio 4.86 for the df (2,86) at 0.01 level of confidence. Therefore it was found that there is significant difference of the adjusted post test mean values between the three groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between paired adjusted mean values on breath holding time were shown in table-3

TABLE – 9 : SCHEFFE'S POST HOC TEST FOR BREATH HOLDING TIME

Control Group	Basketball Group	Kho-Kho Group	Mean Diff.	C.I at 0.01 level
33.82	39.13		5.31*	1.69
33.82		40.59	6.77*	
	39.13	40.59	1.46	

* Significant at 0.01 level

Table – 9 indicates the difference of adjusted posttest means between the CG-BBG and CG-KKG was found significant as the mean difference values 5.31 and 6.77 are greater than the C.I value 1.69 at 0.01 level, it was found that there is insignificant difference between BBG-KKG as the mean difference 1.46 is less than 1.69 at 0.01 level. Analysis of variance is used to test the data of posttest mean value and detraining posttest mean value of Basketball group and Kho Kho group on breath holding time were exhibited in table – 10.

TABLE -10: ANALYSIS OF VARIANCE OF BREATH HOLDING TIME ON DETRAINING

BASKETBALL GROUP				KHO KHO GROUP			
Sum of Squares	DF	Mean Square	F-Ratio	Sum of Squares	DF	Mean Square	F-Ratio
B: 660.827	5	132.165	139.27*	B: 927.761	5	185.552	166.12*
W: 108.687	29	3.748	-	W: 128.859	29	4.443	-
R: 137.657	145	0.949	-	R: 161.921	145	1.117	-

Required table F value for df (5,145) at 0.01 is 3.146

B – Between

W – Within

R -Residual

*Significant at 0.01 level

Table - 10 is the analysis of variance of breath holding time on detraining for Basketball and Kho Kho groups. As the obtained F-ratio 139.27 and 166.12 are greater than the required table F-ratio 3.146 for the df (5,145) at 0.01 level of confidence. Therefore it was found that there is a significant difference with the effect of detraining on breath holding time for basketball and kho kho groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between post test and detraining mean difference of 10th, 20th, 30th, 40th and 50th days of basketball and kho kho groups on coopers 12min run/walk were shown in table-11 &12.

TABLE – 11: SCHEFFE'S POST HOC TEST OF BREATH HOLDING TIME ON DETRAINING FOR BASKETBALL GROUP

Post Test Mean	Detraining Period Mean					MD	C.I 0.01 level
	10 th Day	20 th Day	30 th Day	40 th Day	50 th Day		
38.98	38.74	-	-	-	-	0.24	0.95
38.98	-	38.30	-	-	-	0.68	
38.98	-	-	36.62	-	-	2.36*	
38.98	-	-	-	35.22	-	3.76*	
38.98	-	-	-	-	33.83	5.15*	

*Significant at 0.01 level

MD : Mean Difference

C.I : Confidence Interval

From the above table 4.14(e), it was observed that the post test mean value is 38.98 and detraining mean values of 10th, 20th, 30th, 40th and 50th were 38.74, 38.30, 36.62, 35.22 and 33.83 respectively and the mean differences were 0.24, 0.68, 2.36, 3.76 and 5.15 respectively. It was found that there is no significant difference upto 20 days during the detraining period, as the mean differences 0.24 and 0.68 of 10th and 20th days were less than the confidence interval value 0.95 at 0.01 level and it was found that there is a significant difference after 20 days during the detraining period, as the mean differences 2.36, 3.76 and 5.15 of 30th, 40th

and 50th days were greater than the confidence interval value 0.95 at 0.01 level. Hence, the effect of detraining is visible after 20 days during the detraining period on breath holding time in basketball group.

TABLE - 12 : SCHEFFE'S POST HOC TEST OF BREATH HOLDING TIME ON DETRAINING FOR KHO KHO GROUP

Post Test Mean	Detraining Period Mean					Mean Difference	Confidence Interval 0.01 level
	10 th Day	20 th Day	30 th Day	40 th Day	50 th Day		
40.73	40.42	-	-	-	-	0.31	1.05
40.73	-	40.10	-	-	-	0.63	
40.73	-	-	38.34	-	-	2.39*	
40.73	-	-	-	36.40	-	4.33*	
40.73	-	-	-	-	34.59	6.14*	

*Significant at 0.01 level

MD : Mean Difference

C.I : Confidence Interval

From the above table - 12 it was observed that the post test mean value is 40.73 and detraining mean values of 10th, 20th, 30th, 40th and 50th were 40.42, 40.10, 38.34, 36.40 and 34.59 respectively and the mean differences were 0.31, 0.63, 2.39, 4.33 and 6.14 respectively. It was found that there is no significant difference upto 20 days during the detraining period, as the mean differences 0.31 and, 0.63 of 10th and 20th days were less than the confidence interval value 1.05 at 0.01 level and it was found that there is a significant difference after 20 days during the detraining period, as the mean differences 2.39, 4.33 and 6.14 of 30th, 40th and 50th days were greater than the confidence interval value 1.05 at 0.01 level. Hence, the effect of detraining is visible after 20 days during the detraining period on breath holding time in kho kho group.

6. CONCLUSION:

With the effect of interval training, it was found that there is a significant difference between the control group and basketball group and also found significant difference between control group and kho kho group. There was also a significant difference found after 20 days of detraining in basketball group and kho kho group. As the both games depends mainly on speed and circulo endurance parameters. Therefore there would not be any significant difference among basketball group and kho kho group.

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**AN ANALYTICAL STUDY OF THE YOGIC PRACTICES AND
PRANAYAMA ON SELECTED MOTOR FITNESS VARIABLES
AMONG FEMALE PLAYERS OF KAKATIYA UNIVERSITY**

¹T. Srinivas, ²Dr. P. Ravi Kumar

1Research Scholar, 2Professor

¹Kakatiya University & Physical Education Teacher at ZPSS Nandanam, Warangal (U) Dist. T.S, India

²Dept. of Physical Education, NIT Warangal, T.S, India

Abstract:

The purpose of the study was to find out the effects of Yogic practices and Pranayama on Agility, Cardio respiratory endurance and Abdominal muscular endurance on female Basketball and Handball players of Kakatiya University, Telangana, India. To achieve the purpose of the study, N= 90 female basketball and handball players were selected randomly age ranged between 18 to 25 years from Kakatiya University, Warangal, Telangana. The selected ninety female basketball and handball players were divided into three equal groups. Pre and post test was administrated before and after the experimental groups BBG - Basketball group (n = 30) and HBG - Handball group (n = 30) underwent 12 weeks of training on selected Yogic practices and Pranayama and CG - Control group (n= 30) did not underwent any specific training. All the statistical analysis was carried out with the help of the software package of social science (SPSS 20.0). With the effect of selected yogic practices and pranayama it was found that there is a significant difference in two experimental groups i.e., basketball and handball groups and control group was shown no significant difference.

Key Words: Yoga, Asanas, Pranayama, Agility, Cardio respiratory endurance and Abdominal muscular endurance.

1. INTRODUCTION:

Yoga is a multifaceted spiritual tool with enhanced health and well-being as one of its positive effects. The components of yoga which are very commonly applied for health benefits are *asanas* (physical postures), *pranayama* (regulated breathing) and meditation. In the context of *asanas*, yoga resembles more of a physical exercise, which may lead to the perception that yoga is another kind of physical exercise. Physical exercises and the physical components of yoga practices have several similarities, but also important differences. Evidence suggests that yoga interventions appear to be equal and/or superior to exercise in most outcome measures. Emphasis on breath regulation, mindfulness during practice, and importance given to maintenance of postures are some of the elements which differentiate yoga practices from physical exercises. (Ramajayam Govindaraj, 2016)

1.1. STATEMENT OF THE PROBLEM:

The purpose of the study is to know the effect of the yogic practices and pranayama on agility, cardio respiratory endurance and abdominal muscular endurance among the female basket ball and hand ball players of Kakatiya University.

1.2. SIGNIFICANCE OF THE STUDY:

The study is significant in the following ways:

- i. To find out whether there was any significant difference with the effect of yogic practices and pranayama in experimental groups.

1.3. DELIMITATIONS:

The study was confined to the following aspects.

- i. Only female basket ball and hand ball players were chosen as the subjects with in the age group of 18-25 years and agility, cardio respiratory endurance and abdominal muscular endurance were delimited to testing variables.
- ii. The training period was limited to 12 weeks (5 days/week).

1.4. HYPOTHESIS:

The formulated hypotheses in the present study are:

- It was hypothesized that there would be no significant difference between Control group and experimental groups.

2. METHODOLOGY:

2.1. SELECTION OF SUBJECTS:

For the purpose of this investigation the researcher randomly selected 90 college female Basketball and Handball players from different affiliated colleges of Kakatiya University, Telangana, India. Age ranged between 18 to 25 years.

2.2. EXPERIMENTAL DESIGN:

The study was formulated as pre and post test random group design, in which ninety (90) players were divided into three equal groups. The experimental groups Basketball Group (BBG) (n=30, BBG) and Handball Group (HBG) (n=30, HBG) underwent Yogic practices and Pranayama practice for 12 weeks as five days per week. Whereas the Control group (n=30, CG) does not went for any specific training other than their routine work.

2.3. SELECTION OF TESTS:

- Agility – Shuttle run – 4 X 10m (in seconds), b. Cardio respiratory endurance – Cooper's 9m Run/Walk (meters) c. Abdominal muscular endurance – Bent knee sit-ups (numbers/one min)

3. RESULTS AND ANALYSIS:

Testing variable: Agility (Shuttle run)

TABLE - 1 COMPUTATION OF 't' VALUE OF AGILITY

S.No	GROUP	Mean		S.D		Obtained 't'	Required 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	10.72	10.67	1.23	1.23	1.48	2.756
2	Handball	10.66	9.98	0.89	0.90	11.53*	
3	Basketball	10.48	9.61	0.91	0.91	11.73*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-1 indicates that the pre test mean values of Control group (CG), Handball group (HBG) and Basketball group (BBG) were 10.72, 10.66 and 10.48 respectively. Post test mean values of CG, HBG and BBG were 10.67, 9.98 and 9.61 respectively. It was found that there is a significant difference between the pre and post test means of HBG and BBG, as the obtained 't' values 11.53 and 11.73 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 1.48 is less than the required 't' value. Hence the effect of Yogic practice and Pranayama practice is visible on agility among HBG and BBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on agility were shown in table- 2.

TABLE – 2 ANALYSIS OF CO-VARIANCE OF AGILITY

Test	Mean			Sum of Square	DF	Mean Square	Obtai- ned F- Ratio	Req. F- Ratio at 0.01
	Control Group	Handball Group	Basketbal 1 Group					
Pre test	10.72	10.66	10.48	B: 0.944	2	0.472	0.45	4.86
				W: 91.146	87	1.048		
Post test	10.67	9.98	9.61	B: 17.134	2	8.567	8.18*	
				W: 91.163	87	1.048		
Adjusted post test	10.57	9.94	9.75	B: 11.072	2	5.536	54.77*	
				W: 8.692	86	0.101		

* Significant at 0.01 level

B: Between the group

W: Within the group

Table – 2 indicates that pre, post and adjusted Post test mean values of CG, HBG and BBG were 10.72, 10.66, 10.48 and 10.67, 9.98, 9.61 and 10.57, 9.94, 9.75 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.45 is less than the required F ratio value 4.86 at 0.01 level of significance for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is

8.18 for df (2,87) and 54.77 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86).

As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of agility were shown in table -3.

TABLE – 3 SCHEFFE'S POST HOC TEST FOR AGILITY

Control Group	Handball Group	Basketball Group	Mean Diff.	C.I at 0.01 level
10.57	9.94	-	0.63*	0.24
10.57	-	9.75	0.82*	
-	9.94	9.75	0.19	

* Significant at 0.01 level

Table – 3 indicates the difference of adjusted post test means between the CG- HBG and CG-BBG was found significant as the mean difference values 0.63 and 0.82 are greater than the C.I value 0.24 at 0.01 level, it was found that there is insignificant difference between HBG -BBG as the mean difference 0.19 is less than 0.24 at 0.01 level.

Testing variable: Cooper's 9min Run/Walk

TABLE - 4 COMPUTATION OF 't' VALUE OF COOPER'S 9Min RUN/WALK

S.No	GROUP	Mean		S.D		Obtained 't'	Required 't'(0.01 level)
		Pre	Post	Pre	Post		
1	Control	1576.67	1578.67	128.39	127.97	0.67	2.756
2	Handball	1580.33	1700.33	104.50	115.98	10.96*	
3	Basketball	1581.33	1703.67	109.09	119.44	10.77*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-4 indicates that the pre test mean values of Control group (CG), Handball group (HBG) and Basketball group (BBG) were 1576.67, 1580.33 and 1581.33 respectively. Post test mean values of CG, HBG and BBG were 1578.67, 1700.33 and 1703.67 respectively. It was found that there is a significant difference between the pre and post test means of HBG and BBG, as the obtained 't' values 10.96 and 10.77 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 0.67 is less than the required 't' value. Hence the effect of Yogic practice and Pranayama practice is visible on cardio respiratory endurance among HBG and BBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on cardio respiratory endurance were shown in table- 5.

TABLE - 5 ANALYSIS OF CO-VARIANCE OF COOPER'S 9Min RUN/WALK

Test	Mean			Sum of Square	DF	Mean Squares	Obtai ned F- Ratio	Req. F- Ratio at 0.01
	Control Group	Handball Group	Basketball Group					
Pre test	1576.67	1580.33	1581.33	B: 362.222	2	181.111	0.01	4.86
				W: 1139910.000	87	13102.414		
Post test	1578.67	1700.33	1703.67	B: 304388.889	2	152194.444	10.35 *	
				W: 1278740.000	87	14698.161		
Adjusted post test	1581.34	1699.48	1701.85	B: 284755.216	2	142377.608	55.0 0*	
				W: 222617.663	86	2588.577		

* Significant at 0.01 level

B: Between the group

W: Within the group

Table – 5 indicates that pre, post and adjusted Post test mean values of CG, HBG and BBG were 1576.67, 1580.33, 1581.33 and 1578.67, 1700.33, 1703.67 and 1581.34, 1699.48, 1701.85 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.01 is less than the required F ratio value 4.86 at 0.01 level of significance for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is 10.35 for df (2,87) and 55.00 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86). As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of cardio respiratory endurance were shown in table -6.

TABLE - 6 SCHEFFE'S POST HOC TEST FOR COOPER'S 9Min RUN/WALK

Control Group	Handball Group	Basketball Group	Mean Diff.	C.I at 0.01 level
1581.34	1699.48	-	118.14*	38.85
1581.34	-	1701.85	120.51*	
-	1699.48	1701.85	2.37	

* Significant at 0.01 level

Table – 6 indicates the difference of adjusted post test means between the CG- HBG and CG-BBG was found significant as the mean difference values 118.14 and 120.51 are greater than the C.I value 38.85 at 0.01 level, it was found that there is insignificant difference between HBG -BBG as the mean difference 2.37 is less than 38.85 at 0.01 level.

Testing variable: Bent Knee Situps

TABLE - 7 COMPUTATION OF 't' VALUE OF BENT KNEE SITUPS

S.No	GROUP	Mean		S.D		Obtained 't'	Req.'t'(0.01 level)
		Pre	Post	Pre	Post		
i.	Control	15.43	15.87	3.10	3.10	1.51	2.756
ii.	Handball	15.73	19.73	2.90	3.13	9.97*	
iii.	Basketball	15.53	19.30	3.33	3.41	11.62*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-7 indicates that the pre test mean values of Control group(CG), Handball group(HBG) and Basketball group(BBG) were 15.43, 15.73 and 15.53 respectively. Post test mean values of CG, HBG and BBG were 15.87, 19.73 and 19.30 respectively. It was found that there is a significant difference between the pre and post test means of HBG and BBG, as the obtained 't' values 9.97 and 11.62 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 1.51 is less than the required 't' value. Hence the effect of Yogic practice and Pranayama practice is visible on abdominal muscular endurance among HBG and BBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on abdominal muscular endurance were shown in table- 8.

TABLE - 8 ANALYSIS OF CO-VARIANCE OF BENT KNEE SITUPS

Test	MEANS			Sum of Square	DF	Mean Square	Obtained F-Ratio	Req. F-Ratio at 0.01
	Control Group	Handball Group	Basketball Group					
Pre test	15.43	15.73	15.53	B: 1.400	2	0.700	0.07	4.86
				W: 844.700	87	9.709		
Post test	15.87	19.73	19.30	B: 269.267	2	134.633	12.99*	
				W: 901.633	87	10.364		
Adjusted post test	15.98	19.59	19.33	B: 242.860	2	121.430	36.66*	
				W: 284.852	86	3.312		

* Significant at 0.01 level

B: Between the group

W: Within the group

Table-7 indicates that the pre, post and adjusted Post test mean values of CG, HBG and BBG were 15.43, 15.73, 15.53 and 15.87, 19.73, 19.30 and 15.98, 19.59, 19.33 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.07 is less than the required F ratio value 4.86 at 0.01 level confidence interval for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is 12.99 for df (2,87) and 36.66 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86).

As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of abdominal muscular endurance were shown in table -9.

TABLE - 9 SCHEFFE'S POST HOC TEST FOR BENT KNEE SITUPS

Control Group	Handball Group	Basketball Group	Mean Diff.	C.I at 0.01 level
15.98	19.59	-	3.61*	1.39
15.98	-	19.33	3.35*	
-	19.59	19.33	0.26	

* Significant at 0.01 level

Table – 9 indicates the difference of adjusted post test means between the CG- HBG and CG-BBG was found significant as the mean difference values 3.61 and 3.35 are greater than the C.I value 1.39 at 0.01 level, it was found that there is insignificant difference between HBG -BBG as the mean difference 0.26 is less than 1.39 at 0.01 level.

4. CONCLUSION:

With the effect of yogic practice and pranayama practice, it was found that there is a significant difference between Control group and basketball group and also found significant difference between control group and handball group. As the both games depends mainly on agility and circulo endurance parameters. Therefore, there would not be any significant difference among Handball group and Basketball group.

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**THE EFFECT OF PLYOMETRIC TRAINING ON PHYSICAL
FITNESS AND PHYSIOLOGICAL VARIABLES OF KABADDI AND
KHO - KHO PLAYERS AMONG TRIBAL ASHRAM GIRLS HIGH
SCHOOL STUDENTS OF TELANGANA STATE**

¹A. Kistu ²Dr. P. Ravi Kumar

¹Research Scholar, ²Professor,

¹Kakatiya University & Physical Director at Govt. TWAHS Girls, Ghanpur (station), Jangoan Dist. T.S, India

²Dept. of Physical Education, NIT Warangal, T.S, India

Abstract:

The purpose of the study was to find out the effects of Plyometric training on selected Physical fitness and Physiological variables of Govt. tribal ashram girls high schools kho kho and kabaddi players in the Telangana state. To achieve the purpose of the study, 90 girls of kho kho and kabaddi players were randomly selected as subjects from different tribal ashram girls high schools from northern region of Telangana state and their age ranged between 14 to 16 years. The study was formulated as pre and post-test random group design, in which N=90 girls kho kho and kabaddi players were divided into three equal groups as group 1 (n = 30, kho kho group - KKG), group 2 (n = 30, kabaddi group - KBG) and group 3 (n = 30, control group - CG). The experimental groups 1 & 2 underwent 12weeks of Plyometric training and control group did not went for any specific training. Pre and post- test was administrated before and after training period on selected Physical fitness and Physiological variables for the three groups respectively. All the statistical analysis was carried out with the help of the software package of social science (SPSS 20.0) for WINDOWS. It was found that with the effect of Plyometric training there was a significant difference on selected Physical fitness and Physiological variables.

Key Words: Sports training, Physical Fitness, Sports Psychology, and Plyometric training.

1. INTRODUCTION:

Physical fitness is an important concept as related to the fields of physiology and exercise physiology. Physiology is the academic study of the various processes, systems, and functions of the human body as influenced by the performance of physical activity. Exercise is a term that has a variety of possible meanings, each dictated by circumstances. In a sports context, exercise is the performance, conditioning or training undertaken in respect to a particular athletic or sporting purpose.

1.1. STATEMENT OF THE PROBLEM:

- The purpose of the study is to examine the effect of plyometric training on agility, cardio respiratory endurance and breath hold time variables among kabaddi and kho-kho players of tribal ashram girls high school students of Telangana State.

1.2. SIGNIFICANCE OF THE STUDY:

The study is significant in the following ways:

- i. To find out whether there was any significant difference with the effect of plyometric training in experimental groups.

1.3. DELIMITATIONS:

The study was confined to the following aspects.

- For this study Telangana state Government tribal welfare ashram girls high schools students of kabbadi and kho - kho players were chosen as the subjects with in the age group of 14 to 16 years and agility, cardio respiratory endurance and breath hold time were delimited to testing variables.
- The training period was limited to 12 weeks (5 days/week).

1.4. HYPOTHESIS:

- i. It was hypothesized that there would be no significant difference between Control group and experimental groups.

2. METHODOLOGY:

• SELECTION OF SUBJECTS:

To achieve the purpose of this study 90 girls students of Kabbadi and Kho - Kho players were selected from Government tribal welfare ashram girls high schools of erst while warangal, khammam and adilabad districts of Telangana state, India. They were selected randomly as subject and their age group was between 14 to 16 years.

• EXPERIMENTAL DESIGN:

The subjects (N=90) selected for the study were segregated into three groups equally and randomly as two experimental groups such as Kho kho Group (KKG) (n=30), Kabaddi Group (KBG) (n=30) and third group as Control Group (CG) (n=30). The two experimental groups KKG and KBG were underwent Plyometric training for 12 weeks CG were not given any specific training, it acted as constant. The Plyometric training was administrated for five days a week and for a period of twelve weeks. The pre test and the post test were conducted on selected physical fitness and physiological dependent variables agility, cardio respiratory endurance and breath hold time before and after the experimental period for all the three groups.

2.1. SELECTION OF TESTS

a. Agility – Shuttle run - 4 X 10m (in seconds), b. Cardio respiratory endurance – Coopers 9m run/walk test c. Breath hold time - Digital stop watch.

3. RESULTS AND ANALYSIS:

3.1. AGILITY:

TABLE 1. COMPUTATION OF 't' VALUE OF AGILITY

S.No	GROUP	Mean		S.D		Obtained 't'	Req.'t' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	10.89	10.88	0.49	0.48	0.46	2.756
2	Kho Kho	10.88	9.93	0.80	0.81	10.82*	
3	Kabaddi	10.78	9.84	0.64	0.65	11.70*	

* Significant at 0.01 level

Degrees of Freedom = 29

From the above table - 1 it was observed that the pre test mean values of Control group, Kho Kho group and Kabaddi group were 10.89, 10.88 and 10.78 respectively. Post test mean values of Control group, Kho Kho group and Kabaddi group were 10.88, 9.93 and 9.84 respectively. The calculated value of 't' for Control group is 0.46, Kho Kho group is 10.82 and Kabaddi group is 11.70. The required 't' value at 0.01 level of confidence for a df (29) is 2.756. Since the obtained 't' values of Kho Kho group and Kabaddi group are more than the required 't' values, therefore it was found that there is a significant difference between the mean values of pre and post training for the Kho Kho group and Kabaddi group. It was found that there is no significant difference between the mean values of pre and post training for the Control group as the calculated value is less than the required 't' value. Hence the effect of training is visible on Agility of the Kho Kho group and Kabaddi group. As there is significant difference, Analysis of covariance (ANCOVA) is used to test the data of adjusted post test mean values of Control group, Kho Kho group and Kabaddi group on Agility were exhibited in table - 2.

TABLE – 2 : ANALYSIS OF CO-VARIANCE OF AGILITY

Test	MEANS			Sum of Square	DF	Mean Squares	Obtained F-Ratio	Required F-Ratio at 0.01
	Control Group	Kho-Kho Group	Kabaddi Group					
Pre test	10.89	10.88	10.78	B: 0.285	2	0.142	0.32	4.86
				W: 38.071	87	0.438		
Post test	10.88	9.93	9.84	B: 20.322	2	10.161	22.99*	
				W: 38.459	87	0.442		
Adjusted post test	10.84	9.91	9.92	B: 17.400	2	8.700	60.97*	
				W: 12.272	86	0.143		

* Significant at 0.01 level

B: Between the group

W: Within the

group

From the table – 2 it was observed that pre test, post test and adjusted post test mean values of Control group, Kho Kho group and Kabaddi group were 10.89, 10.88, 10.78 and 10.88, 9.93, 9.84 and 10.84, 9.91, 9.92 respectively. As the obtained pre test F-ratio 0.32 is less than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is no significant difference of the pre test mean values between the three groups. As the obtained post test F-ratio 22.99 is greater than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is significant difference of the post test mean values between the three groups. As the obtained adjusted post test F-ratio 60.97 is greater than the required table F-ratio 4.86 for the df (2,86) at 0.01 level of confidence. Therefore it was found that there is significant difference of the adjusted post test mean values between the three groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between paired adjusted mean values on Agility were shown in table - 3

TABLE - 3: SCHEFFE'S POST HOC TEST FOR AGILITY

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
10.84	9.91		0.93*	0.29
10.84		9.92	0.92*	
	9.91	9.92	0.01	

* Significant at 0.01 level

Table – 3 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 0.93 and 0.92 are greater than the C.I value 0.29 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 0.01 is less than 0.29 at 0.01 level.

3.2. COOPER'S 9Min RUN/WALK:

TABLE - 4 : COMPUTATION OF 't' VALUE OF COOPER'S 9Min RUN/WALK

S.No	GROUP	Mean		S.D		Obtained 't'	Req. 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	1407.33	1418.00	234.86	243.42	1.78	2.756
2	Kho Kho	1423.00	1677.00	190.28	188.41	9.58*	
3	Kabaddi	1383.00	1578.33	193.64	194.72	7.26*	

* Significant at 0.01 level

Degrees of Freedom = 29

From the above table - 4 it was observed that the pre test mean values of Control group, Kho Kho group and Kabaddi group were 1407.33, 1423.00 and 1383.00 respectively. Post test mean values of Control group, Kho Kho group and Kabaddi group were 1418.00, 1677.00 and 1578.33 respectively. The calculated value of 't' for Control group is 1.78, Kho Kho group is 9.58 and Kabaddi group is 7.26. The required 't' value at 0.01 level of confidence. for a df (29) is 2.756. Since the obtained 't' values of Kho Kho group and Kabaddi group are more than the required 't' values, therefore it was found that there is a significant difference between the mean values of pre and post training for the Kho Kho group and Kabaddi group. It was found that there is no significant difference between the mean values of pre and post training for the Control group as the calculated value is less than the required 't' value. Hence the effect of training is visible on cardio respiratory endurance of the Kho Kho group and Kabaddi group. As there is significant difference, Analysis of covariance (ANCOVA) is used to test the data of adjusted post test mean values of Control group, Kho Kho group and Kabaddi group on Cooper's 9min Run/Walk.

TABLE - 5: ANALYSIS OF CO-VARIANCE OF COOPER'S 9Min RUN/WALK

Test	MEANS			Sum of Square	DF	Mean Squares	Obtain ed F-Ratio	Req. F-Ratio at 0.01
	Control Group	Kho-Kho Group	Kabaddi Group					
Pre test	1407.33	1423.00	1383.00	B: 24375.556	2	12187.778	0.28	4.86
				W: 3737046.667	87	42954.559		
Post test	1418.00	1677.00	1578.33	B: 1025228.889	2	512614.444	11.60*	
				W: 3843126.667	87	44173.870		
Adjusted	1415.57	1661.34	1596.43	B: 973226.720	2	486613.360	35.42	
				W: 1181443.850	86	13737.719	*	

post test								
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* Significant at 0.01 level B: Between the group W: Within the group

From the table – 5 it was observed that pre test, post test and adjusted post test mean values of Control group, Kho Kho group and Kabaddi group were 1407.33, 1423.00, 1383.00 and 1418.00, 1677.00, 1578.33 and 1415.57, 1661.34, 1596.43 respectively. As the obtained pre test F-ratio 0.28 is less than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is no significant difference of the pre test mean values between the three groups. As the obtained post test F-ratio 11.60 is greater than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of significance. Therefore it was found that there is significant difference of the post test mean values between the three groups. As the obtained adjusted post test F-ratio 35.42 is greater than the required table F-ratio 4.86 for the df (2,86) at 0.01 level of confidence. Therefore it was found that there is significant difference of the adjusted post test mean values between the three groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between paired adjusted mean values on cooper's 9min run/walk were shown in table – 3

TABLE – 6 : SCHEFFE'S POST HOC TEST FOR COOPER'S 9Min RUN/WALK

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
1415.57	1661.34	-	245.77*	89.51
1415.57	-	1596.43	180.86*	
-	1661.34	1596.43	64.91	

* Significant at 0.01 level

Table – 6 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 245.77 and 180.86 are greater than the C.I value 89.51 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 64.91 is less than 89.51 at 0.01 level.

3.3. BREATH HOLD TIME:

TABLE – 7 : COMPUTATION OF 't' VALUE OF BREATH HOLD TIME

S.No	GROUP	Mean		S.D		Obtained 't'	Req. 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	24.68	25.06	3.40	3.39	1.81	2.756
2	Kho Kho	26.36	32.52	4.76	4.82	12.07*	
3	Kabaddi	24.90	30.54	3.53	3.52	10.64*	

* Significant at 0.01 level

Degrees of Freedom = 29

From the above table – 7 it was observed that the pre test mean values of Control group, Kho Kho group and Kabaddi group were 24.68, 26.36 and 24.90 respectively. Post test mean values of Control group, Kho Kho group and Kabaddi group were 25.06, 32.52 and 30.54 respectively. The calculated value of 't' for Control group is 1.81, Kho Kho group is 12.07 and Kabaddi group is 10.64. The required 't' value at 0.01 level of confidence for a df (29) is 2.756. Since the obtained 't' values of Kho Kho group and Kabaddi group are more than the required 't' values, therefore it was found that there is a significant difference between the mean values of pre and post training for the Kho Kho group and Kabaddi group. It was found that there is no significant difference between the mean values of pre and post training for the Control group as the calculated value is less than the required 't' value. Hence, the effect of plyometric training is visible on Breath Hold Time in the Kho Kho group and Kabaddi group. As there is significant difference, Analysis of covariance (ANCOVA) is used to test the data of adjusted post test mean values of Control group, Kho Kho group and Kabaddi group on Cooper's 9min Run/Walk.

TABLE – 8 : ANALYSIS OF CO-VARIANCE OF BREATH HOLD TIME

Test	MEANS			Sum of Square	DF	Mean Squares	Obtained F-Ratio	Req. F-Ratio at 0.01
	Control Group	Kho-Kho Group	Kabaddi Group					
Pre test	24.68	26.36	24.90	B: 50.487	2	25.243	1.62	4.86
				W: 1354.839	87	15.573		
Post test	25.06	32.52	30.54	B: 895.395	2	447.697	28.52*	
				W: 1365.591	87	15.696		

Adjusted post test	25.58	31.66	30.88	B: 645.084	2	322.542	59.74*	
				W: 464.354	86	5.399		

* Significant at 0.01 level

B: Between the group

W: Within the

group

From the table – 8 it was observed that pre test, post test and adjusted post test mean values of Control group, Kho Kho group and Kabaddi group were 24.68, 26.36, 24.90 and 25.06, 32.52, 30.54 and 25.58, 31.66, 30.88 respectively. As the obtained pre test F-ratio 1.62 is less than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is no significant difference of the pre test mean values between the three groups. As the obtained post test F-ratio 28.52 is greater than the required table F-ratio 4.86 for the df (2,87) at 0.01 level of confidence. Therefore it was found that there is significant difference of the post test mean values between the three groups. As the obtained adjusted post test F-ratio 59.74 is greater than the required table F-ratio 4.86 for the df (2,86) at 0.01 level of confidence. Therefore it was found that there is significant difference of the adjusted post test mean values between the three groups. As there is a significant difference, Scheffe's post hoc test is used for testing the significance between paired adjusted mean values on breath hold time were shown in table – 9.

TABLE – 9 : SCHEFFE'S POST HOC TEST FOR BREATH HOLD TIME

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
25.58	31.66	-	6.08*	1.77
25.58	-	30.88	5.30*	
-	31.66	30.88	0.78	

* Significant at 0.01 level

Table – 9 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 6.08 and 5.30 are greater than the C.I value 1.77 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 0.78 is less than 1.77 at 0.01 level.

4. CONCLUSION:

With the plyometric training effect, it was found that there is a significant difference between the control group and kho kho group and also found significant difference between control group and kabaddi group. As the both games depends mainly similar motor abilities. Therefore, there would not be any significant difference among Kho Kho group and Kabaddi group.

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A COMPARATIVE STUDY ON STATIC BALANCE AND DYNAMIC BALANCE BETWEEN KHO-KHO & KABADDI PLAYERS

Dr. Sandip Sankar Ghosh

Assistant Professor

Department of Physical Education, University of Kalyani

Kalyani, Nadia, West Bengal, India,

Email. - sandipsankarmal@gmail.com

Abstract:

Objectives: The study was conducted to compare the static balance and dynamic balance between Kho-Kho players and Kabaddi players. **Methods:** Total thirty two ($N = 32$) subjects were selected for this work of which seventeen ($n = 17$) were kho-kho players and rest fifteen ($n = 15$) were kabaddi players. The age of the subjects ranged from 18 to 22 years. They were selected from two separate districts of West Bengal-a state of India. For the present study following two variables were considered and respective standard tests were adopted viz. a) Static Balance - Stork Stand Test. b) Dynamic Balance - Modified Bass Test of Dynamic Balance. Mean and standard deviation of each variable were calculated. The means of respective variables were compared by using independent t-test and it was tested at $p < 0.05$ level of significance. For the statistical calculations Social Science Research software package was used. **Result:** Significant difference was observed in both static balances as well as in dynamic balance between the Kho-Kho players and Kabaddi players. The results of the study also showed that 1) In Static Balance the Kabaddi players were significantly better than the Kho-Kho players. On the other hand 2) In Dynamic Balance the Kho-Kho players were significantly better than the Kabaddi players.

Key Words: Kabaddi, Kho-Kho, Static Balance, Dynamic balance,

1. INTRODUCTION:

Balance is the ability to keep one's body position stable on the base of support (Lopes et al., 2011). Person's ability to maintain balance is a very important determinative factor in the development of other motor task and acts as basis for a good performance (Mahieu et al., 2006). Balance is not only the integration of sensory inputs but also a complex motor task involving the planning and application of flexible shapes of movement (Massion, 1994). Balance is one of the main elements of most physical activities and an important factor in the performance of sports skills. In sports science balance is classified into two types viz. static balance and dynamic balance. The balance ability to keep the body in a stable position in a specific place or position is called static balance. On the other hand, the ability to keep body balance while moving is called dynamic balance. Punakallio defined the static balance as the ability to hold the press in the support center in the middle (Moravejalahkami et al., 2012). To maintain the balance a postural control system with high coordination in different joints is necessary that needs the complex interaction of several structures such as visual, auditory, proprioceptive motor outputs etc. These systems develop during childhood. Until the age of 10 years, children are not as good at the control of static and dynamic balance as adults (McCann et al., 2015; Meng & Lee, 2014).

In recent years, development of proprioception and balance in order to improve the quality of life, prevent potential injuries, and to increase performance in physical activities and in various age groups, and the exercises required for this development have been discussed in various studies. It is believed that static & dynamic balance is a significant skill in all age groups and it is required for regular daily activities, such as walking, running, or other physical activities that require control of maintain a stable posture or dynamic movements. The present study was undertaken with a view to investigate different types of balance between two small area games i.e. between the kabaddi & kho-kho players. A sincere attempt is made to know the research work already done in the subject area, the gaps and weakness of the past research, the methodology used and procedure followed from various literatures. Considering the research work in this field it can be

concluded that a very little effort has been taken so far on the balance ability of the players of two Indian small area games-Kho-Kho & Kabaddi. Accordingly the present research work was planned to investigate the balance ability of the players of the said games. Therefore, the purpose of the study was to compare the static balance and dynamic balance between Kho-Kho players and Kabaddi players.

2. METHODS & MATERIALS:

Subjects: Total thirty two (N = 32) subjects were selected for this work of which seventeen (n = 17) were kho-kho players and rest fifteen (n = 15) were kabaddi players. The age of the subjects ranged from 18 to 22 years. They were selected from two separate districts of West Bengal-a state of India.

Selected Variables: For the present study following two variables were considered and respective standard tests were adopted viz. a) Static Balance - Stork Stand Test. b) Dynamic Balance - Modified Bass Test of Dynamic Balance.

Administration of Test and data Collection: Before administering the tests all the subjects as well as testers were properly oriented through demonstration by the investigator and they were motivated to give their Best effort in performing two items prescribed for them. The subject were performed the test one by one .The data were collected in four consecutive days for all the subjects as per the tests guidelines.

Testing Procedures: In the following section the procedure of the administration of the two tests, i.e. Stork Stand Test for static balance and Modified Bass Test of dynamic balance have been described.

Static Balance: (Stork Stand)

Objectives: To measure the static balance of the body.

Age level: High school students and above.

Sex: Both boys and girls.

Reliability: An r of .87 was found for this test when the best trials of the initial test were correlated with the best trial of the second test, which were administered on different days.

Validity: Face validity was accepted for this test.

Objectivity: Reported as high as .99 as determined by Jim Knox, 1969.

Equipment and Materials: stopwatch.

Direction: From a stand on the foot of the dominant leg place the other foot on the inside of the supporting knee and place the hand on the hips. Upon a given signal raise the heel from the floor and maintain the balance as long as possible without moving the ball of the foot from its initial position on the heel touch the floor, shown in **Fig -1 & 2**.

Scoring: The score is the greatest number of seconds counted between the time the heel is raised and the balance is lost on three trials with the preferred foot. Only the highest score is recorded (Johnson & Nelson, 1969).



Dynamic Balance: (Modified Bass Test)

Objectives: To measure dynamic balance of the body.

Age level: High school students.

Sex: Both boys and girls.

Reliability: $r = 0.75$ was found for this test when subject were tested on separated days.

Validity: $r = 0.46$ was found when this test correlated with the bass test of dynamic balance.

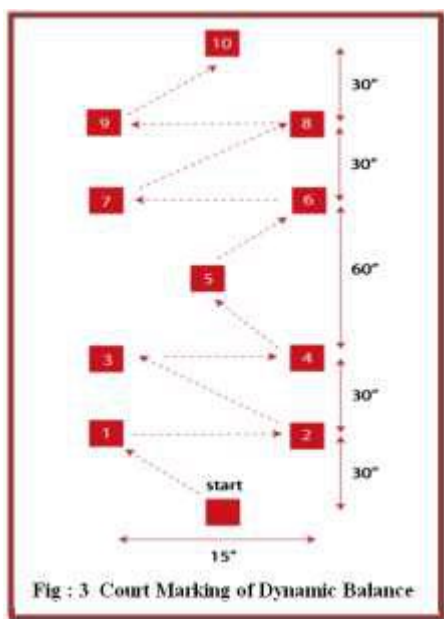
Objectivity: An r of 0.97.

Equipment and Materials: The equipment and materials needed and stopwatch, $\frac{3}{4}$ inch marking tape .Cut eleven 1 by $\frac{3}{4}$ inch pieces of marking tape and tape them in the proper patron to the floor.

Direction: Standing on the right foot on the starting mark, the performer leaps to the first tape mark with the left foot and tries to hold a steady position on the ball of his left foot for as many seconds as possible up to 5 seconds. She/he then leaps to the second tape mark with the right foot and so on. He should remain on each tape mark for as many seconds as possible up to a maximum of 5 seconds, and his foot must completely cover the tape so that it cannot be seen.

Scoring: The score for each mark successfully landed on is five points, and in addition, one point is awarded for each second the balance is held up to 5 second per mark. Thus, a performer may earn a maximum of ten point's marker or a total for 100 points for the test. In Fig: 3 & Fig: 4 the diagram of the court and test have shown (Johnson & Nelson, 1969).

Statistical Analysis: Mean and standard deviation of each variable were calculated. The means of respective variables were compared by using independent t-test. And it was tested at $p < 0.05$ level of significance. For the statistical calculations *Social Science Research software package* was used.



3. RESULTS:

In **Table – 1**, the mean and standard deviation of age, height, and weight of the subjects for two groups have been presented. In Fig-5 the descriptive statistics of two groups of subjects have been depicted.

Table 1. Mean SD and Range of Age, Height and Weight of the Subjects of Kho-Kho & Kabaddi Groups

Name of the Group	No. Of Subjects	Age (years)		Height (cm.)		Weight (Kg.)	
		Mean \pm S.D	Range	Mean \pm S.D	Range	Mean \pm S.D	Range
Kho-Kho	17	20.25 \pm 1.88	18.15 – 22.12	156.24 \pm 4.56	150 -161	52.54 \pm 6.72	45.15 – 58.42
Kabaddi	15	20.68 \pm 1.54	17.92 – 21.85	158.20 \pm 3.94	153 - 160	63.72 \pm 7.45	72.53 – 54.48
Total no. of Subjects: (N)= 32							

In **Table – 1**, it is reflected that no of subject in Kho-Kho was seventeen (n=17) and Kabaddi was fifteen (n=15). The mean standard deviation and range of age, height, and weight of the subjects for Kho-Kho & Kabaddi groups have been presented. Table-1 shows that the total number of subjects for the study was thirty two (N = 32). The Mean \pm S.D. value of age for the Kho-Kho group & Kabaddi group were 20.25 ± 1.88 years and 20.68 ± 1.54 years respectively. The range of age of the subjects for Kho-Kho group & Kabaddi group were (18.15 – 22.12) years and ((17.92 – 21.85) years respectively. The Mean \pm S.D. value of height for the Kho-Kho group & Kabaddi group were 156.24 ± 4.56 cm and 158.20 ± 3.94 cm respectively. The range of height of the subjects for Kho-Kho group & Kabaddi group were (150 -161) cm and (153 – 160) cm respectively. The Mean \pm S.D. value of weight for the Kho-Kho group & Kabaddi group were 52.54 ± 6.72 Kg. and 63.72 ± 7.45 Kg respectively. The range of weight of the subjects for Kho-Kho group & Kabaddi group were (45.15 – 58.42) Kg. and (72.53 – 54.48) Kg. respectively. In Fig: 5 the mean value of age, height and weight both for Kho-Kho group & Kabaddi group have shown.

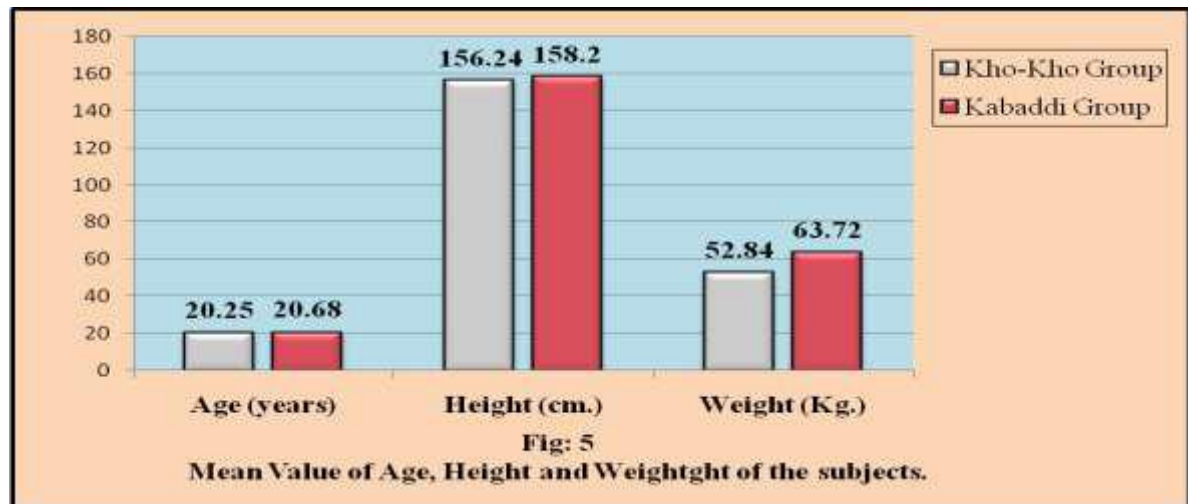
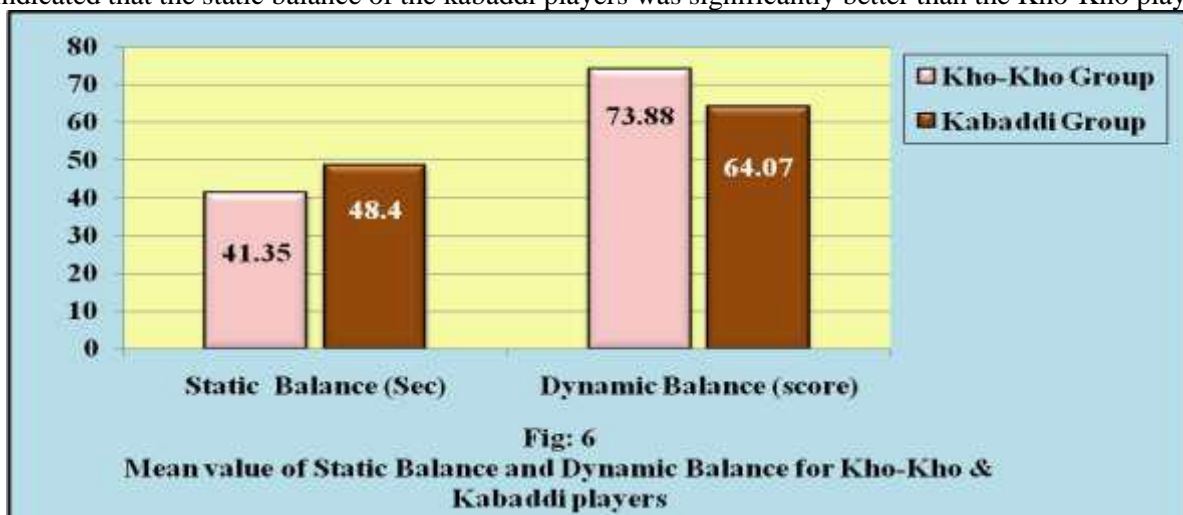


Table 2. Mean, SD, Mean diff and t-value & p-value of Static & Dynamic Balance of the Kho-Kho & Kabaddi Groups

Variables	Kho-Kho Group (Mean \pm SD)	Kabaddi Group (Mean \pm SD)	Mean Difference	t- value	p - value
Static Balance (Sec)	41.35 \pm 6.53	48.40 \pm 10.85	7.047	2.256 *	0.01575 *
Dynamic Balance (score)	73.88 \pm 6.01	64.07 \pm 8.96	9.816	3.678 *	0.00046 *

Table value of 't' at 0.05 level of confidence for $df(31) = 1.696$, * Sign indicates Significant difference.

From **Table-2** it was found that the mean \pm SD of **Static Balance** for Kho-Kho group was 41.35 ± 6.53 s and for Kabaddi group was 48.40 ± 10.85 s respectively. The value of mean difference was 7.047s. The t-value & p-value were 2.256 and 0.01575 respectively which was significant at $p < 0.05$ level. It indicated that there was a significant difference in static balance between the Kho-Kho group and Kabaddi group. The result also indicated that the static balance of the kabaddi players was significantly better than the Kho-Kho players.



From Table-2 it was also found that the mean \pm SD of Dynamic Balance for Kho-Kho group was 73.88 ± 6.01 and for Kabaddi group was 64.07 ± 8.96 respectively. The value of mean difference was 9.816. The t-value & p-value were 3.678 and 0.00046 respectively which was significant at $p < 0.05$ level. It indicated that there was a significant difference in dynamic balance between the Kho-Kho group and Kabaddi group. The result also indicated that the dynamic balance of the Kho-Kho players was significantly better than the kabaddi players. The mean value of Static balance and dynamic balance for Kho-Kho & Kabaddi players have been presented in Fig:6.

4. DISCUSSION:

The balance ability of the players of two small area games were measured and analyzed in this study. For this purpose, the static and dynamic balance performances of Kho-Kho and Kabaddi players aged between 18 - 22 years were compared. In this study, a significant difference was found between Kho-Kho group and Kabaddi group in static balance performance. The result also confirmed that the static balance of the kabaddi players was significantly better than the Kho-Kho players. On the other hand significant difference was also found between Kho-Kho group and Kabaddi group in dynamic balance performance but the result was opposite to the static balance and confirmed that the dynamic balance of the Kho-Kho players was significantly better than the kabaddi players. It is believed that these differences may result due to the difference of nature between these two games, where Kho-Kho is basically a speed and agility dominated game need high reaction ability and quick change of direction, however, in kabaddi the nature of movement is respectively slow and dominated by strength and muscle power that may influenced the motor responses, and may be related to proprioceptive and visual movement. It is known that in static and dynamic balance the postural controls are very important and it is necessary to execute any motor skills execution (Westcott et al., 1997). It also needs advanced muscular strength for postural balance (Giagazoglou et al., 2009). Previous study shown that strength influences the balance positively (Eylen et al., 2017). As we know that stability also incises with body weight. A Significant correlations were observed between body mass index with dynamic balance, showing that increase of body weight worsens dynamic balance (Moein & Movaseghi, 2016; Yogi & Jain, n.d.). In this view point in ergonomics various research work were done on impose of external weight vest to improve the static balance (Sullivan & Masi, 2016). The body weight of the kabaddi players were greater than the kho-kho players, in the present study, therefore, it may also be a cause of significantly better static balance in the kabaddi players and conversely significantly better dynamic balance in favour of kho-kho players. Physical activity is known to develop coordination, acceleration, reaction time, and balance, along with speed, skills, abilities, and agility. It is also known that dynamic balance requires constant change of movement and proper adaptation to this change (Claxton et al., 2006). The area of the kabaddi field is smaller than the Kho-Kho having the restriction or less chance of high frequency movement execution with respect to kho-kho may also be a cause of significantly less dynamic balance in kabaddi players than the Kho-Kho players.

5. CONCLUSION:

On the basis of analysis of data the following conclusions of the present study may be drawn:- 1) In Static Balance the Kabaddi players are significantly better than the Kho-Kho playes and 2) In Dynamic balance the Kho-Kho players are significantly better than the Kabaddi players..

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**EFFECTIVENESS OF WEIGHTED VEST AQUA-PLYOMETRIC
TRAINING IN COMPARISON WITH LAND PLYOMETRIC
TRAINING FOR IMPROVING SPEED ABILITY OF ATHLETES**

¹Mr. Raju Biswas, ²Dr. Sandip Sankar Ghosh

¹ Research Scholar, ²Assistant Professors,
University of Kalyani, Kalyani, Nadia-741235, West Bengal, India

Abstract:

Purpose: The purpose of the present study was to compare the effectiveness of Weighted Vest Aqua-Plyometric Training (APT WV) with respect to Land Plyometric Training (LPT) for improving speed ability of the Athletes. **Method:** Total thirty six (N = 36) district level athletes were randomly selected. All the subjects were divided into three equal groups: i) Land Plyometric Training Group (LPTG) as experimental group-I ii) Aquatic Plyometric Training Group with Weighted Vest (APTGWV) as experimental group-II and iii) Control Group (CG). Both type of plyometric training was intervened for fourteen weeks on the respective experimental groups. Experimental group-I underwent land plyometric training whereas experimental group-II underwent aqua plyometric training with weighted vest for fourteen weeks. But the control group did not involve in any of the above plyometric treatments. But all the three groups were involved in their daily routine activities which were beyond the control of the researchers. In the present study speed ability was taken as the only independent variable which was measured through 60 yard dash. To draw the statistical inference on speed among the groups in pre and post intervention condition; analysis of covariance (ANCOVA) was used. To find out the exact location of the difference within different groups Tukey's LSD test was adapted as post hoc test. The significance of means were tested at $p < 0.05$ level. **Findings:** Both Land Plyometric Training Group (LPTG) and Weighted Vest Aquatic Plyometric Training Group (APTGWV) improved significantly with respect to the Control Group (CG) in speed ability. Significant difference was also observed between Land Plyometric Training Group (LPTG) and Aquatic Plyometric Training Group with Weighted Vest (APTGWV) in speed ability. It was also confirmed that the Weighted Vest Aquatic Plyometric Training Group (APTGWV) improved better than the Land Plyometric Training Group (LPTG) in speed ability. **Conclusion:** From the above findings it can be concluded that Weighted Vest Aquatic Plyometric Training (APT WV) is an effective training means to improve the speed ability of the athlete. Therefore, Aqua Plyometric Training with Weighted Vest (APT WV) should be considered as a substitute of Land Plyometric Training (LPT) for developing speed.

Key Words: plyometric training, land plyometric training, aqua plyometric training with weighted vest, speed ability.

1. INTRODUCTION:

Sports training are generally design to get optimal performance in a particular sport. Its main aim is to develop the performance capacity of sports persons, so that they can achieve the highest possible performance. The performance in sports generally depends upon different fitness components like explosive strength, speed, anaerobic power, aerobic fitness, coordination, endurance, flexibility etc. It requires different types of sports training method to develop any particular fitness component. There are various methods of sports training used by coaches and other professionals, among these training methods plyometric training is one of the popular training means that are widely used to develop performance in different sports. Plyometric training is consisted of specialized exercises, techniques used to develop strength and speed. Plyometric training basically consist of high-intensity, explosive muscular contractions that execute the stretch reflex; stretching the muscle before it contracts so that it contracts with greater force (Senthil Kumar, 2016). Plyometric training is a type of exercise that involved jumping; bounding and other high impact exercises that focus on maximizing the stretch reflex of the muscles. To teach the muscles to produce maximum force faster, this enhances performance for athletes and exercisers alike (Chu, 1998). Thus plyometrics has been a very popular training technique used by many

coaches and training experts to improve speed, explosive power output, explosive reactivity and eccentric muscle control during dynamic movements (Coetzee, 2007).

Plyometric training benefitted the athlete in various ways. Research has shown that the land plyometric exercises improves acceleration ability and power of the athlete far better than traditional strength training means (LaChance, 1995; Luebbers et al., 2003; Miller et al., 2002; Potteiger et al., 1999). High volumes of plyometric training should increase athletic performance (Ploeg et al., 2010). For better improvement through plyometrics the coaches and sports scientist suggests to incorporate plyometric training with additional weight in form of wearable resistance with the body of the athlete for further improvement of muscle strength and power (Bosco, 1985; Faigenbaum et al., 2006; Hrysomallis, 2012; Macadam et al., 2017; Rantalainen et al., 2012; Rey et al., 2017).

Undoubtedly, the plyometric training with weighted vest improves the muscular strength, explosiveness and overall athletic performance well in comparison to the normal-weight plyometric (Sheikh & Hassan, 2018) but, simultaneously, it is also susceptible with muscle soreness and chronic injuries such as tendonitis, as a result of repetitive, due to high ground impact forces (Colado et al., 2010; Donoghue et al., 2011; Miller et al., 2001; Miller et al., 2007). Due to the buoyant properties, the water acts as a counterforce to gravity, and give support for the athlete's body as it moves downward and resisting movement in the upward motion (Suomi & Kocaja, 2000; Miller et al., 2001). In the aquatic environment the buoyant property may limit the over stresses due to body weight or wearable weight on the weight bearing muscle groups and allow higher gains in explosiveness and performance at the same time it potentially reduces muscle soreness.

Acceleration, speed, dynamic leg explosive power etc are the essential components of sports performance. All these components are associated with explosive power. Power combines strength and speed (Farentinos & Radcliffe, 1999). Speed ability is one of important factor for execution of any type of sport skill where explosive type of muscular force/power generation is needed (Baechle & Earle, 2008; de Villarreal et al., 2011). Speed may have been improved from pre- to post-testing due to the specificity of the plyometric training program. The present study was designed to gather the knowledge about the effect of weighted vest aquatic plyometric training in comparison with land-based plyometric training. Thereby, the purpose of this study was to compare the effectiveness of weighted vest aqua-plyometric training in comparison with land plyometric training for developing speed ability of the athletes.

2. MATERIALS AND METHODS:

Experimental Approach to the Problem:

This study was conducted to compare the effectiveness of two different types of plyometric training executed in land i.e. on grassy-turf and in water medium with weighted vest, on speed ability. In the present study speed was measured through 60 yard dash. For the purpose of the study thirty six district level athletes age range between 12 to 18 years were randomly selected and were divided into three equal groups : i) *Land plyometric training group* (LPTG) as experimental group–I ii) *Aquatic plyometric training with weighted vest group* (APTGWV) as experimental group–II and iii) *Control group* (CG). Equated group design was adopted in the present study. All the experimental groups were involved in the respective training schedule.

Participants: Thirty six (N = 36) district level athletes were randomly selected as subjects for the present study from Nadia district of West Bengal. The age ranged of the subjects was from 12-18 years.

Experimental Protocol: Plyometric training was intervened for fourteen weeks on both the experimental groups. LPTG underwent land plyometric on grassy turf whereas APTGWV underwent aquatic-based plyometric by adding weighted jacket which was filled in appropriate weight and did same plyometric exercises into a water reservoir. The weighted jacket weighed 5% of their body mass and gradually increase to about 10% of their body mass (Bosco, 1985; Bosco et al., 1986; Kamalakkannan et al., 2011; Rantalainen et al., 2012; Sands et al., 1996). The level of water was set at waist height of the each subject through adjustable operation as referred by (Miller et al., 2007b). The training schedule was intervened continuously for fourteen weeks three days in a week and 90-120 min session daily as per the structured training schedule given below. But the control group did not involve in any of the above plyometric treatments. But all the three groups were involved in their daily routine activities which were beyond the control of the researchers. For evaluating the speed ability of athletes' pre and post-training data were recorded for each group. The training schedule and training intensity has been given below (Arazi & Asadi, 2011; Bompa, 2000; Miller et al., 2007b; Söhnlein et al., 2014; "Sports Periodization," 2019).

Training Week	Plyometric Drill	Training Intensity
I & II Week	Side to side ankle hops (single leg)	Low
	Side to side ankle hops (both leg)	Low

	Standing long jump and reach	Low
	Double leg hops	Low
	Jump & squat	Low
III & IV Week	Side to side ankle hops (single leg)	Low
	Side to side ankle hops (both leg)	Low
	Standing long jump and reach	Medium
	Double leg hops	Medium
	Jump & squat	low
V & VI Week	Single leg hops (alternatively)	Low
	Standing long jump	Medium
	Double leg hops	Medium
	Jump & squat	Medium
	Tuck jump	Low
VII & VIII Week	Single leg hops (alternatively)	Medium
	Double leg bounding	Low
	Standing long jump	High
	Jump & squat	High
	Tuck jump	Low
IX & X Week	Single leg hops (alternatively)	High
	Double leg bounding	Medium
	Jump & squat	High
	Tuck jump	Medium
	Split squat jump	Low
XI & XII Week	Single leg hops (alternatively)	High
	Double leg bounding	High
	Tuck jump	Medium
	Split squat jump	Medium
	Scissor jump	Low
XIII & XIV Week	Single leg hops (alternatively)	High
	Double leg bounding	High
	Tuck jump	Medium
	Split squat jump	High
	Scissor jump	Medium

Variable Studied: In the present study speed ability was taken as the only independent variable which was measured through 60 yard dash.

Statistical analysis: To find out significant difference in speed ability among different groups in the pre and post intervention condition; analysis of covariance (ANCOVA) was conducted. To find out the exact location of the difference between different groups Tukey's LSD test was adapted as post hoc test. The significance of means were tested at $p < 0.05$ level.

3. RESULTS:

Table-1. Mean and SD of Age, Height and Weight for the Subjects of Different Groups in Pre-experimental Condition

Sl. No.	Name of the Group	No. Of Subjects	Age (years)	Height (cm.)	Weight (Kg.)
			Mean \pm S.D	Mean \pm S.D	Mean \pm S.D
1	LPTG	12	15.25 \pm 1.86	152.92 \pm 7.44	44.09 \pm 6.36
2	APTGWV	12	15.42 \pm 1.83	158.33 \pm 8.17	49.58 \pm 4.62
3	CG	12	14.75 \pm 1.54	154.33 \pm 4.91	45.40 \pm 7.39
Total no. of Subjects: (N) = 36					

In Table 1, the mean and standard deviation of age, height, and weight of the subjects for different groups have been presented. Thus Table-1 shows that the total number of subjects for the study was 36. They were divided into three equal groups i.e. LPTG, APTGWV and CG. In pre-experimental condition the Mean \pm S.D value of age for the three groups were 15.25 \pm 1.86, 15.42 \pm 1.83 and 14.75 \pm 1.54 respectively. The Mean \pm S.D value

of height for the three groups were 152.92 ± 7.44 , 158.33 ± 8.17 and 154.33 ± 4.91 respectively. In pre-experimental condition the Mean \pm S.D value of weight for the three groups were 44.09 ± 6.36 , 49.58 ± 4.62 and 45.40 ± 7.39 respectively.

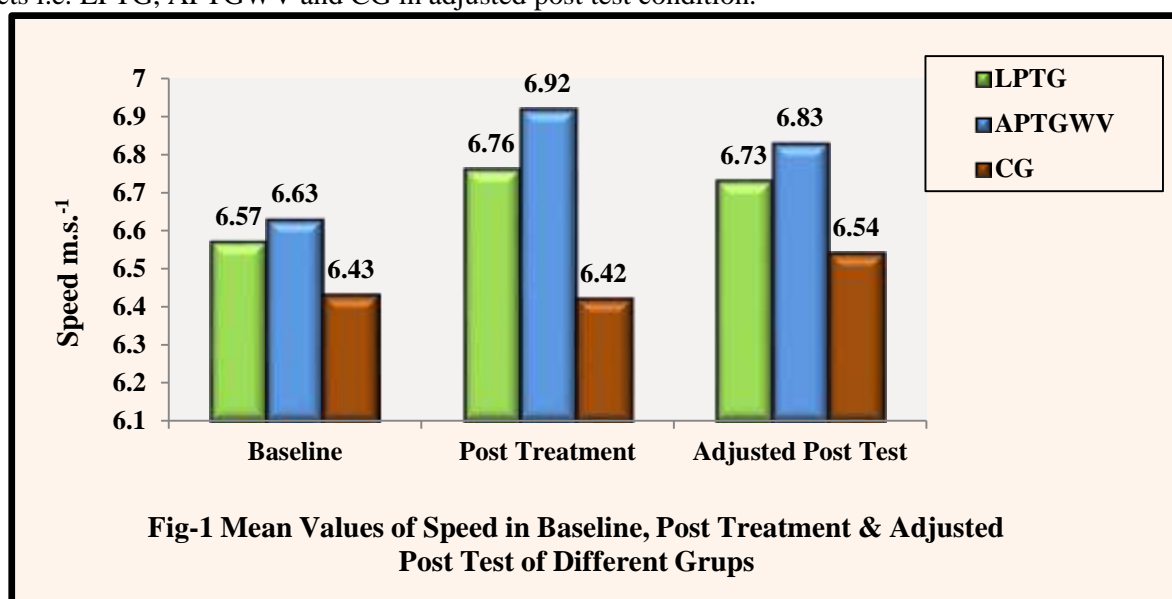
Table-2. Mean, Standard Deviation and Analysis of Co-Variance (ANCOVA) of Speed among Land Plyometric Group, Aquatic Plyometric with Weighted Vest Group and Control Group in Baseline, Post Treatment and Adjusted Post Test

Test	LPTG	APTGWV	CG	Source of variance	Sum of squares	df	Mean squares	'F' Ratio
Baseline								
Mean \pm SD (m.s ⁻¹)	6.57 ± 0.33	6.63 ± 0.31	6.43 ± 0.34	Between	0.24	2	0.12	1.137
				Within	4	33	0.11	
Post Treatment								
Mean \pm SD (m.s ⁻¹)	6.76 ± 0.29	6.92 ± 0.42	6.42 ± 0.36	Between	1.58	2	0.79	6.042
				Within	4.31	33	0.13	
Adjusted post test								
Mean (m.s ⁻¹)	6.73	6.83	6.54	Between	0.50	2	0.25	24.174
				Within	0.33	32	0.01	

*(The table values required for significance at .05 level with df (2, 33) and (2,32) were 3.29 and 3.30 respectively).

From **Table – 2** It was found that the Baseline Mean \pm SD value of speed for LPTG, APTGWV and CG were 6.57 ± 0.33 , 6.63 ± 0.31 and 6.43 ± 0.34 respectively. The Post Test Mean \pm SD value of speed for LPTG, APTGWV and CG were 6.76 ± 0.29 , 6.92 ± 0.42 , 6.42 ± 0.36 respectively. The adjusted post test mean value of speed for LPTG, APTGWV and CG were 6.73, 6.83 and 6.54 respectively.

From **Table-2** it was also found that the baseline F-value of speed among the three groups were 1.137 which was less than the required table value 3.29 for significance with df (2,33) at 0.05 level. It signifies that LPTG, APTGWV and CG were exactly equated at baseline. It was also found that the post-treatment F-value of speed among the three groups were 6.042 which was greater than the required table value 3.29 for significance with df (2,33) at 0.05 level. It signifies that there was significant difference among three different groups of subjects in post-treatment condition. It was also evident From **Table-2** that the adjusted post-test F-value of speed among the three groups were 24.174 which was greater than the required table value 3.30 for significance with df (2,32) at 0.05 level. It signifies that there was a significant difference among three different groups of subjects i.e. LPTG, APTGWV and CG in adjusted post test condition.



To locate the exact difference among the groups in speed Tukey's LSD test was used as post hoc test which was presented in Table-3. . The Pre-test, Post-test and adjusted post test mean value of the LPTG, APTGWV and CG on speed have been presented graphically in Fig1.

Table-3. Tukey's LSD test on Speed in Adjusted Post Test Mean Score for Different Groups

LPTG	Adjusted Post Test Mean Scores			Required confidence interval
	APTGWV	CG	Mean Difference	
6.73	6.83		0.10	0.085
6.73		6.54	0.19	0.085
	6.83	6.54	0.29	0.085

Calculated Value of Critical Difference at 0.05 level of significance with df(32) was 0.085

Table-3 represents Tukey's LSD test on speed for Adjusted Post Test Mean Score. The mean difference between LPTG & CG was 0.19 which was found significantly greater than the Critical Difference (CD) 0.085 at 0.05 level of significance at df (32). It indicated that land plyometric training was effective in comparison with CG for developing speed ability. It was also found from Tukey's LSD test that on speed for adjusted post test mean score between APTGWV & CG, the mean difference i.e. 0.29 which was found greater than the value of Critical Difference (CD) 0.085 at 0.05 level of significance at df (32). It was clear from the mean difference that weighted vest aqua-plyometric training was effective with respect to CG for developing speed ability. From **Table-3** i.e. from the table of Tukey's LSD test on speed the adjusted post test mean score between LPTG & APTGWV, the mean difference was 0.10 which was found significantly greater than the Critical Difference (CD) 0.085 at 0.05 level of significance at df (32). It indicated that APTWV had better effect than LPT for developing speed ability.

4. DISCUSSION:

The present study was performed to investigate the effectiveness of APTWV in comparison with LPT on speed ability of athletes. At the end of the 14 week experimentation it was found that both the training group i.e. LPTG & APTGWV led to increases of the speed ability in comparison to CG. Several studies on plyometric training whether it was conducted on land or aquatic condition incorporated with additional load suggested that improved speed ability of athletes, and the findings of this result supported by (Arazi & Asadi, 2011; Bogdanis et al., 2019; Kamalakkannan et al., n.d.; Khelifa et al., 2010; Kobak et al., 2015; Rantalainen et al., 2012; Slimani et al., 2016; Triplett et al., 2009). It may perhaps that plyometric training improve speed, because in all type of plyometric training the use of stretch-shortening cycles (SSC) of the flexor and extensor muscle groups have been shown to have significant relationship with short sprint times (Baechle & Earle, 2008; Chu, 1992; Hennessy & Kilty, 2001; Miller et al., 2002; Robinson et al., 2004). The stretch-shortening cycle (SSC) is consisted of three different phases viz.: i) Eccentric Phase, ii) Amortization Phase and iii) Concentric Phase. When the muscles are stretched during eccentric contractions, it store elastic energy for a very brief period of time. The energy stored, followed quickly by a concentric contraction, produces greater force than a concentric contraction alone. Therefore, training muscles to adapt rapidly from an eccentric to a concentric contraction should enable them to increase the speed and force with which they perform (Arazi & Asadi, 2011; Miller et al., 2007a). The land plyometric training even with incorporated additional weight has many performance related benefits (Bosco, 1985; Faigenbaum et al., 2006; Hrysomallis, 2012; Macadam et al., 2017; Rantalainen et al., 2012; Rey et al., 2017), at the same time it considerably increases the ground impact force. Thus the athletes who have been recruited in the plyometric training with weighted vest become more injury prone (Colado et al., 2010; Donoghue et al., 2011; Miller et al., 2001; Miller et al., 2007). To overcome this difficulties of injury due to the application of wearable resistance in weight vest plyometric training the sports scientists suggested aquatic medium for weighted vest plyometric training to become safe from unwanted musculoskeletal injury. Many research work has been done and reported that differences between land-based and aquatic-based plyometric training with aquatic groups reporting significantly less muscle soreness (Martel et al., 2005; Miller et al., 2001, 2002; Robinson et al., 2004; Shaffer, 2007). The aquatic setting provides an excellent training medium for enhancing performance due to the buoyant properties of water (Torres-Ronda & i del Alcázar, 2014). The buoyancy involved when performing an aquatic plyometric training it lowers the impact at landing, thus attenuating the mechanical stress (Jurado-Lavanant et al., 2018), which reduces the risk of injury. On the other hand during exercising in water the participants experienced greater resistance during concentric movements due to water viscosity (Martel et al., 2005). Cronin & Hansen, 2006 also suggested that a weighted vest increased the vertical load during ground contact, increasing vertical braking forces, and may effectively

overload the stretch-shortening cycle, thus have better application during maximum velocity in speed activities. In this regard we observed that weighted vest aqua-plyometric had significantly improved speed than land plyometric training group. Thus it is clear that the aquatic medium is a safe medium for performing the weighted vest plyometric training for the development of athletic ability as a whole. In the aquatic environment the buoyant property may limit the over stresses due to body weight or wearable weight on the weight bearing muscle groups and allow higher gains in strength and speed performance at the same time it potentially reduces muscle soreness. So it can be concluded that the APTWV was more effective than LPT for the development of Speed. These results suggested that APTWV could be best as well as safe method due to less chance of soft tissue injuries and greater improvement of performance than LPT. Thus, it is recommended to choose APTWV according to the availability of the facilities in place of simple LPT to get better performance with minimize the chance of injury during the intervention of the experimental protocol for the development of speed.

5. CONCLUSION:

From the above result and discussions of the present study it can be concluded that both the LPT and APTWV significantly improved the speed ability in comparison to CG of the athletes. On the other hand significant difference also found in speed ability between the subjects of LPTG and APTGWV for improving speed ability. It clearly states that APTWV had better effect for developing speed ability than LPT. Thus, it is recommended to choose APTWV in place of LPT to minimize the chance of injury and to get better impact for the development of speed ability of the athletes.

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A STUDY ON CHAIN MOVEMENTS IN KHO-KHO

¹Dr. Tanmoy Saha, ²Dr. Sandip Sankar Ghosh

¹Physical Instructor, ²Assistant Professor,

Department of Physical Education, University of Kalyani,
Kalyani, Nadia. West Bengal, India, Supervisor

Email - ¹tonmoy.saha75@gmail.com, ²sandipsankarmal@gmail.com,

Abstract:

Objective: Aim of the present study was to investigate the performance level in kho-kho with respect to chain movement execution and to compare it among different zones of India. **Methodology:** For the purpose of the study a total of five hundred twenty three (N = 523) boys were selected as subjects from five zones of India. For the complexity and long duration of data collection procedure only one or two states were considered for each zone. The no. of subjects for every zone were as follows: North Zone- Ninety Seven (n=97), South Zone-Eighty (n=80), East Zone-Two hundred eighty seven (n=287), West Zone- Thirty seven (n=37), Central Zone-Twenty Two (n=22). The age of the subjects were ranged between 16 to 21 years. To Measure the chain movement execution ability single chain & double chain movement time were considered. In both chain movements the skill execution time was measured in second by stop watch. For all subjects the measurements were taken three times and best timing were taken as data. **Statistics:** Mean and standard deviation of each variable were calculated. The means of respective variables for different zones were compared by using one way ANOVA. For testing the exact difference between the means for different zones Scheffe's test was used as post hoc test. Statistical significance was tested at 0.05 level of confidence. For statistical calculations Excel Spread Sheet of windows version 7 was used. **Results:** Result of the present study revealed that there was a significant difference in single chain as well as double chain among the players of different zones of India. Scheffe's test confirmed that in six different cases significant difference was observed in single chain execution time. They were i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone Vs. Central Zone and vi) South Zone Vs. Central Zone. Again Scheffe's test confirmed that in six different cases significant difference was also observed in double chain execution time. That were i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone - South Zone and vi) South Zone Vs. Central Zone. **Conclusions:** In single chain and double chain significant difference were observed among different zones of India. So it can be concluded that the speed of the single and double chain execution time of the players belonging to different zones of India were not same.

Key Words: Kho-Kho, Playing Ability, Pole Turning, Sit & Rise, Pole Dive, Rising and Covering, Single Chain, Double Chain, Ring Movement.

1. INTRODUCTION:

Kho-Kho is one of the most popular traditional sports in India. The origin of Kho-Kho is difficult to trace, but many historians believe, that it is a modified form of 'Run Chase', which in its simplest form involves chasing and touching a person. History of Kho-Kho in India goes back a long way, it was first started in the state of Maharashtra (Jaiswal, 2014). Now-a-days Kho-Kho is a game of tremendous speed with presence of mind. People like to be spectator of such games which are fast, full of excitement and thrill. The game of Kho-Kho is being played in brisk pace, full of thrill and excitement which enable spectators to enjoy to its fullest quota. Basically the game is consist of two types of movements i.e. Running and Chasing, There are so many running movement i.e. Chain movement, ring movement and mixed movement used by the Kho-Kho players depending on different situation of the game (Seshaiah, 2014). In the present study the researchers considered the chain movements, which are basically of two types- Single and Double Chain, from a comparative stand point for various zones of India. Single chain is a basic but strenuous defensive skill of Kho-Kho. It should be brought into play for slowing down the attacking speed. The runner observes closely the active chaser while

changing from one side of the court to the other side i.e. from one pole to other pole. Double chain is the most popular and basic way to defend which involves continuous running. It gives more stability, more safety and comfort. A defender is able to keep him/her at a safe distance and run along a well-laid route. This is useful to test the speed of the runner. In the present study the researchers planned to initiate an attempt to find out the ability in chain movement execution in Kho-Kho and to compare it among different zones of India. Thus the purpose of the present study was to investigate the performance level of kho-kho with respect to chain movements execution both Single & Double Chain to compare it between different zones of India.

2. METHODOLOGY:

For the purpose of the study a total of five hundred twenty three (N = 523) boys were selected as subjects from five zones of India. For the complexity and long duration of data collection procedure only one or two states were considered for each zone. The no. of subjects for every zone was as follows: North Zone-Ninety Seven (n=97), South Zone-Eighty (n=80), East Zone-Two hundred eighty seven (n=287), West Zone-Thirty seven (n=37), Central Zone-Twenty Two (n=22). The age of the subjects were ranged between 16 to 21 years. In the present study chain movement execution time of both Single Chain, and Double Chain were consider as variable. In both skill executions i.e. single and double chain the time taken by a subject was measured in second by stop watch. All the measurements were given three chance the best time from the three trials were taken as data.

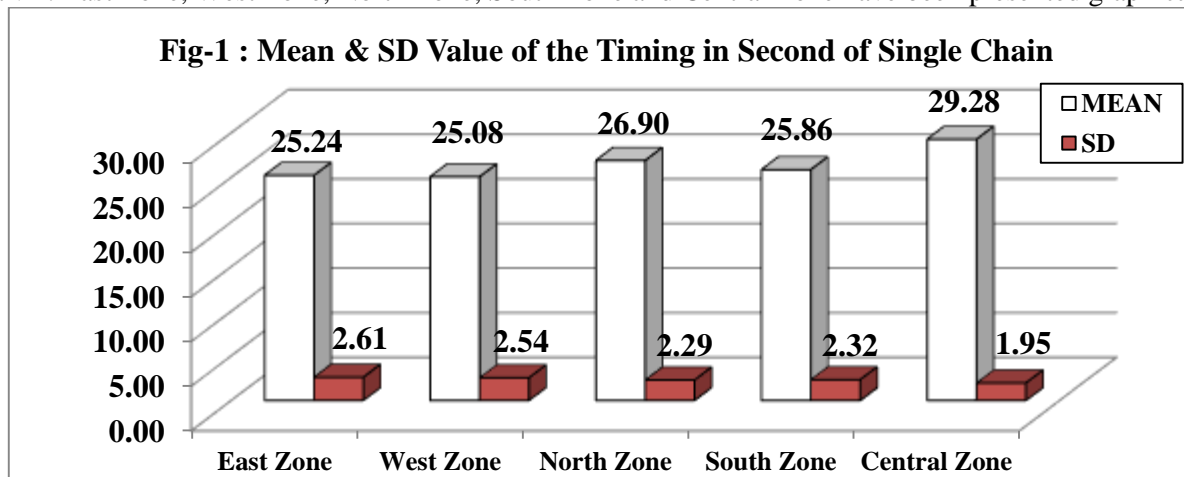
Statistics: Mean and standard deviation of each variable were calculated. The means of respective variables for different zones were compared by using one way ANOVA. Statistical significance was tested at 0.05 level of confidence. For testing the exact difference between the means on different skills for different zones Scheffe's test was used as post hoc test. For statistical calculations Excel Spread Sheet of windows version 7 was used.

3. RESULT & DISCUSSION:

Table – 1: Mean and Standard Deviation of chain execution time in second in Kho-Kho for different zones of India.

Name of the Zone	Chain Execution Time (S.)	
	Single Chain Mean \pm SD	Double Chain Mean \pm SD
East Zone	25.24 \pm 2.61	60.61 \pm 5.38
West Zone	25.08 \pm 2.54	59.28 \pm 5.24
North Zone	26.90 \pm 2.29	64.64 \pm 5.78
South Zone	25.86 \pm 2.32	60.40 \pm 5.67
Central Zone	29.28 \pm 1.95	65.03 \pm 2.33

In **Table-1** the mean and standard deviation (SD) of chain execution time both for Single Chain, Double Chain for different zones of India viz. East Zone, West Zone, North Zone, South Zone and Central Zone were presented. The mean \pm SD value of single chain execution time for East Zone, West Zone, North Zone, South Zone and Central Zone were 25.24 \pm 2.61, 25.08 \pm 2.54, 26.90 \pm 2.29, 25.86 \pm 2.32 and 29.28 \pm 1.95 respectively. The mean \pm SD value of double chain execution time for East Zone, West Zone, North Zone, South Zone and Central Zone were 60.61 \pm 5.38, 59.28 \pm 5.24, 64.64 \pm 5.78, 60.40 \pm 5.67 and 65.03 \pm 2.33 respectively. In **Fig-1** Mean & SD Value of the Single Chain execution time in seconds for different zones of India viz. East Zone, West Zone, North Zone, South Zone and Central Zone have been presented graphically.



In Fig-2 Mean & SD Value of the Double Chain execution time in seconds for different zones of India viz. East Zone, West Zone, North Zone, South Zone and Central Zone have been presented graphically.

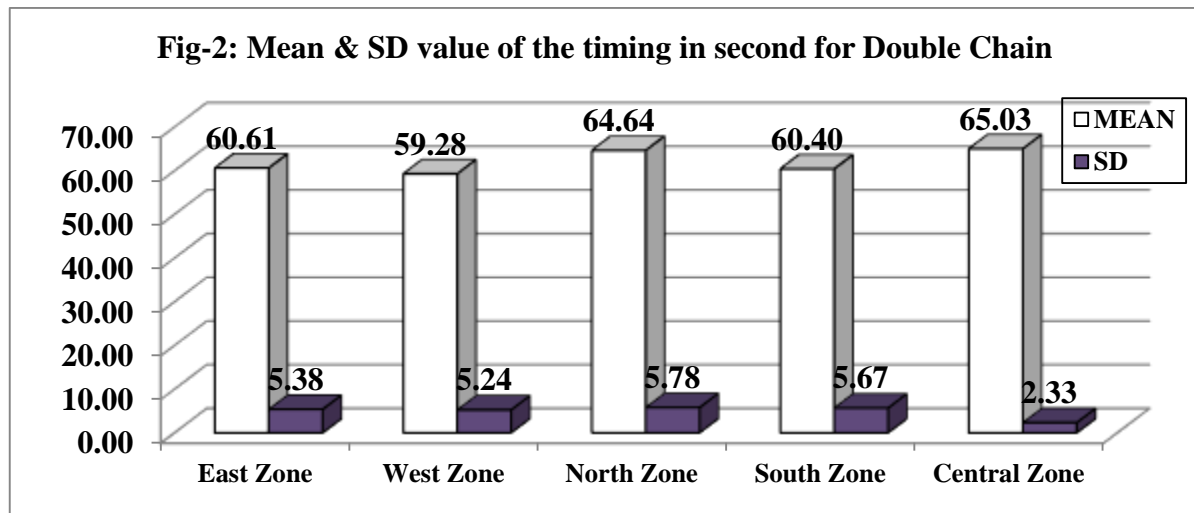


Table – 2: ANOVA for Single Chain Movement

Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	'F' ratio
Single Chain	Between group	492.36	123.09	(K- 1) = 4	19.95
	Within group	3195.59	6.17	(N - K) = 518	

Table value of $F(4,518)$ at $0.05 = 2.38$, $N=523$, $K = 5$.

Table-2 shows that statistically significant difference existed among different zones in single chain execution time at 0.05 level of confidence. For testing the exact difference between the means in single chain for different zones Scheffe's test was used as post hoc test. Results of Scheffe's test were presented in Table -3.

Table – 3: Post hoc comparison of mean difference in Single Chain by Scheffe's test

Group Compared	Mean Difference	Critical Difference at 0.05 level
East Zone - West zone	0.17	1.34
East Zone -North zone	1.66	0.90
East Zone - South Zone	0.62	0.97
East Zone -Central Zone	4.04	1.70
West zone - North Zone	1.82	1.48
West zone - South Zone	0.78	1.52
West zone - Central Zone	4.21	2.06
North Zone - South Zone	1.04	1.16
North Zone - central Zone	2.38	1.81
South Zone - Central Zone	3.42	1.84

Table-3 revealed that in six different cases two groups significantly differed from each other when compared in single chain execution time. That were i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone Vs. Central Zone and vi) South Zone Vs. Central Zone.

Table – 4: ANOVA for Double Chain

Variable	Source of variance	Sum of squares	Mean square variance	Degree of Freedom	'F' ratio
Double Chain	Between group	1732.04	433.01	(K- 1) = 4	14.83
	Within group	15127.07	29.20	(N-K) = 518	

Table value of F (4,518) at 0.05 = 2.38, N=523, K = 5.

Table-4 shows that statistically significant difference existed among different zones in double chain execution time at 0.05 level of confidence. For testing the exact difference between the means in double chain for different zones Scheffe's test was used as post hoc test. Results of Scheffe's test were presented in **Table -5**.

Table – 5: Post hoc comparison of mean difference in Double Chain by Scheffe's test

Group Compared	Mean Difference	Critical Difference at 0.05 level
East Zone - West zone	1.32	2.91
East Zone -North zone	4.03	1.96
East Zone - South Zone	0.21	2.11
East Zone -Central Zone	4.43	3.69
West zone - North Zone	5.35	3.22
West zone - South Zone	1.12	3.31
West zone - Central Zone	5.75	4.49
North Zone - South Zone	4.24	2.52
North Zone - central Zone	0.40	3.94
South Zone - Central Zone	4.63	4.01

In **Table -5** Scheffe's test confirmed that again in six different cases two groups significantly differed from each other when compared in Double Chain execution time. That were i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone - South Zone and vi) South Zone Vs. Central. Significant difference of time in single chain as well as double chain execution among the kho-kho players of different zones can be explained by the fact that it somehow dependent on the various fitness components of the players particularly cardio-respiratory endurance, speed, agility and flexibility of the players which means there may be some difference in these fitness components among the players of different zones. Need further research on the fitness components of the kho-kho players of different zones of India. The training schedule, training age, infrastructural facility, qualified coaching personnel and geographical condition and environment may also affect the performance of the kho-kho players of different zones can be a reason for significant difference in playing ability in kho-kho for different zones particularly in single chain and double chain.

4. CONCLUSIONS:

From the result of the study following conclusion can be drawn-

- There is significant difference in single chain execution time among the kho-kho players of different zones of India.
- In six different cases two groups significantly differed from each other when compared in single chain execution time among the kho-kho players of different zones. Those are i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone Vs. Central Zone and vi) South Zone Vs. Central Zone.
- But in four other cases there is no significant difference when compared in single chain execution time among the kho-kho players of different zones. Those are- i) East Zone - West zone, ii) East Zone - South Zone iii) West zone - South Zone iv) North Zone - South Zone
- There is significant difference in double chain execution time among the kho-kho players of different zones of India.

- In six different cases two groups significantly differed from each other when compared in single chain execution time among the kho-kho players of different zones. Those are i) East Zone Vs. North zone ii) East Zone Vs. Central Zone iii) West zone Vs. North Zone iv) West zone Vs. Central Zone v) North Zone Vs. South Zone and vi) South Zone Vs. Central Zone.
- But in four other cases there is no significant difference when compared in single chain execution time among the kho-kho players of different zones. Those are- i) East Zone - West zone, ii) East Zone - South Zone iii) West zone - South Zone iv) North Zone – Central Zone

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**A COMPARATIVE STUDY ON SELECTED
ANTHROPOMETRIC PARAMETERS AMONG DIFFERENT LEVEL
MALE VOLLEYBALL PLAYERS OF FOUR STATE IN INDIA**

¹L. Baleswor Singh ²Dr. Krishnendu Dhar

Research Scholar, Department of Physical Education, Tripura University, Tripura
and Asst. Director, Dept. of sports, Thambal Marik College, Oinam, Manipur and Msc Physics.
Email- longjam_baleswor2011@rediffmail.com/balevolleyball@gmail.com
Assistant Professor, Department of Physical Education, Tripura University, Tripura.

Abstract:

As we know that world Class Volleyball players possess good Anthropometric properties as observed in other Sports. The purpose of the study was to compare a few Anthropometric properties of the Volleyball Players of Four state of India (80 (eighty) senior male national volleyball players from different states of India e.g. Manipur, Kerala, Haryana and Tamil Nadu were selected). Selected Anthropometric parameters were age, height, weight, calf girth, leg length, arm length, sitting height, chest girth, standing reach height (with one and two hand), BMI, PI and Upper arm girth. The male volleyball players from different states' senior national level volleyball players of India – Manipur, Tamil Nadu, Haryana, and Kerala be acted as source of data. The data was collected from Senior National Volleyball (M and W) National Championship 2018-19 at Chennai and Khuman Lampak, Manipur. It was concluded that all the anthropometric parameters were highly significant different except Calf girth, Chest girth and Upper arm girth.

Key Words: Anthropometric, Volleyball players, four Indian states. A COMPARATIVE STUDY ON SELECTED ANTHROPOMETRIC PARAMETERS AMONG DIFFERENT LEVEL MALE VOLLEYBALL PLAYERS.

1. INTRODUCTION:

Modern volleyball, the brain child of William G. Morgan was invented in the years 1895 in Holyoke Massachusetts, USA, as one of the recreational sports. Now a day, the game has been tremendously developed as top competitive sports with its ever increasing excitement. It becomes a game of speed, explosive action, agility with wonderful neuromuscular co-ordination and a clean healthy image of team work. Truly speaking it has become a great game with the background of the continued development of the Rule Text. In 1896, after a demonstration given at the YMCA in nearly Springfield the name “Mintonett” was replaced with “Volleyball” by Alfred T. Halstead. In 1914 George Fisher, secretary of the YMCA war office, included volleyball in the recreation and education programmed for the American armed forces. In 1924, the Olympic games in Paris. The programmed included a demonstration of “American” sports, and volleyball was among them. In 1947, the federation International the volleyball Board (FIVB) was founded in Paris. In 1951, the volleyball federation of India was formed. Prior to the formation of the volleyball Federation of India (VFI), the game was controlled by the Indian Olympic Association (IOA) and at that time the inter-state volleyball championship was held every two years from 1936 to 1950 for men only. The first championship was held in the year 1936 at Lahore (now in Pakistan). The first meeting of Volleyball Federation of India was held in Ludhiana (Punjab), Mr. F. C. Aurora (Punjab) and Mr. Basu (W.B) are the first president and secretary respectively. In 1964, volleyball was introduced in Olympic game and in 1951, the back line spiking and blocking was introduced. Nowadays, there are 800 million players worldwide who play volleyball at least once a week (Giri, 2009).

Today any sports at its level require particular type of physique for its successful performers (Sodhi, 1991). Volleyball is no exception to that physique is the structural aspects of the “human machine at work” in the sports arena. It influences performance to a great large extent (Carter, 1982). A new branch of study has been emerged in the name of Kinanthropometry since in 1960's (Sodhi, 1991). Motor fitness potentiality on the other hand the capacity or ability of a players to perform effectively during the sports event. In 1998 men and women's world championship for the first time go to Japan for the best championship in volleyball history. It has spread in Manipur during the progress of Second World War. The British soldiers and other allied forces as one of their recreational and health promotion activities. The potential of the Manipuris has successfully compromised with the game free requisition. Manipur is a

small state and located at the North eastern side of India. The population of Manipur is about few Lakhs. They are very much fond of games and sports since the time immemorial people of Manipur took keen interest in sports related activities. Manipur has produced many outstanding sports person in different discipline of sports at National as well as in the International level competitions. In the year 1952 to 1975. All Manipur Sports Association was organized state League volleyball Tournament consecutively. Before 1952, volleyball event was included as a competitive discipline in Manipur Olympic Game, which was organized by All Manipur Olympic Association. In due course the very name Manipur Olympic Game (MOG) was changed to Manipur State Game (MSG). As a constituent unit, Manipur started participation National championship in volleyball from 1976 but still now no one from Manipur can participate in International level volleyball competition. In all India Mini and Sub-Jr. Championship Manipur Boys team played competitively. our team can get 1st, 2nd, 3rd and 4th position. Volleyball players of Manipur were less in height but can go through height limited Category and can make good Libero players. So it is very much important to study the Anthropometric parameters among the volleyball players.

Table 1. Average mean of the Four States.

Parameters	Mean Values of			
	Manipur	Tamil Nadu	Haryana	Kerala
Age	25.95	25.7	21.8	25.6
Height	176.07	192.32	191.4	191.8
Sitting Length	91.9	97.08	97.25	87.75
Body Weight	71.43	81.55	79.5	79.7
Arm Length	58.7	67.4	65.95	65.5
Leg Length	102.3	118.6	104.83	114.05
Standing one hand length	228.55	254.8	250.25	251.33
Standing Two hand length	224.7	246.75	247.1	247.38

The above table represents various physical parameters based on age, height, sitting Length, body weight, arm length, leg length, calf girth, chest girth, upper arm girth, standing one hand length and standing two hand length of 80 volleyball players from four different states of India under study. From the above table it can be observed that the average age of volleyball players from Manipur, Tamil Nadu, Haryana and Kerala are 25.95, 25.7, 21.8 and 25.6 respectively. The average age of Haryana players is younger than the other players of three different states consisting the minimum age of player 16 year and maximum age of players 29 years. The minimum variation among the age of players was found in the state of Kerala and maximum variation was found in the state of Manipur. The average height of Tamil Nadu (192.32 ± 9.19) is higher than the other players from three different states. It is clearly seen that there are differences among the mean values in different physical parameters among the players of four different states. Further study is made here by using ANOVA to know whether there are variations in the mean values of different parameters among the players of four different states.

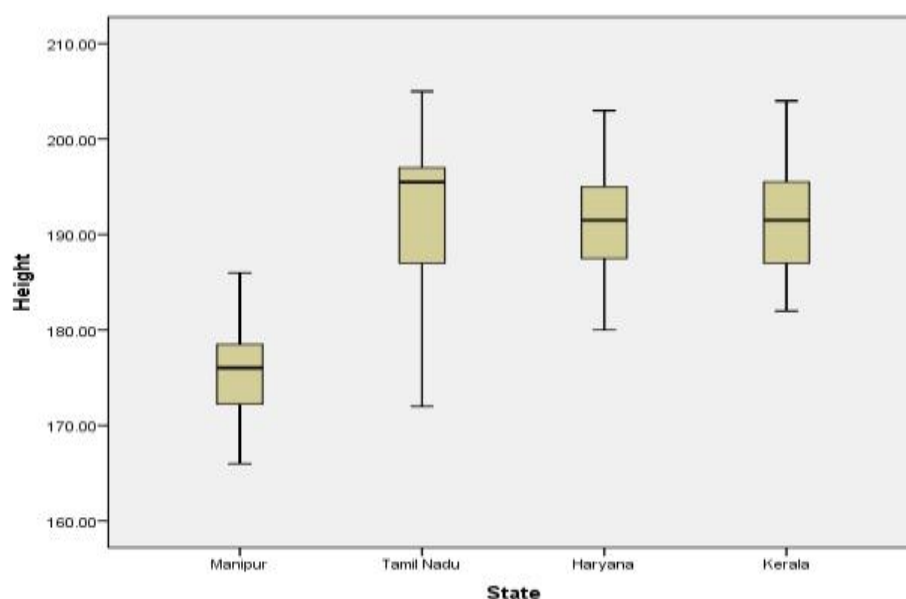


Figure 1. Height of the Players

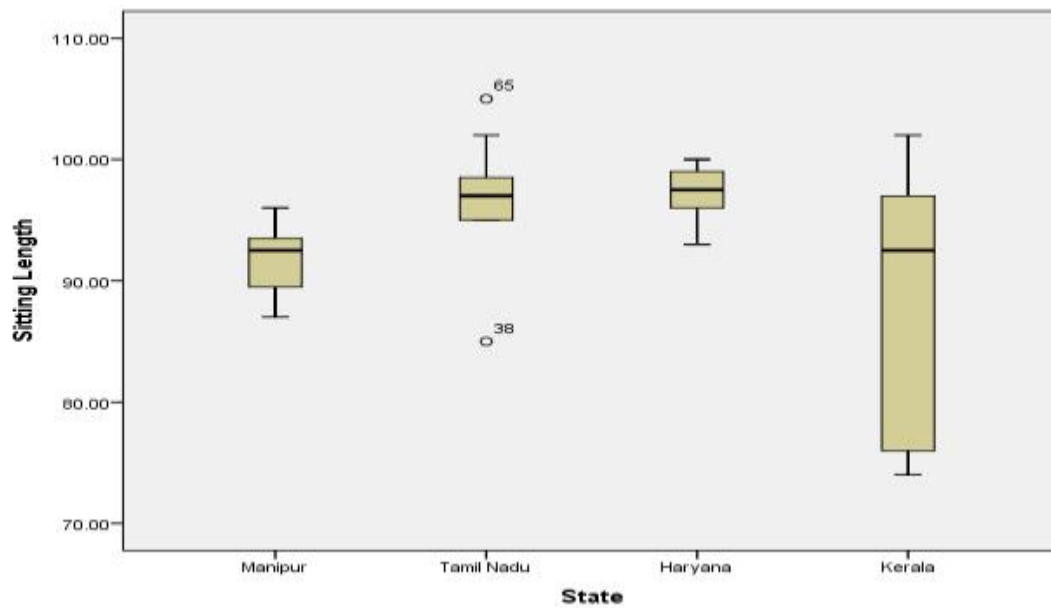


Figure 2. Sitting length of the Players

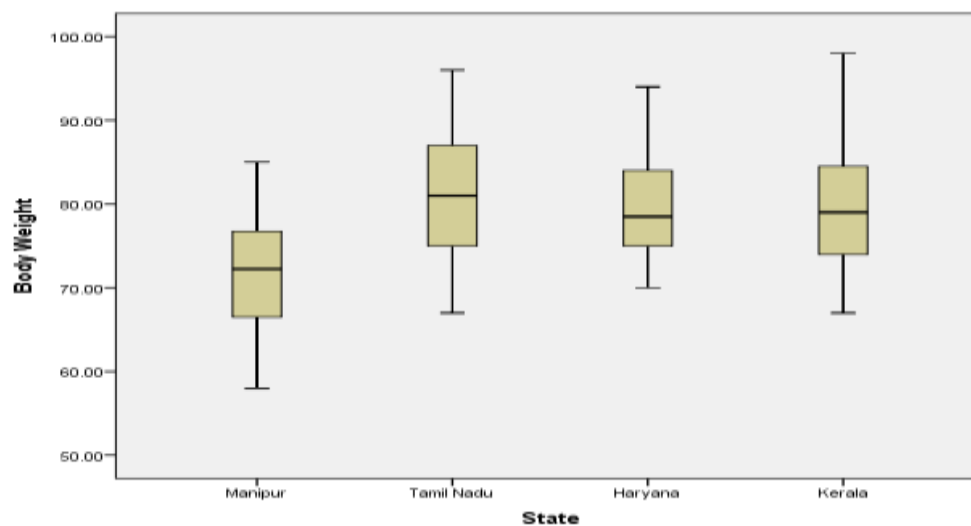


Figure 3. : Body Weight of the players

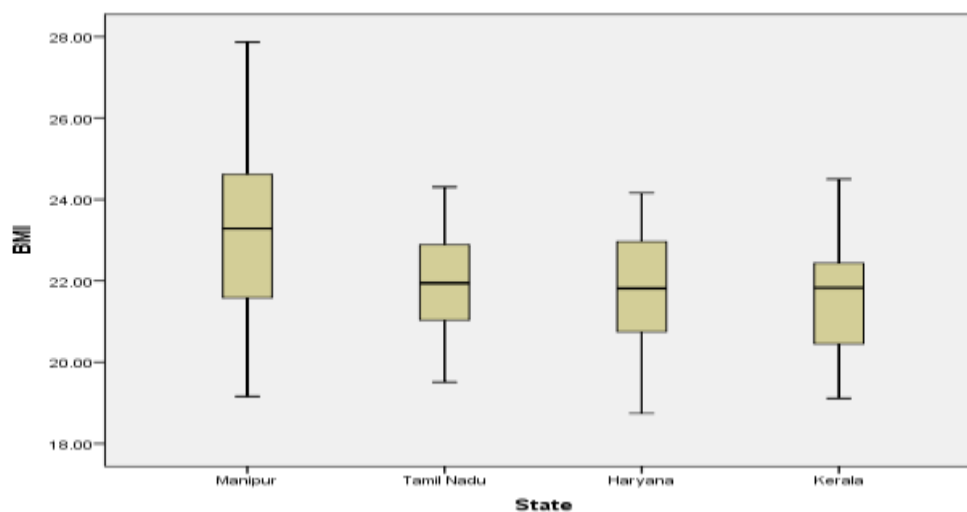


Figure 4. BMI of the players

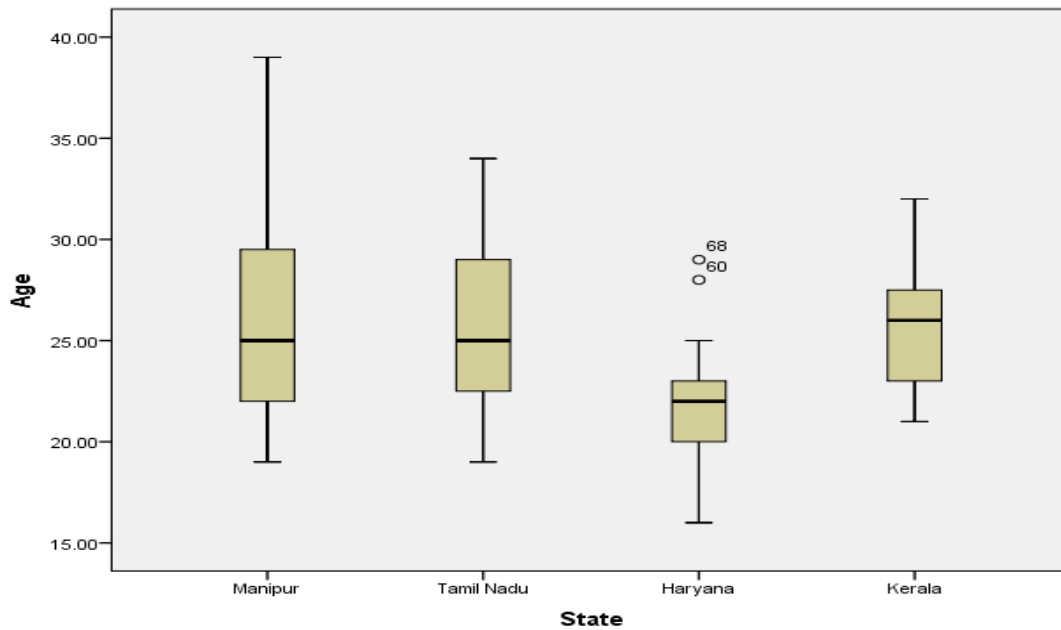


Figure 5: Age of the players.

Table-2: ANOVA for Difference Physical Parameters of Four Different States of Volleyball Players

Parameters	F-value	P-value	Remark
Age	5.014	0.003	Significant at 0.01 level
Height	26.659	0.000	Significant at 0.01 level
Sitting Length	11.054	0.000	Significant at 0.01 level
Body Weight	6.961	0.000	Significant at 0.01 level
Arm Length	19.18	0.000	Significant at 0.01 level
Leg Length	34.87	0.000	Significant at 0.01 level
Calf Girth	0.645	0.589	Not Significant at 0.05 level
Chest Girth	1.821	0.150	Not Significant at 0.05 level
Upper Arm Girth	1.494	0.220	Not Significant at 0.05 level
Standing one hand length	18.171	0.000	Significant at 0.01 level
Standing Two hand length	28.21	0.000	Significant at 0.01 level

From the above table it is found to be statistically highly significant in the most of the parameters except Calf Girth, Chest Girth and Upper Arm Girth. In order to identify the exact location of the difference for different parameters with higher F-values, the statistical test of least Significant difference (LSD) was conducted as a post hoc test.

Table-3: LSD for identifying exact location of different among mean values in different physical parameters

Parameters	Mean Values of				Mean Difference	Significance
	Manipur	Tamil Nadu	Haryana	Kerala		
Age	25.95		21.8		4.15	0.001**
		25.7	21.8		3.9	0.003**
			21.8	25.6	3.8	0.003**
Height	176.07	192.32			16.25	0.000**
	176.07		191.4		15.33	0.000**
	176.07			191.8	15.74	0.000**
Sitting Length	91.9	97.08			5.17	0.009**
	91.9		97.25			0.007**
	91.9			87.75	4.15	0.036*
		97.08		87.75	9.32	0.000**
			97.25	87.75	9.5	0.000**
Body Weight	71.43	81.55			10.13	0.000**
	71.43		79.5		8.08	0.001**

	71.43			79.7	8.27	0.001**
Arm Length	58.7	67.4			8.7	0.001**
	58.7		65.95		7.25	0.001**
	58.7			65.5	6.8	0.001**
	58.7					0.001**
Leg Length	102.3	118.6			16.3	0.000**
	102.3			114.05	11.75	0.000**
		118.6	104.83		13.77	0.000**
		118.6		114.05	4.55	0.015*
			104.83	114.05	9.22	0.000**
Standing one hand length	228.55	254.8			26.25	0.000**
	228.55		250.25		21.7	0.000**
	228.55			251.33	22.78	0.000**
Standing Two hand length	224.7	246.75			22.05	0.000**
	224.7		247.1		22.4	0.000**
	224.7			247.38	22.67	0.000**

* Statistically significant at 0.05 level, ** statistically significant at 0.01 level

From this table it is clearly seen that the mean the age of Manipur, Tamil Nadu and Haryana was significantly higher than mean age among the players of Kerala. The mean heights of Manipur players are significantly less than the mean height of Tamil Nadu, Haryana and Kerala. The sitting length of Kerala players was significantly less than Manipur, Tamil Nadu and Haryana players. Similarly, the sitting length of Manipur players was significantly less than Tamil Nadu and Haryana players. No statistically significant different was found between the players of Tami Nadu and Haryana based on the measurement of their sitting length. Body weight, Arm length, Leg Length, Standing one hand Length and Standing Two Hand Length of Manipur players were found to be significantly lower than the other players of Tamil Nadu, Haryana and Kerala.No statistically significant different among the players of Tami Nadu, Haryana and Kerala was observed based on the measurement of their Body weight, Arm length, Leg Length, Standing one hand Length and Standing Two Hand reached.

2. CONCLUSIONS:

On the basis of obtained results through statistical analytical data, the following conclusion were drawn within the limitation of this study.On Anthropometric parameters of males (senior):

- The average age of Haryana is younger than the others players of the different states.
- Average height of Tamil Nadu is higher than the others players from three different states.
- It is found to be statistically higher significant in the most of the parameters except Calf girth, Chest girth and Upper arm girth.

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**UPHILL RUNNING AND STAIRCASE TRAINING EFFECTS ON
RESTING HEART RATE AND FAT FREE MASS**

¹Mr. Ashutosh Sharma, ²Dr. Sujay Bisht

¹Physical Education Teacher, K.V. Bhuweneswar Region, India.

²Assistant Professor, L.N.I.P.E, N.E.R.C, Guwahati, India.

Abstract

Purpose: Purpose of the study was to investigate the effect of Uphill running training and staircase training on resting heart rate and fat free mass on undergraduate male students. **Method:** The subjects were sixty male, all subjects were BPED second year student of Lakshmibai National Institute of Physical Education, North East Regional Center, Guwahati. The age of subject ranged between 18-21 years. The resting heart rate and body composition test was administered in exercise physiological laboratory of LNIPE, NERC to obtain the data. The data pertaining to resting heart rate and body composition were examined by one way analysis of covariance (ANCOVA) in order to determine the difference, if any. The level of significant was set at 0.05 levels for testing the hypothesis. **Result:** The selected variables resting heart rate (F ratio 4.05), was significant which was higher than tabulated value (3.18) at 0.05 level of significance. Other variable Fat Free Mass (F ratio 21.55) was significant which is higher than tabulated value (3.18) at 0.05 level of significance. **Conclusion:** On the basis of the analysis of data and the limitation of the present study the conclusion were drawn as there is significant effect of both uphill and staircase training on both Resting heart rate and Fat Free Mass.

Key Words: Uphill Running, Staircase Training, Fat Free Mass and Resting heart rate.

1. INTRODUCTION:

Research is the gateway to new discoveries. Discoveries such as new technology to improve the speed, strength, novel training programs to enhance the performance or creative initiatives that evaluate children's enjoyment in sport. Research provides us all with the chance to learn more and acquire new knowledge to help ourselves and others. Today the preparation of an athlete for achievement is a complex dynamic state, characterized by high level of physical, physiological and psychological efficiency and the degree of perfection of the necessary skill and knowledge, techniques and tactical preparation. Many other factors are also brought into action in this preparation means of rehabilitating strength after loads so as to influence the development of an athlete and ensure the necessary level of preparation. The raising of the fitness standards is the key aim for any player who wants to become better in terms of becoming a more complete player as well as wanting to climb the pyramid of success. These are necessary standards for him which arises from the demands of the game. Resting Heart Rate is a considered in the context of other markers, such as blood pressure and cholesterol, can help identify potential health problems as well as gauge current heart health. Fat Free Mass includes the skeletal muscles, smooth muscles such as cardiac and digestive muscles and the water contained in these muscles. Muscles act as an engine in consuming energy. As muscle mass increases, the rate at which we burn energy (calories) increases which accelerates your basal metabolic rate (BMR) and helps us reduce body fat levels and lose weight in a healthy way

2. METHODOLOGY:

Sixty male undergraduate students of the Lakshmibai National Institute of Physical Education, North East Regional Centre, Guwahati, Assam volunteered to participate in the study. The age level of subject ranged from 18 to 21 years. All the subjects residing in the campus of LNIPE, NERC Guwahati and training was organized within the institute campus. All the selected subjects divided into three groups by adopting random sampling. Group I – Uphill running training, Group II- Staircase training, Group III- Control group. Data of Resting heart rate and Fat Free Mass were obtained with the various instruments and procedure by the scholar pre and post of training schedule. All subjects were introduced and requested to cooperate fully throughout the

training and during the time of data collection. The complete demonstration of each test and training and purpose of the test were explained in detail to them. The subject allowed practicing trails in the equipment in order to get familiarized with the equipment. The physiological variables data of Resting heart rate and Fat Free Mass were collected pre and post of the training. "CASIO STOP WATCH" used for recording data of Resting Heart rate. Similarly "MALTROS BIOSCAN 916" based on bioelectrical impedance was used for measuring fat free mass and score were recorded in Kgs. "Random sample technique was applied to find out the effect of six week of training on selected physiological variable. Total two time data was collected before and after the duration of training. To find out the effect of 6 week of uphill and staircase training on Resting Heart Rate and Fat Free Mass Analysis of covariance (ANCOVA) was used to analysis. Further the significant F ratio was examined with the help of LSD post hoc test. The level of significant was set at 0.05.

3. RESULTS:

Table 1. Descriptive statistics of resting heart rate (n=60). (Mean \pm SD)

Variable	Group	Mean	Standard deviation
Resting heart rate	Uphill running	54.55	4.39
	Staircase training	54.30	3.70
	Control group	55.70	4.13

Table 2. Analysis of Covariance of Different treatment in relation to Resting heart rate

SOURCE OF VARIANCE	df	SS	MSS	F Ratio	Remark
Treatment	2	12.26	6.13	4.05	p<0.05
Error	56	84.72	1.51		
Total	60				

Significant, F0.05 (2, 56) = 3.18

It is evident from table-2 that the adjusted F-Value for Treatment is 4.05 which is significant at 0.05 level with d.f =2/56. It indicates that the adjusted mean scores of Resting heart rate of Players belonging to Uphill Training, Stair Case Training and Control Groups differ significantly. So there was a significant effect of Training on Resting heart rate of Players after six week training. To find out which of the paired means had a significant difference, the Least Significant Difference (LSD) post –hoc test was applied. LSD Post Hoc shows that the adjusted mean scores of Resting heart rate of players belonging to Uphill Training and Stair Case Training Groups did not differ significantly. It may, therefore, be said that both Uphill Training and Stair Case Training were found to be equally effective in decrease of resting heart rate of Players.

Table -3. LEAST SIGNIFICANT DIFFERENCE POST HOC TEST OF RESTING HEART RATE OF PLAYERS BY CONSIDERING PRE-RESTING HEART RATE AS COVARIATE

Training	Adj. M	Adj. SE
Control group	55.34	0.28
Uphill running training	54.39	0.28
Staircase training	54.37	0.28

Table 3 revealed that the adjusted mean scores of Resting heart rate of players belonging to Uphill Training and Stair Case Training Groups differ significantly. It may, therefore, be said that both Uphill Training and Stair Case Training were found to be equally effective in improving Resting heart rate of Players.

It indicates that the adjusted mean scores of Resting heart rate of players belonging to Uphill Training and Control Groups differ significantly. Further the adjusted mean score of Resting heart rate of Uphill training is 54.39 which is significantly higher than that of control group whose adjusted mean score of Resting heart rate is 55.34. It may, therefore, be said that Uphill Training found to be significantly superior to Traditional Training in terms of Resting heart rate of Players.

It indicates that the adjusted mean scores of Resting heart rate of players belonging to Stair Case Training and Control Groups differ significantly. Further the adjusted mean score of Resting heart rate of staircase training is 54.37 which is significantly higher than that of control group whose adjusted mean score of Resting heart rate is 55.34. It may, therefore, be said that Stair Case Training was found to be significantly superior to Traditional Training in terms of Resting heart rate of Players. It may, therefore, be said that both Uphill Training and Stair Case Training were found to improve Resting heart rate of Players.

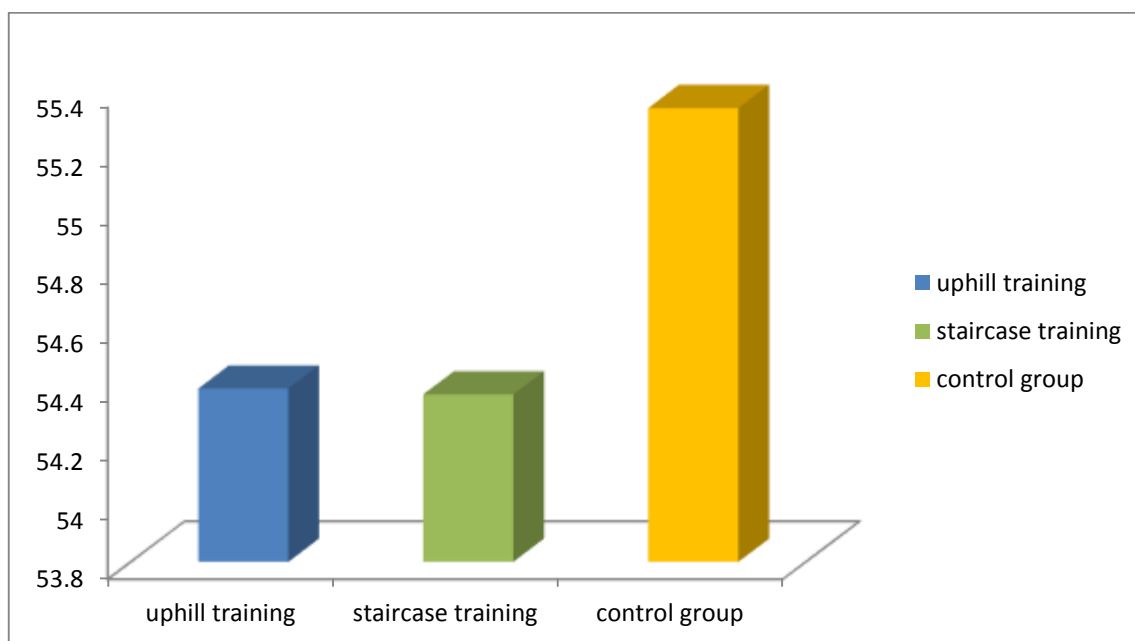


Figure 1. Graphical representation of adjusted mean scores of resting heart rate of various training

Table 4. Descriptive statistics of resting heart rate (n=60). (Mean \pm SD)

Variable	Group	Mean	Standard deviation
Fat Free Mass	Staircase	59.27	6.95
	Uphill	61.48	8.68
	Control group	57.38	6.68

Table 5. Analysis of covariance of fat free mass by considering Pre- fat free mass as covariate

Source of Variance	d.f	SS	MSS	F Ratio	Remark
Treatment	2	15.90	7.95	21.55	p<0.05
Error	56	20.66	0.37		
Total	60				

Significant, $F_{0.05}(2, 56) = 3.18$

It is evident from Table 5 that the adjusted F-Value for Treatment is 21.55 which is significant at 0.05 level with $df = 2/56$. It indicates that the adjusted mean scores of fat free mass of Players belonging to Uphill Training, Stair Case Training and Control Groups differ significantly. So there was a significant effect of

Training on fat free mass of Players. To find out which of the paired means had a significant difference, the Least Significant Difference (LSD) post –hoc test was applied.

Table 6. LEAST SIGNIFICANT DIFFERENCE POST HOC TEST OF FAT FREE MASS OF PLAYERS BY CONSIDERING PRE- FAT FREE MASS AS COVARIATE

Training	Adj. M	Adj. SE
Uphill Training	60.09	0.14
Staircase Training	59.19	0.14
Control Group	58.86	0.14

Table 6 revealed that the adjusted mean scores of fat free mass of players belonging to Uphill Training and Stair Case Training Groups did not differ significantly. It may, therefore, be said that both Uphill Training and Stair Case Training were found to be equally effective in improving fat free mass of Players. It indicates that the adjusted mean scores of fat free mass of players belonging to Uphill Training and Control Groups differ significantly. Further the adjusted mean score of fat free mass of Uphill Training Group is 60.09 which is significantly higher than that of Control Group whose adjusted mean score of fat free mass is 58.86. It may, therefore, be said that Uphill Training was found to be significantly superior to Traditional Training in terms of fat free mass of Players. It indicates that the adjusted mean scores of fat free mass of players belonging to Stair Case Training and Control Groups differ significantly. Further the adjusted mean score of fat free mass of Stair Case Training Group is 59.19 which is significantly higher than that of Control Group whose adjusted mean score of fat free mass is 58.86. It may, therefore, be said that Stair Case Training was found to be significantly superior to Traditional Training in terms of Vital Capacity of Players.

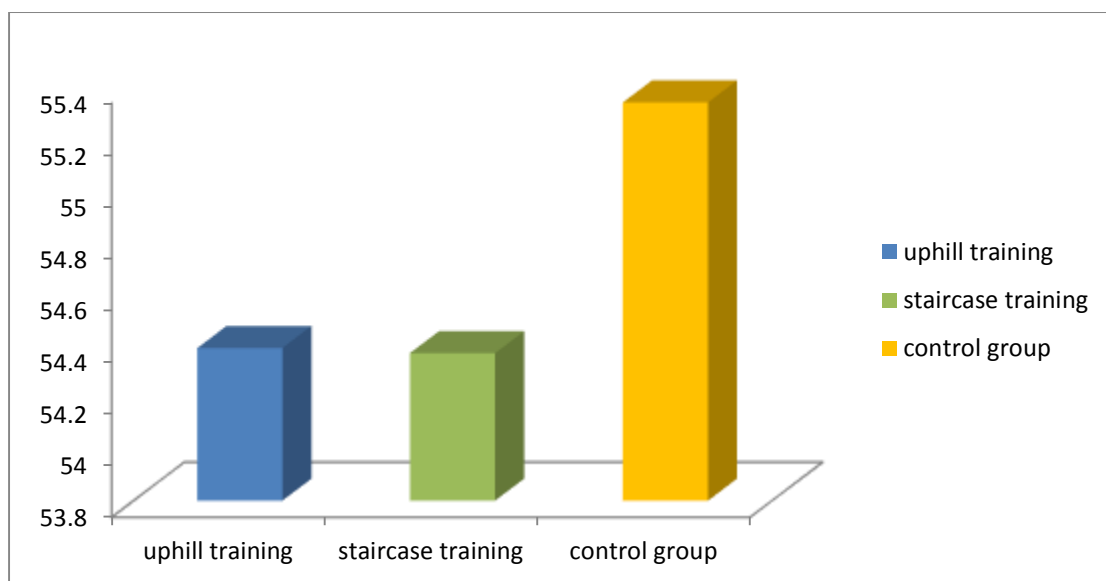


Figure 2. Graphical representation of adjusted mean scores of fat free mass of various training

4. DISCUSSION AND FINDINGS:

The research scholar had formulate this investigation to find out the effect of uphill running training and staircase training on selected physiological variables i.e. Resting heart rate and Fat Free Mass. The subject was on specifically sampled who are undergraduate student of LNIPE, NERC Guwahati. The research scholar strongly felt that the finding of the study enough justified the objective and full fill the purpose of the study on which study was formulated. The finding and results of the study highlight the two types of training and its effect on selected physiological variables. To pertain the effect of 6 week of training pre and post training data were collected. The results and finding of study clearly indicate that there was significant effect of 6 week of training on vital capacity, resting heart rate, fat free mass and fat percentage. Two type of training program were implemented i.e. staircase and uphill training program reveled significant effect on selected physiological

variable. We know that the lower the resting heart rate, better in the level of cardiovascular efficiency of an individual. It was revealed that there was positive on resting heart rate. Probably the reason was strenuous training might have given adequate load on cardiovascular system. At every week of training significantly reduce the resting heart rate of the subject. This may be due to the fact that the load experienced by the subject in the training phase was adequate, planned and progressive to produce significant improvement in resting heart rate from physiological point of view, the reduction of resting heart rate due to activated by (a) an increased parasympathetic tone, (b) a decrease sympathetic tone (c) good balance of (a) and (b). As far as body composition concern, both the training program was found significantly effect on fat percentage and fat free mass but staircase training program looked more effective in reducing fat percentage and increase fat free mass of the subjects. These type of physical training normally effect these dimensional changes: firstly, the fat weight goes down, increase lean body mass and lastly decrease or no change in total body weight. From the investigation, it was observed that fat percentage was reduced, probably due to utilization of stored fat by individual and then such reduction has taken place. In support of the above finding similar study done by “EGANA DONNA B (2004) and they also found both training method has significant result.

5. CONCLUSION:

On the basis of the analysis of data and the limitation of the present study, the following conclusion may be drawn-

- There is significant effect of both uphill and staircase training on fat free mass.
- There is significant effect of both uphill and staircase training on resting heart rate.

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A STUDY ON VISUALIZATION ABILITY AMONG DIFFERENT LEVEL OF BADMINTON PLAYERS

¹PRIYANKA SHARMA, ²SAMIRAN CHAKRABORTY

¹Research Scholar, ²(Supervisor) Associate Professor,

¹Department of Physical Education and Sports Sciences, University of Delhi.

²IGIPSS, University of Delhi, Delhi.

Abstract:

The purpose of this study was to assess the Visualization ability among different level of performance of badminton players. Thirty subjects were selected having specialization in badminton having different level of performance (10 players of each level, i.e. beginner, inter-mediate, and advance players) representing different colleges and participating at different level of competitions. The players were asked to imagine the forehand volley clear shot skill and then, Sports Imagery Questionnaire (SIAQ) by Martens (1982) was used to assess the visualization ability among different level of players in badminton. To assess the data descriptive statistics (Mean & Standard Deviation) has been used and One-way ANOVA was employed to compare different level of performance. The results of the study indicated that there were significant differences in audio imagery among badminton players between the Beginner, Intermediate and Advance groups.

KeyWords: Imagery, Badminton, SIAQ, Questionnaire, Level of Performance.

1. INTRODUCTION:

Imagery, in a literary text, is an author's use of vivid and descriptive language to add depth to their work. Sensory imagery appeals to human senses to deepen the reader's understanding of the work. Powerful forms of imagery engage all of the senses. “Imagery is one of the greatest tools used in sports psychology to enhance performance. This is done by enhancing motor skills and muscle memory and it is also used for motivation. Studies have found that practicing imagery, along with regular training, enhances muscle memory and sports skills faster and further than regular training alone. In a competitive world where only, the slightest improvement can be the difference between a champion and a runner-up, we need to take all the opportunities that we can to become elite at what we do. In visualization, one needs to think in pictures not in words. Rather than telling himself to get that important hit, to make the shot, or to serve an ace, he needs to see himself doing it. Create the picture and then copy the image.

Block (1981) identified imagery as one of-the most important topics in cognitive science. Two general theories have evolved. The first states that when we imagine a scene in our mind's eye. We are scanning an actual image that has somehow formed in our brain. This is not to say that a brain surgeon could find actual physical pictures lodged in our brain, but that the images are as real to us as an image taken from the retina of the eye. This position is held by the so-called pictorials. The second position is that of the descriptions. The description argues that there is no such thing as a mental image. That is, when we imagine a physical scene in our mind's eye, we are not really seeing an internal image, but the graphic and detailed nature of our language makes it seem so. Our thoughts, as it were, actually manufacture an image so clear that we think we are seeing one. Imagery is widely used in sport psychology research and practice to increase/maintain physical and psychological skills, and to build confidence in training and competition (**Martin, Moritz, and Hall, 1999; Murphy and Martin, 2002**). Optimal use of imagery requires consideration of the types of imagery performers use (**Morris, Spittle and Watt, 2005**). Research has shown that specific types of imagery are more effective than others in different contexts (**Cumming and Stemarie, 2001**).

2. METHODS AND PROCEDURE:

2.1. Subjects: The total number of 30 subjects for the study by using purposive sampling was used to select the subjects for the study. All the 30 subjects have participated at different level of performance.

2.2 Tool: The Sports Imagery Questionnaire was developed by **Martens (1982)**.

2.3. Procedure of Data Collection:

For collection of data the test was administered on 30 samples selected by using purposive sampling method at different level of performance i.e. beginner, inter-mediate and elite 10 badminton players of each level. The players were instructed to assemble and were asked to sit at a place and then the skill of forehand volley clear shot is showed them through the video and researcher made everything clear that after watching this video, the subjects has to close their eyes and imagine themselves performing the skill and researcher ensure them that you all have to imagine and picturize the minor things and parts of your body while performing the skill mentally. After that activity the data was collected by administering Sports Imagery Questionnaire prior to the training on all the players of badminton. The conduct of imagery training and visualization ability of players were compared among the different levels. To obtain one-time data from the subjects the questionnaire was administered under the supervision of the research scholar and scoring of data was evaluated by the help of manual.

2.4. Statistical Analysis:

For the purpose of analyzing the data, Descriptive Statistics was computed and One-way ANOVA was also computed to find the difference between the mean. Further the level of significance was set at an alpha level of 0.05. The statistical analysis was performed with the help of SPSS 18. The scores of the questionnaire were analyzed to determine any significant difference that might exist between different level of Badminton players (Beginner, Inter-mediate, and Advance). The result is presented in the following table 1.

Table 1: Descriptive Statistics of Imagery among Badminton players representing different of performance

		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Visual	Beginner	10	3.60	1.17	.37	1.00	5.00
	Intermediate	10	3.40	1.42	.45	1.00	5.00
	Advance	10	4.40	.51	.16	4.00	5.00
	Total	30	3.80	1.15	.21	1.00	5.00
Audio	Beginner	10	2.90	.99	.31	1.00	4.00
	Intermediate	10	3.90	1.19	.37	2.00	5.00
	Advance	10	4.60	.69	.22	3.00	5.00
	Total	30	3.80	1.18	.21	1.00	5.00
Kinesthetic	Beginner	10	3.40	1.17	.37	1.00	5.00
	Intermediate	10	4.30	.82	.26	3.00	5.00
	Advance	10	4.40	.96	.30	2.00	5.00
	Total	30	4.03	1.06	.19	1.00	5.00
Mood	Beginner	10	3.70	.94	.30	2.00	5.00
	Intermediate	10	4.60	.96	.30	2.00	5.00
	Advance	10	4.50	.97	.30	2.00	5.00
	Total	30	4.26	1.01	.18	2.00	5.00

Table 1 indicates that descriptive statistic values of Imagery among Badminton players which show that mean and standard deviation values of beginners, inter-mediate and advance players. The mean values of badminton beginner players in audio, visual, kinesthetic and mood are 3.60, 2.90, 3.40, & 3.70 and standard deviation values are 1.17, 0.99, 1.17, & 0.94. The mean values of badminton intermediate players in audio, visual, kinesthetic and mood are 3.40, 3.90, 4.30, & 4.60 and standard deviation values are 1.42, 1.19, 0.82, & 0.96. The mean values of badminton advance players in audio, visual, kinesthetic and mood are 3.80, 4.60, 4.40, & 4.50 and standard deviation values are 0.51, 0.69, 0.96, & 0.97 respectively.

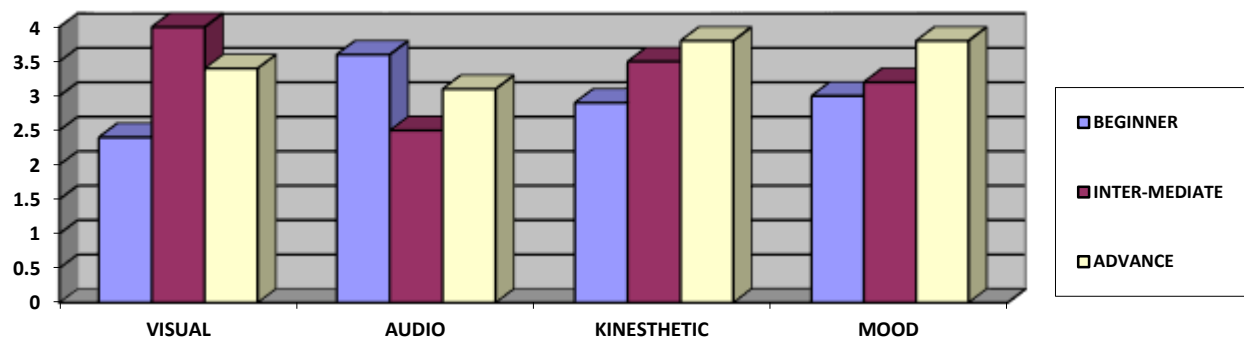


Figure 1. Mean scores of SIQ among badminton players of different level of performance
Comparing among different level of performance was computed by computing One-way ANOVA. Findings related to the ANOVA are presented in table no.2.

Table 2: One Way ANOVA of Imagery Badminton players representing among different level of performance

		Sum of Squares	Df	Mean Square	F	Sig.
Visual	Between Groups	5.60	2	2.80	2.27	.12
	Within Groups	33.20	27	1.23		
	Total	38.80	29			
Audio	Between Groups	14.60	2	7.30	7.52	.00
	Within Groups	26.20	27	.97		
	Total	40.80	29			
Kinesthetic	Between Groups	6.06	2	3.03	3.04	.06
	Within Groups	26.90	27	.99		
	Total	32.96	29			
Mood	Between Groups	4.86	2	2.43	2.62	.09
	Within Groups	25.00	27	.92		
	Total	29.86	29			

From Table no. 2 after applying the one way ANOVA result revealed that there was no significant difference in Visual, Kinesthetic and mood among different level of performance in Badminton players, $F(2, 27) = 2.27$, $P \geq 0.05$, $F(2, 27) = 3.04$, $P \geq 0.05$ and $F(2, 27) = 2.62$, $P \geq 0.05$ respectively. There was a significant difference in audio among Badminton players as the obtained, $F(2, 27) = 7.52$, $P < 0.05$. Since, significant difference was only obtained in audio. Post hoc analysis was computed and the findings are presented in table 3.

Table 3. Post Hoc Test of Audio Imagery among Badminton players representing different level of performance

Dependent Variable	(I) groups	(J) groups	Mean Difference (I-J)	Std. Error	Sig.
Audio	Beginner	Intermediate	-1.00*	.44	.03
		Advance	-1.70*	.44	.00
	Intermediate	Beginner	1.00*	.44	.03
		Advance	-.70	.44	.12
	Advance	Beginner	1.70*	.44	.00
		Intermediate	.70	.44	.12

*The mean difference is significant at the 0.05 level.

From table no. 3 we can see the LSD comparison of Imagery which revealed about the mean scores among different level of performance in Badminton players. There were significant differences in Audio between the Beginner, and Intermediate groups. There were significant differences in Audio between the beginner and advance groups.

3. DISCUSSION OF FINDINGS:

Results of the study have revealed that significant difference is obtained between the group. Further analysis has revealed that advance and intermediate player have shown better imagery ability in comparison to beginner. Based on the research results in the past seems that doing physical exercise for the purpose of facilitating the performance, requires a certain level of skill and that could be a reason why elite athletes were better in skill, strategy, and goal imagery compared to non-elite athletes. This is because they were more experienced in and more familiar with their sport fields, and as a result, skill, strategy, and goal imageries were facilitated. From this perspective, the present study is in line with **Feltz and Landers (1983), Clark (1960), and Corbin (1967 a, and 1967 b)**. This could be due to the fact that as athlete progress he also develops the ability to perceive the things better moreover as the training age progress an athlete also learn to visualize clearly. It is suggested that during mental practice, the same neuromotor pathways that are involved in the physical execution of a specific motor task are activated (**Kosslyn, Ganis, & Thompson, 2001; Martin et al., 1999**). The neuro-muscular co-ordination is better among advance level of players. These findings suggest that the using imagery more for its motivation function than its cognitive function. In general, the elite athletes reported employing more imagery than non-elite athletes regardless of the function imagery served (**Holmes & Collins, 2001; Vealey & Greenleaf, 1998**).

4. CONCLUSIONS:

On the basis of the results the following conclusions are drawn.

- There were significant differences in Visual imagery among badminton players between the Beginner and Intermediate groups. It can be concluded that advance player has more visual imagery than the intermediate players.
- There were significant differences in Audio imagery of badminton players between the Beginner and Intermediate groups. It can be concluded that Intermediate players has more audio imagery than the beginner players. And also there were significant differences in Audio imagery of badminton players between the beginner and advance groups. It can also be concluded that advance player has more audio imagery than the beginner players.
- There were significant differences in Kinaesthetic imagery of badminton players between the Beginner and Intermediate groups. It can be concluded that Intermediate players has more kinaesthetic imagery than the beginner players. And there were significant differences in kinaesthetic imagery of badminton players between the beginner and advance groups. It can also be concluded that advance player has more kinaesthetic imagery than the beginner players.
- There were significant differences in mood imagery of badminton players between the Beginner and Intermediate groups. It can be concluded that Intermediate players has more mood imagery than the beginner players. And there were significant differences in mood imagery of badminton players between the beginner and advance groups. It can also be concluded that advance player has more mood imagery than the beginner players.

5. EDUCATIONAL IMPLICATIONS: The finding of the study will help the Badminton players and coaches to understand the imagery level of Badminton players of each level i.e. (Beginner, Inter-mediate, and Advance) which will help to adopt the strategies to improve and the intervention program can be developed to enhance imagery.

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COVID -19 AND THE CHALLENGES OF VIRTUAL PHYSICAL EDUCATION

Mr. Mihir Brahma

Ph.D. Research Scholar

North – Eastern Hill University (NEHU) Tura Campus, Meghalaya.

Abstract:

COVID -19 is a pandemic disease which has drastically disrupted the education sector. Because of the widespread of virus, it has been insurmountable for the people of stepping out of the house and this pandemic has brought famine in every place and to different sectors as well. In education sector, this pandemic has forced the young learners to stay indoors and owing to that they are bound to skip formal system of education and sit at home idly. Although most of the institutions in developed countries have moved to online mode of learning to keep proceeding with their academic activities, this stagnation is evident in the fact that educational institutions in developing countries are facing a lot of difficulties in maintaining the virtual classroom meticulously as it is to say futile in endeavoring every students to get connected with virtual classrooms to some students with no reliable internet access/technology are struggling to participate in digital learning across the country. It is worth to be mentioning that, in India, most of the students from backward places have been suffering to a great extent because of this pandemic situation as it is not possible for them to grab all the possibilities to get access to online classes as it is very essence by nature that virtual classroom cannot replace traditional classroom as apparently it lacks of live or active engagement with a teacher in the virtual classroom. This study is in an attempt to examine the challenges of virtual physical education experienced by both students and teachers. Descriptive survey method was adopted and 120 samples were selected for the study. The findings of the study thus indicates that a sudden shift to online from traditional classroom has highlighted that the teachers are facing a major challenge in teaching as they are not techno-savvy and well equipped with the technological tools to avail of the remote learning processes.

Key Words: COVID -19, Virtual, Physical Education, Challenges.

1. INTRODUCTION:

Novel Corona Virus Disease 2019 (COVID -19) is a pandemic disease that can be transmitted from a person to person rapidly while having a close contact with an infected person. The virus that causes severe illness was first identified in the Wuhan City of China. The world today on a global scale is facing challenges from the immense public health risk of escalating the spread of Corona Virus from country to country. By the end of March 2020, the epidemic had spread to over 185 countries which resulted in the closure of over 90 percent of all schools, colleges and Universities impacting to 1.38 billion students. According to the UNICEF monitoring, 134 countries are currently implementing local closures impacting about 98.5 percent of the world's student population. As we know that, due to corona virus pandemic, the government across the country had shut down every educational institution for a transient condition since by the end of March. So, during this crucial time, there is an uncertainty that when educational institutions will be reopened as there is no specific answer about how long the COVID -19 pandemic will last. Physical education plays a vital role in the educational sector. Physical education has its own importance in students' life as it helps students to build their mental and physical health. It is noteworthy that physical education helps in overall development of the students in every aspect. It can inculcate certain qualities like team spirit, peer interaction, quality of leadership, self-confidence, team spirit, courage, passion for sports, etc. It is a fact that, physical education helps to control blood pressure, control weight, reduces stress and anxiety. On owing to that, teachers play a key role to shape the mind of the students in a better way and motivate them to stay physically fit. Since, we are staying at home due to pandemic, there is no any equipment facilities for exercises and to attend the classes in a real classroom

environment. At the instant, as it has been put a halt from continuing the traditional mode of classes, it was the most ideal choice to shift into digitalization platform for learning during this critical situation as there can be no any better choices further to embrace e-learning and to sustain the momentum. It has been observed that in the last couple of months many final examinations to be held on by the time have been postponed all of a sudden. Moreover, the students who were residing at the schools and college/universities hostels were being asked to return back to their home stay by the administration and these actions had to be taken immediately in an attempt to contain the spread of COVID -19. Amidst of pandemic, many educational institutions have switched to virtual classroom by adhering to the norms of social distancing which is imperative to get back on track at the present scenario w.r.t. digital learning platforms. In such difficult situation, virtual classroom has manifested to be a shred of hope for both students and teachers. At this point of view, most of the teachers are trying out their best to overcome the issue related to shut down of educational institutions due to pandemic. However, in India, as all educators and tutors are in an attempt to experience this new paradigm, they are facing a lot of difficulties to strengthen the learning processes intensively. Despite that, it is crucial to consider the facts of pros and cons for an optimistic online learning process to face the challenges of unprecedented learning platforms, to embrace as well as to overcome the pitfalls and precluding of a situation.

1.1. Objectives of the study:

The objectives of the study are as follows:

- To examine the challenges of virtual physical education faced by the students.
- To explore the challenges of virtual physical education experienced by the teachers.

1.2. Delimitations of the study: This study is limited to only 10 Government Schools under Kokrajhar District of Assam.

1.3. Sample of the study: As per the topic of the study, it indicates the total number of 120 samples for the study comprising the total number of 60 students and the total number of 60 teachers.

2. METHODOLOGY:

The Descriptive survey method was adopted for the present study as it attempted to study the challenges of virtual physical education. This method attempts to describe and interpret what exist at present in the form of current status of the problem, various information has been collected from the 10 Government Schools through the help of online survey method.

The following tools have been used for collection of data:

- Self-prepared questionnaire for both students and teachers. The researcher has constructed only closed ended type of questionnaire on the basis of objectives.
- Unstructured interview schedule were arranged for both students and teachers in order to obtain required and accurate information.

3. RESULT AND DISCUSSION:

The data collected are systematically tabulated in tabulated in table no.1.

Findings on the basis of objective number - 1:

Table 1. Representing the responses on the basis of objective no.1 of the study.

SL. NO.	Items	Percentage % of responses	
		Yes	No
1.	Internet connectivity issue	38 (63%)	22 (36%)
2.	Satisfaction of online classes	28 (46%)	32 (53%)
3.	Burden of attending classes constantly	36 (60%)	24 (40%)
4.	Adapting skills accurately of various form of exercises	23 (38%)	37 (62%)
5.	Motivation from virtual physical education	18 (30%)	42 (70%)

From the Table No. 1, this study reveals that 63% of the students have responded that they face internet connectivity issue while surfing the internet to attend their physical education classes. They have further responded that they face issue of their data pack limitation of usage per day which is not sufficient for them to attend the whole virtual physical education at once during a day as it exceeds their data limitation while watching the videos or downloading the videos of various form of exercises from various learning platforms. It

is observed that virtual physical education is unable to meet the satisfaction of the most 53% of the students because while their teachers are to deliver lectures with the help of various platforms like zoom, google meet, whatsapp, etc, it lacks of live interactive classes where only one-way interaction takes place along with asynchronous mode process. Due to that, most of the students are not be able to clear their doubts as it not always possible to explain the same concept through a repetition mode over the period of teaching. Simultaneously, it hinders to identify their individual differences into the entire learning processes. 60% of the respondents have responded that they feel it as a burden to attend the virtual physical education classes constantly one after another in a day because while dealing with virtual classroom, the impact of this powerful medium is often diminished by the information overload. So, the students are subjected to masses of learning materials all at once, it often leads students towards bewildered and perplexity into the entire learning processes. 62% of the respondents have responded that they are unable to adapt the skills accurately of various new forms of exercises that are being taught to them through virtual classroom. It is because of the lack of absence of physical educator in a real situation, they cannot conceive the tactics in an appropriate manner. 70% of the respondents have also responded that they are highly demotivated with the excessive and lengthy lectures delivered through virtual platforms as sometimes on the mid-way they loss connectivity while attending the classes.

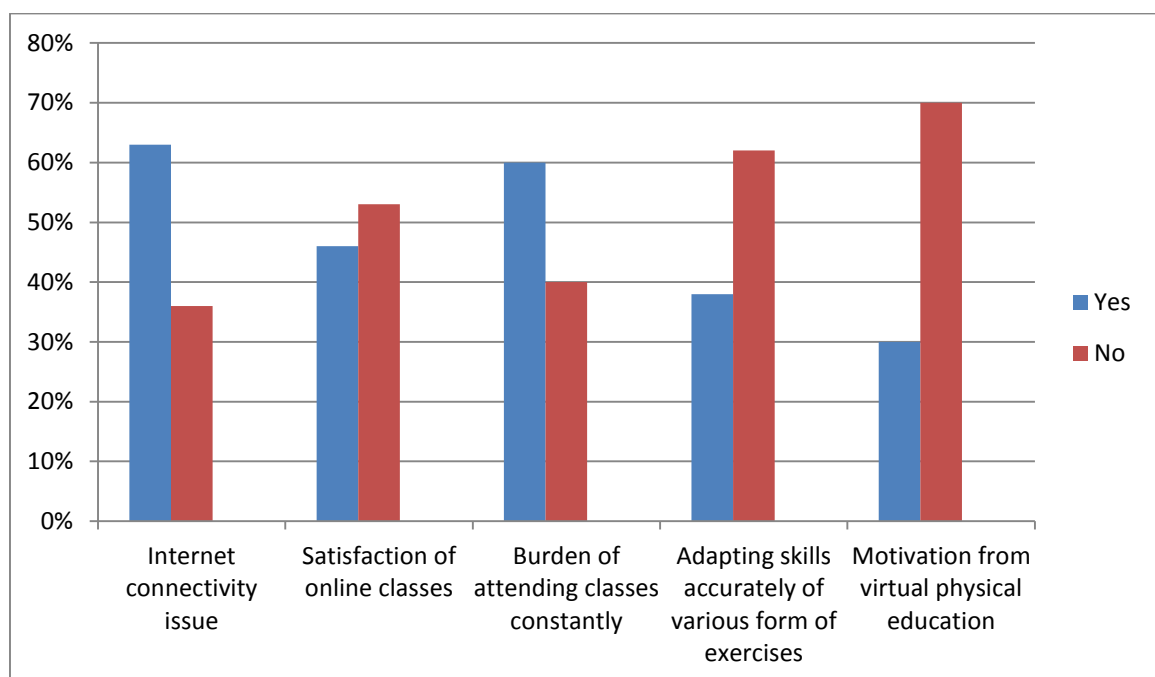


Figure 1. Representing the challenges of virtual physical education faced by the students

Findings on the basis of objective number 2:

Table 2. Representing the responses on the basis of objective no.2 of the study.

SL NO.	Items	Percentage % of responses	
		Yes	No
1.	Knowledge of ICT	21 (35%)	39 (65%)
2.	Grab attention of the participants	4 (7%)	56 (93%)
3.	Schedule Management Skills	24 (40%)	36 (60%)
4.	Difficulty in Assessment and Evaluation	33 (55%)	27 (45%)
5.	Time consumption for self-preparation	53 (88%)	7 (12%)

From the Table No. 2, this study reveals that 65% of the respondents have lack of knowledge in ICT. A sudden shift to online from traditional classroom has highlighted that the teachers are facing a great difficulties as they are not techno-savvy and well equipped with the technological tools to avail of remote learning since they hardly used the online platforms for teaching before the prevailing scenario of this pandemic outbreak. So, it takes them out of their comfort zone for teaching throughout it as it represents a whole new set of challenges such as logistic of setting up the technology and to be familiar with it. 93% of the respondents have responded that it is not possible for them to grab the attention of the learners through virtual platform. It is insurmountable in the sense they may not be able to mould the concentration level of the students during the virtual class presentation to investigate the ways whether the instruction that has been systematically designed has effectively influenced the learners to learn persistently or not. Consequently, it becomes quite difficult for them to detect the attention deviation of the students as opposed to the traditional classroom method of teaching. 60% of the respondents have responded that schedule management is one of the most difficult task for them as online learning lacks a predetermined schedule like a traditional class daily routine and thus it leads to a poor time management and inflexibility in delivering the content. It is not always possible for them to alter the class at an actual time based on learners' reaction and comfort which in result may not reflect the outcome of their teaching objectives. It is notable that 55% of face difficulty in conducting online examination mainly on the theoretical part of physical education as they are not technically well equipped in setting up the time limit and filtering of the record sheets. It is because of their lack of training in ICT. Lastly, 88% of respondents have it consumes a lot of an extra time in dealing with either theoretically or practically in delivering the content or in making any concept clearer to the students.

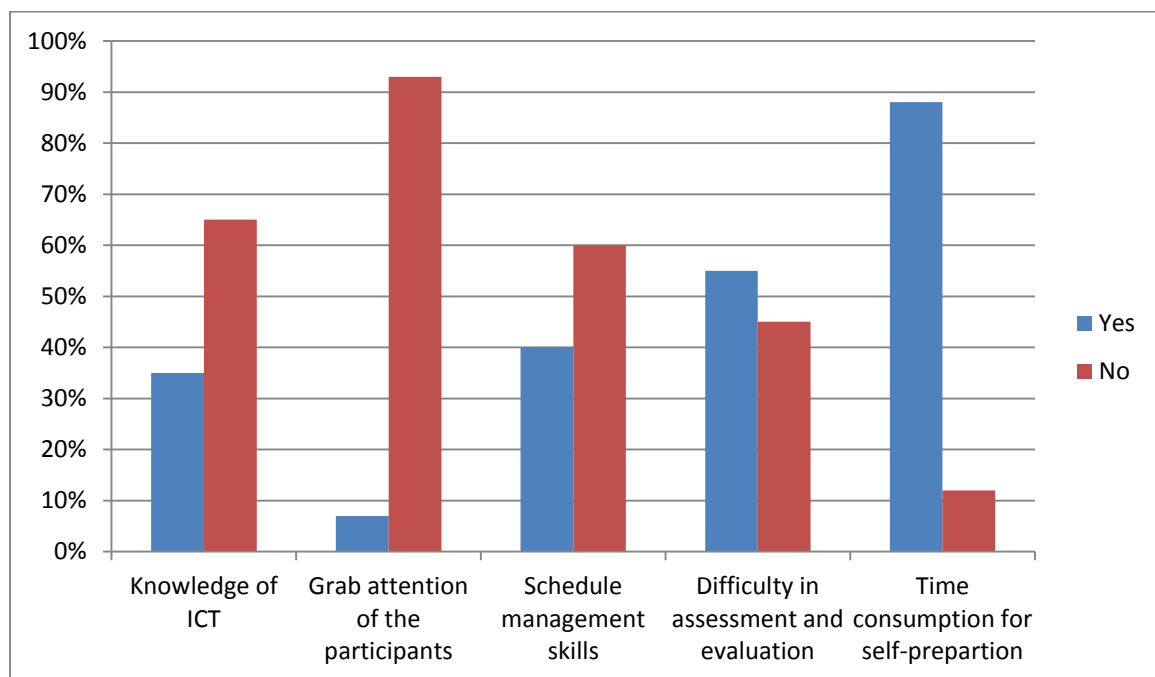


Figure 2. Representing the challenges of virtual physical education experienced by the teachers

4. SUGGESTIONS:

- Financial assistance and learning devices should be supplied relatively for the learners belonging from the lower economical background of the families on its concession rate by the government.
- Schools Organization should take proper care about the instructions to be delivered in due time. A structured format of appropriate schedule should be arranged meticulously so that students do not miss out any of the classes.
- In every session of the classes, instant feedback should be provided technically before the termination of each class including questions over the content delivered.
- Learners should be allotted time space to understand the concepts according to their capability level for the effective teaching and learning outcomes.
- Though real interaction is not possible in virtual classroom, sometimes students may deviate attention from the lectures delivered. Therefore, teachers should try to utilize pictorial presentation, graphs, etc. sporadically for deriving attention of the students and questions should be put into the chat box so that provision of instant interaction can be adapted.

- Every teacher should upgrade themselves in regards to their methods of teaching. Meanwhile, as most of the universities and colleges are organizing Faculty Development Programmes for the teachers, so it should be made mandatory for the teachers to participate actively in such programmes.
- As a matter of fact that, it is predicament for conducting online examinations. Therefore, assignments and project work should be arranged meticulously for the students and therefore a structured format of online oral examination should be conducted during the presentation of their project works.

5. CONCLUSION:

It is thus evident from the study that anticipation of positive outlook from the deprivation of physical education during current pandemic scenario was extremely high. However, with the help of teachers and schools/colleges administrative authorities who are organizing virtual classroom impulsively had been very helpful to the students to cope up with their studies through online mode of learning despite of various pros and cons in dealing with virtual classroom, at least students are able to get connected with physical education even in such a unconventional situation. Thus, every teachers are ought to be actively engaged in Faculty Development Training Programmes for upgrading themselves with the technological tools in access to avail of the remote teaching processes in most appropriate way.

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Two Day International E-Conference on
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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

ATTITUDE TOWARDS DOPING AMONG SPORTSPERSONS OF PUNJAB: A SURVEY STUDY

¹Dr. Shamider Singh, ²Dr. Dalwinder Singh Professor, ³Dr. Sarbjit Singh,

^{1,3}DPE, Education Department, Chandigarh, India

²Department of Physical Education, Panjab University Chandigarh, India

Abstract:

The present study was designed to compare the level of attitude towards doping among sportspersons of Punjab state in relation to their sports disciplines. A sample of one thousand (N=1000) male players from the state of Punjab was investigated in the present study, out of which two hundred (N=200) each were selected from five sports disciplines namely handball, football, hockey, kabaddi Punjab Style (P.S) and kabaddi National Style (N.S). The random sampling technique was used to collect the requisite information. Attitude towards doping among sports persons was assessed by employing a questionnaire constructed by Patrocozi (2009) and modified by the investigators. Analysis of Variance (ANOVA- One way) was applied to determine the attitude of sportspersons towards doping. Scheffe's Post-hoc test was also applied to find the degree and direction of differences where 'F' value found significant. Descriptive statistics was also carried out. The level of significance was set at 0.05. The results of the present study indicated that the kabaddi (P.S) players had demonstrated significantly high attitude towards doping which is an indication of more inclination towards doping as compared to their counterparts handball, football, hockey and Kabaddi (N.S).

Key Words: - Doping, Attitude, Sportspersons

1. INTRODUCTION:

Sports contests have progressively more attracted a massive number of athletes to participate both at amateur and professional level. In challenge to win big rewards, finance, trophies and reputation, some players do not hesitate to use such illegal drugs and doping substances at their disposal to achieve their sports target to enhance sports performance. While at International and national level various anti doping agencies are working and made many strict regulations to control the doping and many efforts are also put to make the athletes, coaches, teachers and sports promoters aware about doping and their consequence. As many cases of use of illegal substances and methods has reported in Punjab since last few years. Even sportspersons belongs to different sports in Punjab implicated with doping have claimed lack of knowledge or awareness on doping substances. Therefore, an attempt has been made to assess the doping awareness among sports person in Punjab state. Kamenju (2014) found that the college athletes' awareness of doping was not adequate, perception was wrong by track and field and attitude to performance-enhancing substance use positive. He also suggested that the college athletes should be educated on doping in order to create awareness change perceptions and their attitudes to PES use in sports at all levels of competitions. Masato et al., (2013) found 79.1% of participants with negative attitude towards doping. 20% appeared of the drug use in sports and 10% were found to have used drugs to enhance sports performance. Researcher recommended the curb the prevalence of illicit use of doping substances. Punjab has been among the states which have dominated in sports during the past decades. The episodes of uses of un-intentional and intentional illegal substances have increased many folds not only in Punjab but all over the world. The reasons behind the use of illegal substances varied among the sportspersons in relation to their sports disciplines. Therefore, an attempt has been made by the researchers to investigate the attitude towards doping among sportspersons of Punjab.

2. METHODOLOGY:

The present study was designed to compare the level of attitude towards doping among sportspersons of Punjab state in relation to their sports disciplines. One thousand (N=1000) male players from the state of Punjab

acted as sample for the present study, out of which two hundred (N=200) each were selected from five sports disciplines namely handball, football, hockey, kabaddi Punjab Style (P.S) and kabaddi National Style (N.S). The random sampling technique was used to collect the required data. Attitude towards doping among sports persons was examined by using a questionnaire developed by Patrocozi (2009) and modified by the investigators. Analysis of Variance (ANOVA- One way) was employed to examine the attitude of sportspersons towards doping. Scheffe's Post-hoc test was also applied to find the degree and direction of differences where 'F' value found significant. Descriptive statistics was also carried out. The level of significance was set at 0.05.

3. RESULTS:

Descriptive statistics of attitude towards doping use among Sportspersons in relation to their sports disciplines has been presented in table-1.

Table-1: Mean and standard deviation of attitude scores towards doping use among Sportspersons in relation to their sports disciplines

	Hand Ball (n=200)		Football (n=200)		Hockey (n=200)		Kabaddi (P.S) (n=200)		Kabaddi (N.S(n=200))	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Attitude	52.58	12.53	51.22	10.06	49.18	11.19	62.35	8.34	53.60	12.13

Table-1: shows that the Mean and SD values of players of different games; Handball, Football, hockey, Kabaddi(N.S) and Kabaddi (P.S) from the state of Punjab with regard to Attitude towards doping use were 52.58 ± 12.53 , 51.22 ± 10.06 , 49.18 ± 11.19 , 62.35 ± 8.34 and 53.60 ± 12.13 , respectively. Graphical representation of mean scores of attitude towards doping among sportspersons in relation to their sports disciplines has been depicted in figure-1.

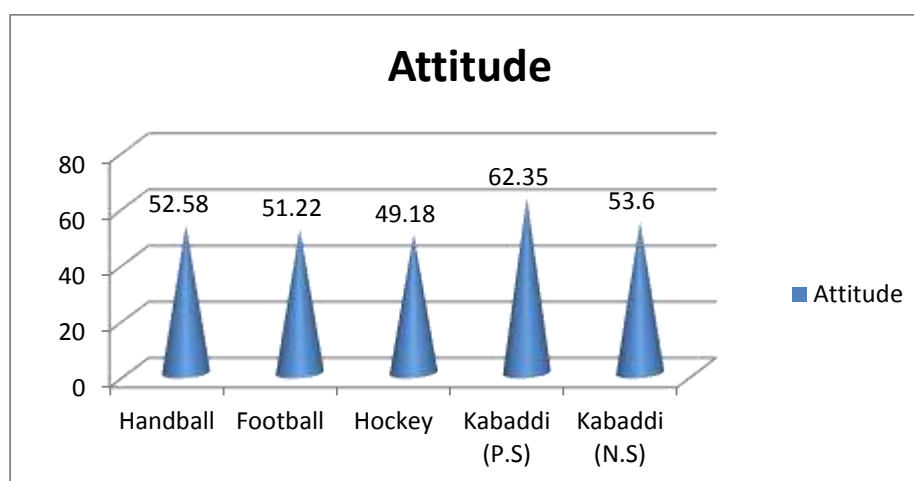


Figure-1: Graphical representation of Mean scores of attitude towards doping use among Sportspersons in relation to their sports disciplines

Analysis of Variance (ANOVA- One way) with regard to the attitude towards doping among Sportspersons in relation to their sports disciplines has been presented in the Table-2.

Table-2. Analyses of Variance (ANOVA) results with regard to the attitude towards doping among Sportspersons in relation to their sports disciplines

	Sum of Squares	Df	Mean Square	F value	p-value
Between Groups	20518.2	4	5129.559	42.684*	0.000
Within Groups	119573.1	995	120.174		
Total	140091.3	999			

*Significant at 0.05 level

It has been noticed from table-2 that statistically significant differences ($p < 0.05$) existed among players of different games handball, football, hockey, kabaddi (P.S) and kabaddi (N.S) of Punjab with regard to the attitude towards doping. Since the obtained 'F' ratio 42.684, $p = .000$ were found statistically significant. To find out the degree and direction of difference between paired means with regard to attitude towards doping among

players of different games, Scheffe's Post-hoc test has been applied. Result of Post-hoc test has been presented in table-3.

Table-3: Handball, Football, Hockey, Kabaddi (P.S) and Kabaddi (N.S) from Punjab with regard to Attitude towards doping

Dependent Variable	(I) GAME	(J) GAME	Mean Difference (I-J)	Std. Error	p value	*
Attitude	Hand ball	Football	1.360	1.096	.820	
		Hockey	3.405*	1.096	.048	
		Kabaddi (P.S)	-9.765*	1.096	.000	
		Kabaddi (N.S)	-1.020	1.096	.929	
	Football	Hand ball	-1.360	1.096	.820	
		Hockey	2.045	1.096	.481	
		Kabaddi (P.S)	-11.125*	1.096	.000	
		Kabaddi (N.S)	-2.380	1.096	.319	
	Hockey	Hand ball	-3.405*	1.096	.048	
		Football	-2.045	1.096	.481	
		Kabaddi (P.S)	-13.170*	1.096	.000	
		Kabaddi (N.S)	-4.425*	1.096	.003	
	Kabaddi (P.S)	Hand ball	9.765*	1.096	.000	
		Football	11.125*	1.096	.000	
		Hockey	13.170*	1.096	.000	
		Kabaddi (N.S)	8.745*	1.096	.000	
	Kabaddi (N.S)	Hand ball	1.020	1.096	.929	
		Football	2.380	1.096	.319	
		Hockey	4.425*	1.096	.003	
		Kabaddi (P.S)	-8.745*	1.096	.000	

Significant at the 0.05 level

Table-4.29 shows that the mean difference of handball players and football players was 1.360 with p-value (sig.) 0.820. The statistically insignificant difference ($p > 0.05$) found between handball players and football players of Punjab. However, while comparing the mean values of handball and football players, it has been found that the handball players had exhibited more attitudes towards doping as compared to football players of Punjab. The mean difference between the handball and hockey players was 3.405 with p-value (sig.) 0.048. Handball and hockey players of Punjab were differed significantly ($p < 0.05$) with regard to the attitude towards doping. However, while comparing the mean values of handball and hockey players, it has been noticed that the handball players had demonstrated more attitude towards doping as compared to hockey players of Punjab. The mean difference between handball players and kabaddi (P.S) players was 9.765 with p-value (sig.) 0.000. The statistically significant ($p < 0.05$) differences observed between handball and kabaddi (P.S) players with regard to attitude towards doping. While comparing the mean values of handball and kabaddi (P.S) players, it has been observed that the kabaddi (P.S) players had shown significantly more attitudes towards doping as compared to the handball players of Punjab. The mean difference between handball and kabaddi (N.S) players was 1.020 with p-value (sig.) 0.929. The statistically insignificant ($p > 0.05$) difference found between the handball and hockey players of Punjab with regard to attitude towards doping. While comparing the mean values of handball and kabaddi (N.S) players it was found that the kabaddi (N.S) players had found significantly more attitude towards doping compare to handball players of Punjab. The mean difference between football and hockey players was 2.045 with p-value of (sig.) 0.481. The statistically insignificant ($p > 0.05$) difference found between the football and hockey players of Punjab with regard to attitude towards doping. While comparing the mean values of football and hockey players, it has been found that the football players had reported more attitude towards doping as compared to their hockey counterparts. The mean difference between football and kabaddi (P.S) was 11.125 with p-value of (sig.) .000. The statistically significant ($p < 0.05$) difference found between the football and kabaddi (P.S) players of Punjab with regards to attitude towards doping. While comparing the mean values of football and kabaddi (P.S) players, it has been found that the players of kabaddi (P.S) had exhibited significantly more attitude towards doping than their football counterparts.

The mean difference between football and kabaddi (N.S) was 2.380 with p-value of (sig.) .319. The statistically insignificant ($p > 0.05$) difference found between the football and kabaddi (N.S) players of Punjab

with regards to attitude towards doping. While comparing the mean values of football and kabaddi (N.S) players, it has been found that the players of kabaddi (N.S) had demonstrated more attitude towards doping than their football counterparts. The mean difference between Hockey and kabaddi (P.S) players was 13.170 with p-value of (sig.) 0.000. The statistically significant ($p < 0.05$) difference found between the Hockey and kabaddi (P.S) players of Punjab with regard to attitude towards doping. While comparing the mean values of hockey and kabaddi (P.S) players of Punjab, kabaddi (P.S) players had shown more attitude towards doping as compared to their hockey counterparts. The mean difference between Hockey and Kabaddi (N.S) players was 4.425 with p-value of (sig.) 0.003. The statistically significant ($p < 0.05$) difference found between the hockey and kabaddi (N.S) players of Punjab. While comparing the mean score of hockey and kabaddi (N.S) players of Punjab, the Kabaddi (N.S) players reported more attitude towards doping as compared to their Hockey counterparts. The mean difference between kabaddi (P.S) and kabaddi (N.S) players was 8.745 with p-value of (sig.) .000. The statistically significant ($p < 0.05$) difference found between the Kabaddi (P.S) and kabaddi (N.S) players with regard to attitude towards doping. While comparing the mean values of kabaddi (P.S) and kabaddi (N.S) players, it has been noticed that the kabaddi (P.S) players had exhibited more attitude towards doping than their counterparts kabaddi (N.S).

4. DISCUSSION:

It has been noticed from table-3 that statistically significant differences existed among sportspersons in relation to their different sports disciplines i.e. handball, football, hockey, kabaddi (P.S.) and kabaddi (N.S.) players of Punjab with regard to attitude towards doping. Kabaddi (P.S.) players had demonstrated significantly positive attitude towards doping as compared to their counterparts handball, football, hockey and kabaddi (N.S.). Further, it was also noticed the negative attitude towards doping was observed in players of hockey as compared to handball, football and kabaddi (N.S.) players of the Punjab. The outcomes of the study might be due to the lack of testing in the rural sports especially in kabaddi (PS) players. Further, big prizes, dreams shown by the kabaddi promoters to the players to play in the foreign countries and handsome awards also add to the glamour of kabaddi sport. As it brings both name and fame to the players, even village names are also kept in the name of players which further adds to their pride and popularity. However, the findings of the study by Kamenju (2011) indicated that the track and field athletes were found to have positive attitude towards doping as compared to ball game players. This may be attributed to the fact that peak performance in track and field events do not last as long as in ball games.

5. CONCLUSIONS:

It is concluded that the significant differences were found among players of different sports of Punjab with regard to attitude towards doping. The handball players of Punjab state demonstrated better with regard to variable attitude towards doping when compare to football and hockey, whereas football players found insignificantly better attitude towards doping than hockey players of Punjab. Kabaddi (P.S) player found significantly better attitude towards doping when compare to handball, football, hockey and kabaddi (N.S), whereas Kabaddi (N.S) players of Punjab state had observed Insignificantly better doping attitude of when compared to handball and football players however kabaddi (N.S) players exhibited significantly better with regard to doping attitude as compare to hockey counterparts.

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**AN ANALYSIS OF OCCUPATIONAL STRESS AND JOB
SATISFACTION OF PHYSICAL EDUCATION TEACHERS**

MOHAN A. HOSAKOTI

Email: Mohanhosakoti81@gmail.com

Abstract:

This survey has undergone to analyze the occupational stress and job satisfaction of Physical Education teachers those working in the private schools. 100 Physical education teachers were chosen for the study through non-probabilistic convenient sampling method. The primary data have been collected through self structured questionnaire, which was prepared after reviewing of many research articles and Articles, Journals, websites etc were utilized as a secondary sources of data. This research study has found that, there is negative and significant relationship between occupational stress and job satisfaction among the private school physical education teachers. Finally, concluded that increase in the level of occupational stress, employees' satisfaction would decreases and vice-versa. Correlation and ANOVA has been employed to analyze and interpret hypothesis through SPSS-20.

Key Words: Occupational stress, Job satisfaction, Physical Education teachers

1. INTRODUCTION:

1.1. Occupational Stress:

In the field of research the terms such as work stress, job stress and occupational stress are used interchangeably. Stress is inevitable reaction of the people. It can be found anywhere and any place. It has defined as, “any change experienced by an individual” (Kahili). The word ‘Stress’ means Hardship, adversity and affliction, which has derived from the Latin word ‘Stringi’. Hans Selye (1936) rightly said that “Stress is an undesired reaction of people, they have extreme pressures or other types of demands placed upon them”. How a person reacts with the situation matters the level of stress. Uma Devi, (2011) opined that “Stress is man’s adaptive reaction to an outward situation”. It is a kind of imbalance which causes discomfort in every individual’s life (Edwin; 2008). It also said to be “the pattern of emotional and physiological reactions occurring in response to demands from within or outside an organization is said to be a stress. WHO (2011) described that “stress arise from a wide range of work circumstances. The occupational stress also opined as “Anything about an organizational role that produces adverse consequences to the individual” (Kahn and Quinn, 1970).

1.2. Job satisfaction:

It is defined as “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experience (Locke). Positive attitudes towards his/her job are theoretically equivalent to job satisfaction and negative attitudes towards his/her job leads to job dissatisfaction. Job satisfaction is “a pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” Locke (1976). There is a strong relationship between employees’ job satisfaction and dimensions job stress. Increase in the working condition of work place and decreasing stress level will turns to job satisfaction of employees (Mehdi Behjati Ardakani, et al. 2013). Job satisfaction “attitude and feelings of people have about their jobs, positive attitude leads to job satisfaction and negative attitude leads to job dissatisfaction” (Armstrong, 2006).

2. STATEMENT OF THE PROBLEM:

No place, environment, situation, time and so on related to manufacturing and services sectors or institutions are not free from work or occupational stress (distress). Each and every employee in the organization or institution is suffering from occupational stress (Distress). However they are into search of techniques to eradicate the stressful situation. Occupational stress is always affecting on the job satisfaction of the employee. In the same way physical education teachers also not free from the occupational stress. The

stressful life of the teachers even significantly affects the students' performance in the sports. Thus, to evaluate the occupational stress and its effect on their job satisfaction of the private school physical education teachers is vital. Finally the research has carried on "An Analysis of occupational stress and job satisfaction of Physical Education teachers".

3. LITERATURE:

Occupational Stress:

Kundaragi Prakash (2019) in his research work titled "An Effect of Occupational Stress on Job Satisfaction of Private School Teachers" has utilized questionnaire method to collect data from the field. Correlation and ANOVA had utilized to analyze hypothesis. The researcher has found that the occupational stress and job satisfactions are negatively correlated. He also studied the relationship between the stress and job performance of the teachers and that also negatively correlated. He concluded that increase in the occupational stress leads decrease in the job satisfaction and job satisfaction of the teachers and vice versa. Alfred Ncube and Theminkosi Tshabalala (2013) in their research work entitled "Factors Contributing to the Cause of Work related Stress and Its Impact on Performance of Teachers in Nkayi District " have used questionnaire to collect data from 200 Teachers. They found that the 98 per cent of respondents feel stress because of Poor pay; 95 per cent work load and poor management (94%) are most highlighted. Teaching and working life of teachers impact on their job performance.

Kyriacou, C. (2001). In the view of researcher titled "Teacher stress: Directions for future research" has found that teachers are suffering from the job stress and if they take early methods like relaxation tools to resolve troubles might helped to decrease stress.

Ansarul Hasan, (2014) in his research work on "A Study of Occupational Stress of Primary School Teachers" has found that the primary school teachers were stressed highly. Further found that among the schools teachers, the teachers belongs to private primary school has highly stressed comparing with teachers working in the government primary school.

Job satisfaction:

TILAK RAJ and LALITA (2013) in their research article entitled "JOB SATISFACTION AMONG TEACHERS OF PRIVATE AND GOVERNMENT SCHOOL: A COMPARATIVE ANALYSIS" have followed the questionnaire method to collect the primary data from 100 teachers (50 private and 50 Govt. School teachers). Through SPSS t-test has employed to assess the result of satisfaction. The researchers have found that there is no significant difference in the satisfaction level among male and female teachers. Further found that both Govt. and Private school teachers have satisfied and no significant difference found.

Nigama K., Selvabaskar S., Surulivel S T., Alamelu R. and Uthaya Joice D. (2018) in their research work on "JOB SATISFACTION AMONG SCHOOL TEACHERS" Have collected primary data from 50 private and 50 government school teachers through well structured questionnaire. They found that there is significant difference appeared among both the school teacher.

Lawther Wendell (2014) in her research study entitled "JOB SATISFACTION – A LITERATURE REVIEW ON EMPLOYEE MOTIVATION, ATTITUDES AND TURNOVER: WHAT IS THE RELATIONSHIP?" have greatly discussed the job satisfaction factors. The researcher have collected and discussed the factors such as employee motivation, attitude and turnover. The relationship study has done between the dependent and independent factors.

3.1. OBJECTIVES:

- To know the relationship between occupational stress and job satisfaction of private schools' Physical education teachers.
- To analyze the relationship between occupational stress and job satisfaction of private schools' Physical education teachers.

3.2. HYPOTHESIS:

H0: Occupation stress and job satisfaction are not negatively correlated.

H1: Occupation stress and job satisfaction are negatively correlated.

4. METHODOLOGY:

Data Collection technique: Self structured questionnaire have been employed to collect data on occupational stress and Customers satisfaction.

Sampling Method: Simple random sampling

Population: Private high school Physical Education teachers

Sample size: 100.

Tool for analysis: Pearson's correlation and ANOVA were employed to analyze and interpret the data through SPSS 20.0.

Secondary data: Articles, Journals, websites and so on.

5. ANALYSIS AND INTERPRETATION:

H0: Occupation stress and job satisfaction are not negatively correlated.

H1: Occupation stress and job satisfaction are negatively correlated.

Table 1. Correlation between Occupation stress and job satisfaction

Correlations			
		OS	JS
OS	Pearson Correlation	1	-.464**
	Sig. (2-tailed)		.000
	N	100	100
JS	Pearson Correlation	-.464**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

The above Pearson's correlation reveals that there is a negative correlation (-0.464) between the Occupation stress and job satisfaction of the private school physical education teachers. It shows that occupation stress is negatively affecting the job satisfaction. To confirm the significance level among the variables ANOVA has been utilized, it shows that (Table No.2) there is significance and negative relationship between the occupational stress and the job satisfaction of the respondents. The P-value is $0.000 < 0.05$. However it shows that as increase in the occupational stress of the teachers, it negatively affect the job satisfaction, which means job satisfaction is decreases and vice-versa. Finally it has concluded that null hypothesis has been rejected i.e. H0: Occupation stress and job satisfaction are not negatively correlated and accepted the alternative hypothesis i.e. H1: Occupation stress and job satisfaction are negatively correlated.

Table 2. ANOVA between Occupation stress and job satisfaction

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	274.669	1	274.669	26.937	.000 ^b
	Residual	999.291	98	10.197		
	Total	1273.960	99			
a. Dependent Variable: JS						
b. Predictors: (Constant), OS						

6. FINDINGS:

- Occupational stress is negatively affecting the job satisfaction.
- Increase in the occupational stress leads to decrease in the job satisfaction of the teachers.
- Decrease in the stress leads to greater increase in the job satisfaction of the teachers.

7. CONCLUSION:

The place, situation, institution, profession etc are not free from the occupational stress i.e. distress. Distress always negatively affects the job satisfaction in any circumstances. As the research has found out occupational stress is negatively affecting the job satisfaction and as increase in the occupational stress leads to decrease in the job satisfaction of the teachers and vice versa. Stress management plays the significant role to overcome from the stress. Further, the school management, head of the institution and students must co-operate the physical education teachers.

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**ASSOCIATION OF HIGHT, AGILITY AND SPORTS ANXIETY
WITH PLAYING ABILITY OF STATE LEVEL BASKETBALL
PLAYERS**

¹Dr. G.A. Preetham Prakesh ²Raju Gude ³Dr. P.P.S. Paul Kumar

¹Lecturer in Physical Education, Andhra Christian College, Guntur

²Research scholars, University College of Physical Education & Sports Sciences, ANU.

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies

Director of Physical Education & Associate Professor, University College of Physical
Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

The purpose of this study was to find out the association of anthropometric, physical, psychological and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball players, who represented their state in interstate basketball tournaments the age group of 18 to 25 years. Scientific appraisal, evaluation and prediction of basketball performance from selected anthropometric, physical fitness and psychological variables are present in the literature. These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables. The main objective of this research is appraisal of selected variables as pre requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness and psychological variables. In doing so, the investigator would assess the present status of basketball players anthropometric, physical fitness and psychological variables along with their playing ability. Further, the investigator would associate every variable selected with basketball playing ability. The subjects selected for pilot study phase was 5 state level basketball players. The subjects were drawn from state level basketball players who were represented the state in interstate competitions, the evaluation of the playing ability was subjectively measured only with the help of three experts.

Key Words: Anthropometric, Physical, Psychological and Parameters, basketball players

1. INTRODUCTION:

"Evaluation and measurement are universal practices. They reflect man's ever-present curiosity about his environment and his concern about himself." (Lawrence and Fox, 1954) The process of evaluation in education is a never-ending cycle. In the light of results from judgments made with reference to the individual to be educated and the means of educating him, goals are appraised and restated and procedures are replanned, and the cycle is repeated. Measurement and evaluation of performance are essential to determine how well the formulated objectives have been met, how efficient the process has been, and how good the product is. The results indicate the direction and the rate of change in performance. "In athletics and physical education, as in education and in life, the teacher and coach are constantly evaluating and measuring." (Meissner and Meyers 1940). The most valid form of evaluation is the use of well-established criteria as a basis for comparisons, based on association of selected parameters with playing ability.

1.1. Game of Basketball: Sports are an enjoyable means of increasing physical fitness and relieving tension. It takes skills to be good; furthermore, it takes skill to have a good since. One tends to participate in those activities in which he possesses some skill and enjoys those activities in which his skill is better than average. Skill tests and learning are very closely related to neuro-muscular co-ordination. Fundamental skills are universal in nature and common to all races, where as their adaptation into games. The fundamental skills are frequently measured in physical tests such as a dash, a throw for distance, a jump, and the like. Skill tests are usually conducted to test the ability of the students in the skill of sports and major games. Skill tests are necessary to find out, how far the students understood the material and subject matter, which have been taught

in the class; as far as practical session is concerned in sports and physical education, the skills tests are necessary to enlighten the progress of students in their subject matter.

1.2. Anthropometric Measurements: Anthropometric Measurement is defined as set of noninvasive, quantitative techniques for determining an individual's body fat composition by measuring, recording, and analyzing specific dimensions of the body, such as height and weight; skin-fold thickness; and bodily circumference at the waist, hip, and chest. (www.medicaldictionary.thefreonline.com). Physical educators have long realized that the performance of men and women is greatly influenced by such factors of age, height, arm length, leg length and body structure.

1.3. Objectives of the Subject:

Scientific appraisal, evaluation and prediction of basketball performance from selected anthropometric, physical fitness and psychological variables are present in the literature. These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables. The main objective of this research is appraisal of selected variables as pre requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness and psychological variables. In doing so, the investigator would assess the present status of basketball players' anthropometric, physical fitness and psychological variables along with their playing ability. Further, the investigator would associate every variable selected with basketball playing ability

2. STATEMENT OF THE PROBLEM:

The purpose of the study is to make an appraisal of selected anthropometric, physical fitness and psychological variables and playing ability of state level basketball players. And to find out relationship between playing ability and selected anthropometric, physical fitness and psychological variables of state level basketball players.

3. SIGNIFICANCE OF THE STUDY:

In the recent years physical educators, coaches' sports experts and even most of the players have realized the importance of playing ability. The significance of the study is based on the fact that performance in basketball measured through playing ability can be found association from selected anthropometric, physical, and psychological variables.

- This study will help to evaluate selected anthropometric, physical fitness and psychological levels of state level basketball players and compare the abilities and capacities of the players by themselves and by coaches and physical educators.
- The result and findings of this study would provide criteria for selecting potential basketball players.
- This study might be utilized as a screening instrument in analyzing and classifying the basketball players.
- The outcome of the results shall be helpful to basketball coaches and physical educationists to concentrate at the selected variables of this study, which might be having high correlation with playing ability to design the training programme.
- The result of the study would be making it clear whether the selected independent variables are directly or indirectly related to the criterion variables.
- The result and findings of this study, may guide basketball players on their playing ability.
- This study will help the budding researchers to take up similar studies in other areas and disciplines.

4. DELIMITATIONS:

- This study was conducted in two phases, namely, pilot study in which the investigator ascertained the reliability of subjects, instruments used, and tests to be administered and final phase of measuring selected anthropometric, physical fitness, psychological variables and playing ability of the basketball players.
- The subjects selected for pilot study phase was 5 state level basketball players.
- The age group of the subjects selected was ranking form 18 to 25 years.
- The subjects were drawn from state level basketball players who were represented the state in interstate competitions,
- The evaluation of the playing ability was subjectively measured only with the help of three experts.

5. LIMITATIONS:

- The environmental factor for the study could not be controlled as subjects for the study were the state level basketball players and they differed in their routine habits etcetera.
- The subjects were undergoing different types of physical activities and the effect of these activities could not be controlled.
- The diet and experience of the subjects were not considered in this study.

6. METHODOLOGY:

In this chapter, the selection of subjects, research design of the study, selection of subjects, orientation of subjects, selection of variables, reliability of instruments, competency of tester, reliability of data, test retest administration, subjective assessment of playing ability, and the statistical procedure used have been explained.

Selection of Subjects:

The generalisability of research results is the selection of sample which will provide the research data. A sample is a small proportion of a population selected for observation and analysis. A sample reflects the characteristics which define the population from which it is selected. The purpose of this study was to find out the association of anthropometric, physical, psychological and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball players, who represented their state in interstate basketball tournaments the age group of 18 to 25 years.

Selection of Variables:

Based on the available scientific literatures pertaining to finding out relationships of selected variables with playing ability in consultation with experts, the following criterion variables were selected for this study to find association with basketball playing ability of the subjects.

Physical Fitness Variables:

Height Agility

Psychological Variables:

Sports anxiety

Criterion Measures:

- Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- Psychological variable, Sports Competition anxiety was measured through Spielberger's Anxiety test.

Subject Reliability:

The subjects selected for this study were state level basketball players played at state level competitions. The players had adequate experience in playing the game. They were well trained in all skills and participated a number of tournaments. They involved in this study impartially and they were considered reliable for the purposes of this study.

7. COLLECTION OF DATA:

The data for the criterion variables were collected by administering the appropriate standard tests. The procedure for administering the test is explained below. Before administering the test the purpose and procedure were explained to the subjects in details.

Administration of Tests: Height

Objective: To measure height

Apparatus used: Stadiometer and Anthropometric rod

Test Description:

Height will be measured by anthropometric rod. The subject stand erect bare footed on a plane horizontal surface against a wall with her heels, back of the shoulder and head touching the wall and stretch the body. Stretched upwards as much as possible without her heel leaving the ground. Than anthropometric rod is kept in front of the subject and the crossbar of the anthropometry is adjusted so that the lower edge touches the highest point of the subject's head. Height will be recorded in centimeters.

AGILITY: Shuttle Run Test

Objective: To measure the agility of the performer in running and changing direction

Apparatus used: Stopwatch, measuring tape, 2 blocks of wood.

Procedure: Two parallel lines were marked 10 meter apart as starting line and end line Two blocks were placed behind the end line at the time of start. The performer on the signal go, ran to the blocks, picked up one returned to the starting line and placed the block behind the line. He repeated the same process with second block.

Scoring: The score for each performer was the time required to complete 60 meter and recorded to nearest one tenth of a second.

STATISTICAL TECHNIQUES:

The primary purpose of this study was to find out the association between selected anthropometric, physical fitness and psychological variables with playing ability of state level basketball players. To arrive meaningful findings the following statistics tools were computed.

8. RESULTS AND DISCUSSIONS:

The analysis of data collected from the samples under study. The purpose of the study was to find out the association of selected anthropometric, physical and psychological variables with playing ability of basketball players. To achieve the purpose of the study, the investigator selected hundred basketball players, who represented Andhra State in interstate basketball tournaments and the age group of the subjects were 18 to 25 years. All the subjects had participated in the state level competitions and represented their states. The researcher reviewed number of books, journals, research articles, coaching manuals and found that playing ability of a basketball player may have association with selected anthropometric, physical fitness and psychological variables. Based on these observations, the investigator selected the following variables for this study.

Anthropometric Variables: Height

Physical Fitness Variables: Agility

Psychological Variables: Sports anxiety

- Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- Psychological variable, Sports Competition anxiety was measured through Spielberger's Anxiety test.

8.1. Computation of Association on Anthropometric Variables with Playing Ability:

Descriptive Analysis: The association of anthropometric variables with playing ability of basketball players was statistically computed. In descriptive statistics the number of subjects tested, mean and standard deviation of the motor fitness parameters are presented in Table I.

Table I - Showing Descriptive Statistics on Anthropometric Variables Selected for this study

VARIABLES	MEAN	STD. DEVIATION	N
Height	170.45	6.097	100

Table II shows that the obtained mean value of the playing ability of the basketball players was 78.13 with standard deviation ± 4.83 . The mean value on height was 64.37 with standard deviation ± 3.97 . The mean value on leg length was 75.39 with standard deviation ± 4.57 . The mean value of arm length was 101.99 with standard deviation ± 3.75 .

8.2. Analysis of Coefficient Of Correlation: The obtained values were subjected to statistical treatment to find out the association between anthropometric variables with the playing ability of the subjects. The results are presented in Table II.

Table 2. Showing Correlation of Coefficient between Motor fitness Parameters and Playing Ability of the subjects

S.No.	Variables	Correlation Coefficient	Level of Sig.
	Playing Ability Vs		
1	Height	0.693*	<0.05

Required table r value $(1,99)_{0.05} = 0.197$ * Significant at 0.05 level.

Computation of Association on Physical Fitness Variables with Playing Ability

Descriptive Analysis: The association between the selected physical fitness variables with playing ability of basketball players was statistically computed. The descriptive statistics the number of subjects tested, mean and standard deviation of the physical fitness variables are presented in Table III.

Table 3. Showing Descriptive Statistics on Physical fitness Variables Selected for this study

VARIABLES	MEAN	STD. DEVIATION	N
Agility	11.1078	.43275	100

Table-3 shows that the obtained mean value on the mean value on agility was 11.107 with standard deviation \pm 0.432.

Analysis of Coefficient of Correlation: The obtained values were subjected to statistical treatment to find out the association of each physical fitness variable with the playing ability of the subjects. The results are presented in Table IV.

Table 4. Showing Correlation of Coefficient between Physical fitness Variables and Playing Ability of the subjects

S.No.	Variables	Correlation Coefficient	Level of Sig.
	Playing Ability Vs		
1	Agility	-0.224	<0.05

Required table r value $(1,99)_{0.05} = 0.197$

* Significant at 0.05 level.

The results presented in Table IV proved that there was a playing ability and agility (r : -0.224) as the obtained 'r' values were greater than the required 'r' value of 0.197 to be significant at 0.05 level.

Computation of Relationship on Psychological Parameters with Playing Ability

Descriptive Analysis: The association of psychological variables with playing ability of basketball players was statistically computed. In descriptive statistics the number of subjects tested, mean and standard deviation of the physiological parameters are presented in Table V.

Table 5. Showing Descriptive Statistics on Psychological Parameters Selected for this study

VARIABLES	MEAN	STD DEVIATION	N
Anxiety	54.17	4.288	100

Table 5, shows the obtained mean value on anxiety was 54.17 with standard deviation \pm 4.831.

Analysis of Coefficient of Correlation: The obtained values were subjected to statistical treatment to find out the association of each psychological variable with the playing ability of the subjects. The results are presented in Table VI.

Table 6. Showing Correlation of Coefficient between Psychological Variables and Playing Ability of the subjects

S.No.	Variables	Correlation Coefficient	Level of Sig.
	Playing Ability Vs		
1	Anxiety	0.071	NS

Required table r value $(1,99)_{0.05} = 0.197$

* Significant at 0.05 level.

The results presented in Table VI proved that there was a significant association between playing ability and anxiety (r : 0.71) as the obtained 'r' values were lesser than the required 'r' value of 0.197 to be significant at 0.05 level.

9. DISCUSSIONS ON FINDINGS: In this study, relationship between selected anthropometric, physical fitness and psychological variables with playing ability were found from 100 basketball players with the help of selected predictor variables such as height, agility, and anxiety. The basketball playing ability was determined through subjective rating by three experts and was used as the criterion variable. The backward multiple regression method was used to determine the association between anthropometric, physical fitness and psychological variables and playing ability of basketball players. Physical fitness and psychological variables with playing ability, backward multiple regression was analysed for each category of variables, namely, parameters associated with playing ability from selected anthropometric variables, associated with playing ability from selected physical fitness variables and psychological variables associated with playing ability from selected anthropometric variables were studied.

10. DISCUSSIONS ON HYPOTHESIS:

For the purpose of this study, the following hypotheses were formulated.

- It was hypothesized that the anthropometric variable height would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected anthropometric variables.

- It was hypothesized that the physical fitness variables, agility would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected physical fitness variables.
- It was hypothesized that the psychological variables, sports anxiety of control would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected psychological variables.

11. CONCLUSIONS:

Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that selected anthropometric variable height were significantly associated with playing ability of basketball players.
- It was concluded that physical fitness variables agility was significantly associated with playing ability of basketball players.
- It was concluded that psychological variables sports anxiety of control were significantly associated with playing ability of basketball players.

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**A DESCRIPTIVE STUDY- IMPORTANCE OF PHYSICAL
EXERCISES FOR MENTAL HEALTH**

Dr. Shreedevi A. Pawar (Hirugade)

Asst. Prof. of Physical Education, Smt. Kasturbai Walchand College, Sangli.

Abstract:

Today's age is an age of competition. Everyone is suffering from targets, goals, stress and tension. Our lives today abound with tension, deadlines, traffic jams and long hours at work; the list is seemingly endless sometimes. But we know the progress of our Nation lies in the hands of the people, who are healthy and physically fit also. Many researchers strongly support the regular exercises helps one to keep strong and healthy and to prevent many diseases. Health is generally defined as the freedom from disease, fitness strictly relates to a man's ability to meet the demands of his environment and excellence in performance. Many research studies show that physical activities improve mental health. Physical exercises or activities makes you feel mentally sharper, physically comfortable and more with your body and better able to cope with the day to day demands. Nowadays mental health and stability is a very important factor in a person's life. Healthy body and peace of mind are big assets of our life in this modern world. And this will be achieved by doing regular physical exercises in busy routine for our mental health.

Key Words – Physical exercises, mental health

1. INTRODUCTION:

Now a day's stress is the major factor in all sectors of modern life. Some amount of stress is useful for the good performance, but when it increases it creates so many problems in day to day life. Today's age is age of competitions so our lives today abound with tensions, stress, deadlines, long hours at work, and the list is seemingly endless sometimes. There is no escape from stress in modern life. Due to this many old age people are suffering from many mental disorders such as, depression, dementia, Alzheimer's, schizophrenia etc. According to many research studies, regular practice of physical exercises improves mental health as well as overall health of person.

1.1. CONCEPT OF PHYSICAL EXERCISE:

Definition of Physical Exercise- Physical Exercise is physical activity that is planned, structured and repetitive for the purpose of conditioning any part of body. (As per medical dictionary). Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness of a person. Regular practise of physical exercises develops physical, mental, emotional, intellectual, social as well as spiritual development which develops overall personality. Physical exercise or activity is essential for the development of wholesome personality of a child which would depend upon the opportunities provided for wholesome development of the mental, physical, social and spiritual aspects. The physical activity means any movement of your body that uses your muscles and expends energy. One of the great things about physical activity is that there are endless possibilities and there will be an activity to suit almost everyone. Most authors define 'physical fitness's the capacity to carry out every day activities without excessive fatigue and with enough energy in reserve for emergencies. Emphatically this definition is inadequate for a modern way of life. By such a definition almost anyone can classify himself as physically fit Gatchell (1977). According to Clarke (1971) Physical fitness is the ability to carry out daily task with vigor and alertness without undue fatigue and ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies.

3. CONCEPT OF MENTAL HEALTH:- The World Health Organization describes the mental health as follows, "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her

community”. Mental health is described as more than the absence of mental disorders or disabilities, and a number of different social, psychological, and biological factors can pose risks to mental health.

4. REVIEW OF RELATED LITERATURE: A few studies reviewed related to research subject are as follows: Literature presents the contribution of physical activity to the optimization of physical health of individuals with different ages. (Happel, Davies, Scott, 2012). In the 80s, researchers suggested that physical fitness training could lead to an improved mood, self-concept, and work behaviour; the evidence was less clear as to its effects on cognitive functioning, although it does appear to bolster cognitive performance during and after physical stress. (Folkins, Sime, 1981). SIMHA (Shanghai International Mental Health Association) describes the point of view of Muhlheim (2009), a psychotherapist who promotes the inclusion of physical exercise in the daily routines of his patients, and makes specific recommendations on the content, volume, intensity and frequency. Physical activity may play an important role in the management of medium intensity mental disorders, especially depression and anxiety, if it is practiced based on distinct methodological recommendations. Symptoms of anxiety and panic attacks can be improved by physical fitness training, meditation or relaxation. In general, acute anxiety responds better to physical activity than chronic anxiety. Results of studies conducted over time support the idea that participants engaged in regular physical activity have a better physical health status and based on this the symptoms of mental disorders can be ameliorated. According to above research studies physical exercises or activities are beneficial for mental health.

4.1. OBJECTIVES:

- To study the concept of physical exercise.
- To study the concept of mental health.
- To study the relation between physical exercises and mental health.

5. PHYSICAL EXERCISES FOR MENTAL HEALTH: Physical exercise has a huge potential to enhance our wellbeing. Even a short burst of 10 minutes brisk walking increases our mental alertness, energy and positive mood. Participation in regular physical activity can increase our self-esteem and can reduce stress and anxiety. It also plays a role in preventing the development of mental health problems and in improving the quality of life of people experiencing mental health problems. Physical exercise has been shown to have a positive impact on our mood. The most common physical signs of stress include sleeping problems, sweating, and loss of appetite. Symptoms like these are triggered by a rush of stress hormones in our body – otherwise known as the ‘fight or flight’ response. It is these hormones, adrenaline and noradrenaline, which raise our blood pressure, increase our heart rate and increase the rate at which we perspire, preparing our body for an emergency response. They can also reduce blood flow to our skin and can reduce our stomach activity, while cortisol, another stress hormone, release fat and sugar into the system to boost our energy. Physical exercise can be very effective in relieving stress. Exercise not only has a positive impact on our physical health, but it can also increase our self-esteem. Self-esteem is how we feel about ourselves and how we perceive our self-worth. It is a key indicator of our mental wellbeing and our ability to cope with life stressors. Physical exercise can reduce levels of anxiety in people with mild symptoms and may also be helpful for treating clinical anxiety. Physical activity is available to all, has few costs attached, and is an empowering approach that can support self-management.

6. CONCLUSION: From the above discussion physical exercises are beneficial for mental health. We cannot avoid stress in modern era, but by doing physical exercises we can improve our mental health as well as overall health. We can get physical, physiological, psychological and spiritual benefits from doing physical exercises. According to above study physical exercises improve health and increases happiness in life.

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SELF-EFFICACY AMONG MALE AND FEMALE COLLEGIATE ARCHERS: A COMPARATIVE STUDY

¹Dr. Abdul Rahaman ²Dr. Konsam Sarjubala Devi

^{1,2} Guest Faculty,

Department of Physical Education and Sports Science, Manipur University, Canchipur (India).

Email - abdulrahaman09@gmail.com

Abstract:

The purpose of the present investigation was to compare the level of self-efficacy among male and female collegiate archers. Forty (40) archers (male = 20, female = 20) who represented in the inter-collegiate archery tournament conducted by Thoubal College, Thoubal under the aegis of Manipur University, Canchipur (India) were taken as the subjects. The age of the subjects ranged from 17 to 25 years. Self-efficacy For Exercise (SEE) Scale developed by Resnick and Jenkins (2000) was administered on the subjects for collecting data. t-test was used to analyse the data. Results of the study revealed that no significant difference was found among male and female collegiate archers to their level of self-efficacy.

Key Words: Self-Efficacy and Archery.

1. INTRODUCTION:

Archery is a sport that involves the use of many pieces of equipment. It is to fit equipment to your unique body structure and strength (Haywood & Lewis, 2006). Self-efficacy are the beliefs that one can exercise, even on given constraints and impediments such as feeling of tired or being busy, and is associated with a greater likelihood of doing it (Bandura, 1997).

2. ACKNOWLEDGEMENT:

The authors would like to thank to all the subjects and assistants for extending their valuable cooperation to collect the data as well as to accomplish the study at all. Sports psychologists have shown that performance is the outcome of an athlete's biological, psychological, sociological and substantial structure. In the games and sports, physiological factors play vital roles in determining the performance level. However, in recent times great significance has been laid to psychological parameters in cutthroat competitive sports (Argudo-Iturriaga, Alberti-Amengual, Borges-Hernández & Ruiz-Lara, 2020; Knight, 2020; Parmar & Desai, 2019; Alemdag, 2018; Malipatil, 2018; Zulkifli & Kulinna, 2018; Dolly, Hooda, Singh & Kumar, 2017; Mouloud & Elkader, 2017; Sharma, Parveen, Sharma & Singh, 2017; Sudhir, 2016).

3. METHOD:

Participants: For the purpose of this present study Forty (40) archers (male = 20, female = 20) who represented in the inter-collegiate archery (men & women) tournament 2019-20 organized by Thoubal College, Thoubal under the aegis of Manipur University, Canchipur (India) were taken as the subjects. The age of the subjects ranged from 17 to 25 years.

Tool: The Self-efficacy For Exercise (SEE) Scale is a 9-items psychometric scale that is designed to assess positive self-belief to cope with a variety of difficult demands in feeling of tired or being busy developed by Resnick and Jenkins (2000). The test is self-report of exercise self-efficacy consisting of 9 statements related to various situations. Sum up the responses to all 9 items to yield the final composite score with a range from 0 to 90. It has been used in many studies on huge number of participants in contrast to other scales those were designed to assess optimism. Its internal consistency reliability reported to be 0.92 according to its norms.

Procedure: The questionnaire was administered on the subjects during inter-collegiate archery (Men & Women) tournament organized by Thoubal College, Thoubal under the aegis of Manipur University, Canchipur

(India) from 24th to 26th October, 2019. The subjects were instructed to respond each and every item of the scale (questionnaire) honestly. It was confident that the gathered data will be used for research purpose only.

3. DATA ANALYSIS:

The data thus collected were statistically treated by using Statistical Package for the Social Science (SPSS)^v version 16.0 computing Mean, S.D. (Standard Deviation) and t-test were computed to examine significant difference among the two experimental groups on the psychological parameter of self-efficacy. The results have been presented in the following table:

4. RESULTS:

Table-1: Indicating the mean difference among male and female collegiate archers on self-efficacy.

Self-Efficacy				
Experimental Groups	No. of Subjects	Mean	Standard Deviation	Calculated t-value
Male	20	49.50	± 23.22	0.09
Female	20	50.15	± 19.02	

Tabled value of 't' at 0.05 level of significance with 38 df = 2.02

It may be seen from the above table that no significant difference was found among male and female collegiate archers on self-efficacy as the obtained value of 't' has been found 0.09 which is considerably lower than the tabled value of 't' (2.02) at 0.05 level of significance with 38 degree of freedom.

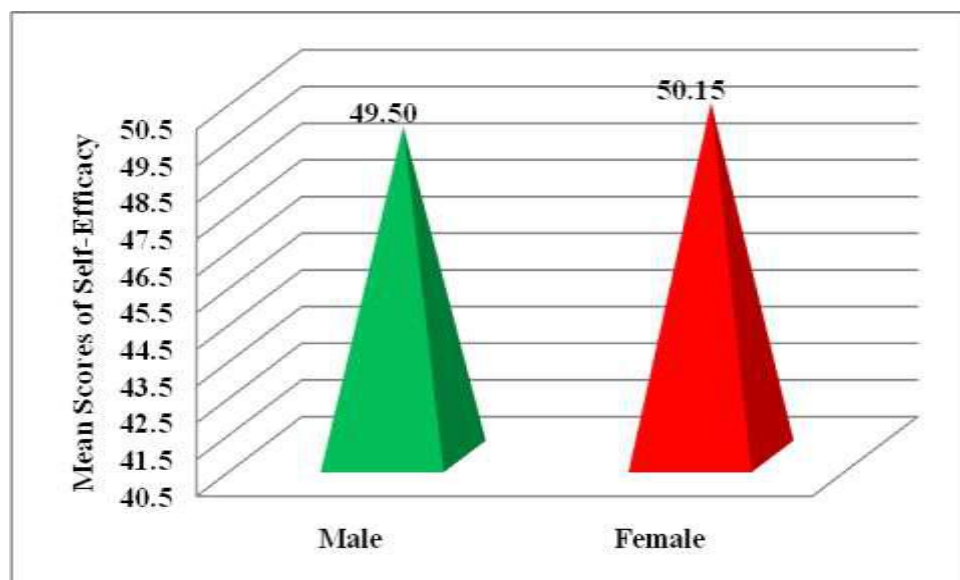


Figure 1: Graphical representing the difference of self-efficacy among male and female collegiate archers

5. DISCUSSION:

As per the scoring norms, the obtained mean scores (male = 49.50 & female = 50.15) have clearly suggested that both the groups of collegiate archers have moderate level of self-efficacy. It was observed that no significant difference subsist among male and female collegiate archers on their level of self-efficacy. The results of the study may be corroborated with the findings of Rahaman, Singh and Singh (2018) have compared self-efficacy between male and female inter-collegiate softball players of Manipur and found no significant difference existed between male and female inter-collegiate softball players of Manipur in stare to self-efficacy. In a similar study, Ali, Rahaman, and Gurjar (2013) have examined self-efficacy among male-female intervarsity taekwondo players of India and no significant difference was observed among male and female in regard to self-efficacy.

6. CONCLUSION:

On the basis of the results obtained from the present empirical investigation it may be concluded that male and female collegiate archers did not differ significantly on their level of self-efficacy. The findings also suggest that the level of self-efficacy of both male and female collegiate archers as per the demand of the focus

and attention sports falls considerably in the moderate range which seemed to be necessary for attaining excellence during the competition.

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**EFFECT OF FUNCTIONAL TRAINING AND RESISTANCE
TRAINING ON LEG EXPLOSIVE POWER AND SPIKING AMONG
FEMALE VOLLEYBALL PLAYERS**

Dr. P. P. S. Paul Kumar

Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies
Director of Physical Education & Associate Professor, University College of Physical Education & Sports
Sciences, Acharya Nagarjuna University

Abstract:

Purpose of The Study Effect of Functional Training and Resistance Training on Leg Explosive Power and Spiking among Female Volleyball Players. The study was formulated as a true random group design consisting of a pre-test and post-test. The subjects (N=60) were randomly assigned to three equal groups of twenty female Jr. College volleyball players in each. The groups were assigned as experimental group I (Functional Training), Experimental Group II (Resistance Training) and control group respectively. Pre-tests were conducted for all the 60 subjects on selected physical fitness and performance variables. After the experimental period of twelve weeks post-test were conducted and the scores were recorded. The post-tests were conducted on the above said dependent variables after a period of twelve weeks training on functional training and resistance training. The difference between initial and final scores of selected variables was the effect of respective experimental treatments. The statistical significance was determined using statistical application ANCOVA. In all cases 0.05 level was fixed to test the significance.

Key Words: *Leg Explosive Power and Spiking, Resistance & Functional Training, volleyball players*

1. INTRODUCTION:

The body is the temple of soul and can be a sound mind only in healthy body. To attain the harmony body, mind and spirit, the body must be physically fit. The future of the nation depends on today's younger generation and the health of the people is the wealth of the nation. Performance sports aim at high sports performance and for most physical and psychic capacities of sports men are developed to extreme limits.

1.1. OBJECTIVE OF THE STUDY:

The objective of this study was to assess the effect of functional training and resistance training on selected physical fitness and performance variables among female volleyball players. The investigator also interested to assess the levels of selected physical fitness and performance variables that undergo this training schedule. As an interventional programme, the investigator suggested two different packages of training, namely, functional training and resistance training for the benefit of female volleyball players. The initial and final scores on selected variables would prove the varied effect of experimental treatment and thus the objective of this study was to find out the effect of functional training and resistance training on selected physical fitness and performance variables among female volleyball players.

1.2. STATEMENT OF THE PROBLEM: The purpose of this study was to find out the Effect of Functional Training and Resistance Training on Leg Explosive Power and Spiking among Female Volleyball Players.

1.3. SIGNIFICANCE OF THE STUDY:

- The study was significant in determining different training schedules for female volleyball players.
- The study was significant in assessing the physical fitness levels of female volleyball players.

- The study was significant in assessing the performance levels of volleyball players.
- The findings of this study would encourage future researches in different methods of training on volleyball players.

1.4. DELIMITATIONS:

- Only sixty Jr. College level female volleyball players who participated in female tournaments were selected as subject at random and their age was between 16 to 18 years.
- The subjects were divided into three groups. Each group consisting of twenty each, namely, experimental group I, experimental group II and control group.
- Only selected functional training were provided to the experimental group I for 12 weeks as functional training.
- Only selected weight training exercises were provided to the subjects of experimental group II for 12 weeks as resistance training.
- Control group was kept strictly in control, that is, not involving in any special training which could directly or indirectly influence their physical fitness and performance in volleyball.
- Only the following physical fitness and performance variables were considered for this study.

1.5. LIMITATIONS:

The study was limited in the following ways, which would be taken into consideration at the time of findings of this study.

- The investigator has not taken into consideration of the past experiences of the subjects in different training methods underwent.
- The climatic conditions, diet and other daily routines of the subjects were not controlled.
- The economic and social background of the players was not taken into consideration.

2. SELECTION OF SUBJECTS:

The purpose of the study was to find out the effect of functional training and resistance training on selected physical fitness and performance variables among female volleyball players. To facilitate the study, 60 female volleyball players from different Jr. colleges in Andhra Pradesh state were randomly selected as subjects and their age were 16 - 18 years. They were assigned into three groups, namely, experimental group I, experimental group II and control group. Experimental group I served as functional training group, experimental group II served as resistance training group and the third group served as control group (CG). The requirement of the experiment procedures, testing as well as exercise schedule were explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The investigator got individual consent from each subject.

2.1 Dependent Variables: The following physical fitness and performance variables were considered for this study:

2.2. Physical Fitness Variables: Leg Explosive Power

2.3. Performance variables: Spiking

2.4. Independent variables

- Twelve weeks of Functional training in Volleyball
- twelve weeks of resistance Training

2.5. Experimental Design:

The study was formulated as a true random group design consisting of a pre-test and post-test. The subjects (N=60) were randomly assigned to three equal groups of twenty female volleyball players in each. The groups were assigned as experimental group I – (Functional Training), Experimental Group II (Resistance Training) and control group respectively. Pre-tests were conducted for all the 60 subjects on selected physical fitness and performance variables. After the experimental period of twelve weeks post-test were conducted and the scores were recorded. The post-tests were conducted on the above said dependent variables after a period of twelve weeks training on functional training and resistance training. The difference between initial and final scores of selected variables was the effect of respective experimental treatments. The statistical significance was determined using statistical application ANCOVA. In all cases 0.05 level was fixed to test the significance.

2.6. Criterion Measures: By glancing the literature in consultation with professionals and experts, the following variables were selected as the criterion measures in this study.

- Explosive leg power was measured through vertical jump test and the scores recorded in centimeters.
- Volleyball performance variables, spiking, were determined using standard tests.

3. TEST ADMINISTRATION:

Explosive Power (Sergeant Vertical Jump Test)

Purpose: The sergeant jump was used to measure explosive power.

Equipment required: Measuring tape or marked wall, chalk for marking wall.

Procedure: The subject stood side on to a wall and reached up with the hands closest to the wall. Keeping the feet flat on the ground, the point of the fingertips was marked or recorded. This was called the standing reach.

The subject put chalk on his finger tips to mark the wall at the height of their jump. The subject then stood away from the wall, and jumped vertically as high as possible using both arms and legs to assist in projecting the body upwards. Attempt to touch the wall at the highest point of the jump was made. The difference in distance between the standing reach height and the jump height was the score.

Scoring: The best of three attempts was recorded. The jump height was usually recorded as a distance score.

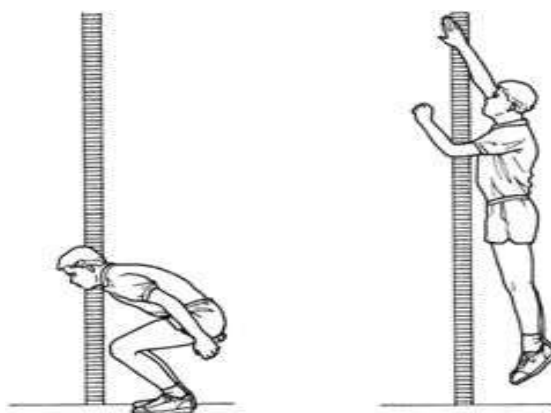


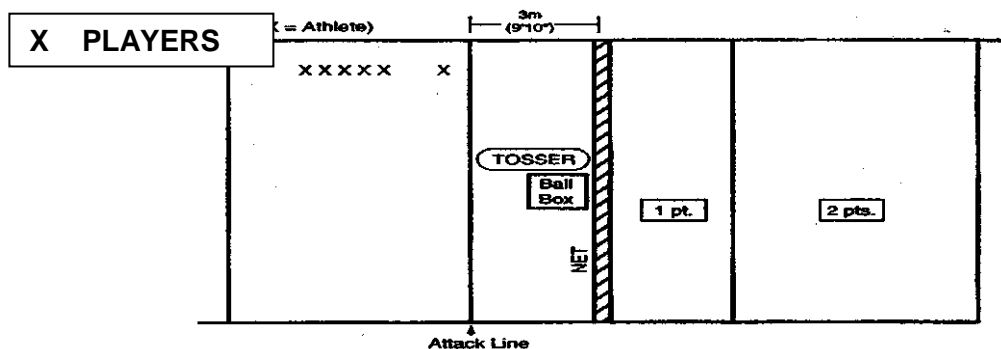
Figure 1: Diagram for Vertical Jump Test

SPKING:

Purpose: To measure the spiking ability of the subjects, they were rated in subjective manner during the match by the investigator and two coaches.

Field Marking: Use a regulation size court of 18m (59') long and 9m (29' 6") wide, five Volleyballs, net (2.43m [7' 11 5/8"]) standards, antennas, measuring tape, floor tape or chalk and ball box as shown in Figure.

Volleyball Test – Spike Diagram:



Test: Tosser will toss the ball in front of the player and 2m (6' 6 3/4") above the net. Tosses that were not at the proper height were repeated. The player stood in the court 3.05-4.57m (10-15') off the net, made a spiking approach, and spikes the ball over the net and within the boundaries of the opponent's court. Each player was given 10 attempts.

Scoring: Subject received two points for each spike that landed beyond the attack line in the backcourt and one point for each spike that landed between the net and the attack line within the opponent's front court. A tip (dink) or half-speed shot was not recorded as a spike. The subject's final score should be the total of all 10 attempts.

Staging: Volunteers administer the test and were not to interfere with any subject who was performing the test. Volunteer A would instruct the group doing this particular test while Volunteer B demonstrated the actual test. Volunteer C would toss the Volleyball to the subject who performed. Volunteers would retrieve the Volleyballs after they landed and would roll them to a volunteer who was standing near the ball box. When the subject was finished, Volunteer A would give the score to Volunteer D who was the scorekeeper. Each volunteer was to administer the test and manage their area only.

Computation of Analysis of Covariance Results on Leg Explosive Power: The statistical analysis comparing the initial and final means of Leg explosive power due to Functional training and Resistance training among female volleyball players is presented in Table-I.

Table-I - Ancova Results on Effect of Functional Training and Resistance Training Compared With Controls on Leg Explosive Power

	Functional Training	Resistance Training	Control Group	Source Of Variance	Sum Of Squares	Df	Mean Squares	Obtained F
Pre-test Mean	35.85	34.30	37.65	Between	112.43	2	56.22	1.32
				Within	2419.30	57	42.44	
Post-test Mean	38.55	36.75	37.80	Between	32.70	2	16.35	0.50
				Within	1867.90	57	32.77	
Adjusted Post-test Mean	38.62	38.17	36.31	Between	58.74	2	29.369	49.36*
				Within	33.322	56	0.595	
Mean Diff	2.70	2.45	0.15					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table I, the obtained pre-test means on Leg explosive power on Functional training group was 35.85, Resistance training group was 34.30 was and control group was 37.65. The obtained pre-test F-value was 1.32 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Leg explosive power on Functional training group was 38.55, Resistance training group was 36.75 was and control group was 37.80. The obtained post-test F-value was 0.50 and the required table F-value was 3.16, which proved that there was no significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 49.36 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table-II.

Table-2 - Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Leg explosive power

MEANS				Required C.I.
Functional training Group	Resistance training Group	Control Group	Mean Difference	
38.62	38.17		0.45	0.61
38.62		36.31	2.32*	0.61
	38.17	36.31	1.87*	0.61

* Significant

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Functional training group and control group (MD: 2.32). There was significant difference between Resistance training group and control group (MD: 1.87). There was no significant difference between treatment groups, namely, Functional training group and Resistance training group (MD: 0.45). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

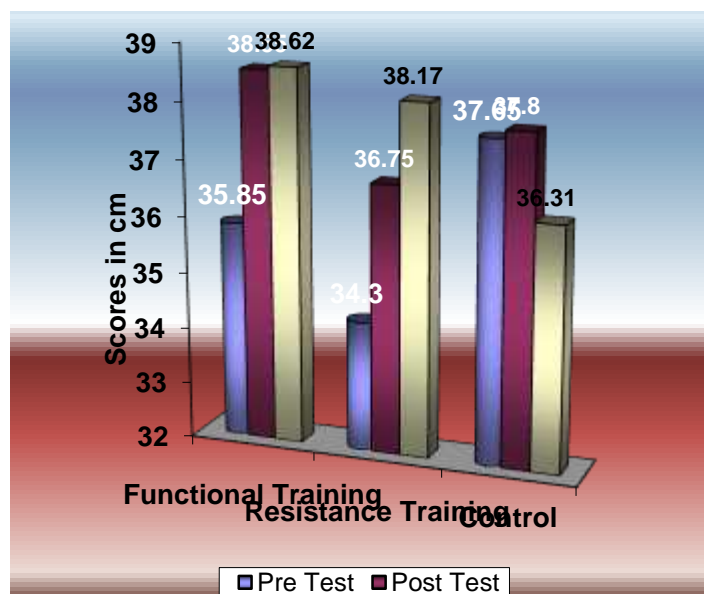


Figure 2 .Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Leg Explosive Power

4. DISCUSSIONS ON FINDINGS ON LEG EXPLOSIVE POWER:

In order to find out the effect of Functional training and Resistance training on Leg explosive power the obtained pre and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Functional training and Resistance training on Leg explosive power is presented in Table II. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 49.36 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table II proved that there was significant difference between Functional training group and control group (MD: 2.32) and Resistance training group and control group (MD: 1.87). Comparing between the treatment groups, it was found that there functional training was better than resistance group with mean difference of 0.45. However, this difference was not significant between Functional training and Resistance training group among female volleyball players. Thus, it was found that Functional training and Resistance training were significantly better than control group in improving leg explosive power of the female volleyball players.

5. RESULTS ON SPIKING: The statistical analysis comparing the initial and final means of Spiking due to Functional training and Resistance training among female volleyball players is presented in Table-III.

Table 3. Ancova Results on Effect of Functional Training and Resistance Training Compared With Controls on Spiking

	Functional Training	Resistance Training	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre-test Mean	8.75	8.70	9.05	Between	1.43	2	0.72	1.00
				Within	40.90	57	0.72	
Post-test Mean	10.35	9.85	9.00	Between	18.63	2	9.32	11.27*
				Within	47.10	57	0.83	
Adjusted Post-	10.41	9.95	8.83	Between	25.79	2	12.894	32.38*

test Mean				Within	22.297	56	0.398	
Mean Diff	1.60	1.15	-0.05					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table-III, the obtained pre-test means on Spiking on Functional training group was 8.75, Resistance training group was 8.70 and control group was 9.05. The obtained pre-test F-value was 1.00 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Spiking on Functional training group was 10.35, Resistance training group was 9.85 and control group was 9.00. The obtained post-test F-value was 11.27 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 32.38 was greater than the required value of 3.16, and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table-IV.

Table 4. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Spiking

MEANS				Required C.I.
Functional training Group	Resistance training Group	Control Group	Mean Difference	
10.41	9.95		0.46	0.50
10.41		8.83	1.58*	0.50
	9.95	8.83	1.12*	0.50

* Significant

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Functional training group and control group (MD: 1.58). There was significant difference between Resistance training group and control group (MD: 1.12). There was no significant difference between treatment groups, namely, Functional training group and Resistance training group. (MD: 0.46). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure-II

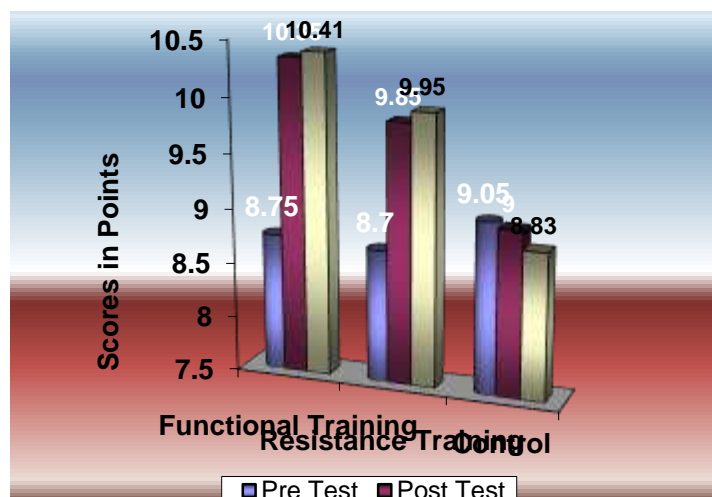


Figure 3. Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Spiking

6. DISCUSSIONS ON FINDINGS ON SPIKING: In order to find out the effect of Functional training and Resistance training on Spiking the obtained pre- and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Functional training and Resistance training on Spiking is presented in Table-IV. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 32.38 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table-V proved that there was significant difference between Functional training group and control group (MD: 1.58) and Resistance training group and control group (MD: 1.12). Comparing between the treatment groups, it was found that functional training was better than resistance training in improving passing performance, however this difference was not significant among female volleyball players. Thus, it was found that Functional training and Resistance training were significantly better than control group in improving Spiking performance of the female volleyball players.

7. DISCUSSIONS ON FINDINGS:

This research is aimed at comparing the effect of functional training and resistance training on selected physical fitness and performance variables of female volleyball players. For this purpose, the following were hypothesized.

- It was hypothesized that there would not any significant differences between treatment groups, namely, functional training and resistance training on selected physical fitness variables, leg explosive power among female volleyball players compared to control group.
- It was hypothesized that functional training would significantly improve the selected performance, spiking among female volleyball players compared to control group.

8. CONCLUSIONS:

Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that 12 weeks functional training and 12 weeks resistance training significantly improved leg explosive power of female volleyball players compared to control group. It was also found that though functional training showed superiority than resistance training on physical fitness variable, leg explosive power, the difference was not significant as such there was no significant difference between the experimental protocols of this study in altering leg explosive power of female volleyball players.
- The results of this study made to conclude that 12 weeks functional training and 12 weeks resistance training significantly improved performance spiking among female volleyball players compared to control group. It was also found that there was no significant difference between the experimental protocols of this study in altering spiking ability of female volleyball players.

9. RECOMMENDATIONS:

The training protocols suggested in this study may be included in the training schedule of training female volleyball players. The training methods of this study may be implemented to other sports and games which require leg strength which in turn would improve performances of the game.

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**EFFECT OF RESISTANCE AND SAND TRAINING ON BLOCKING AND
STRENGTH AMONG INTER COLLEGIATE KABADDI PLAYERS.**

¹M. Koteswara Rao, ²Suresh Dasi, ³Dr. P. P. S. PAUL KUMAR

¹Lecturer in Physical Education, SRR & CVR Govt. Degree College, Vijayawada.

²Research scholars, University College of Physical Education & Sports Sciences, ANU.

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies

Director of Physical Education & Associate Professor, University College of Physical
Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

Purpose of this study to find out the Effect of Resistance and Sand Training on Blocking and Strength among Inter Collegiate Kabaddi Players. The study was formulated as a true random group design, consisting of a pre-test and post-test. The forty five men kabaddi players who represented their colleges in inter collegiate tournaments were randomly selected as subjects (N=45). The subjects were divided into three groups consisting of 15 in each group. The groups were assigned as Experimental Groups I, II, and group V. Experimental group I was given experiment resistance training, experimental group II was given sand training and the third one was considered as control group which did not underwent any special treatment. Pre-test was conducted for all forty five (N=45) subjects on selected performance variables such as, speed, strength agility, touching, kicking, rotation, hold, and block. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. The control group was did not underwent any experimental training. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA. In all cases 0.05 level was fixed to test the hypothesis of this study.

Key Words: Blocking and Strength

1. INTRODUCTION: Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, and sociology and psychology etcetera. All the coaches, trainers, physical educational personals and doctors are doing their best to improve the performance of the players of their country. Athlete players of all the countries are also trying hard to bring laurels, medals for their countries in International competitions.

1.1. LIMITATION:

- Heredity and environment factors which will contribute to mental efficiency could not be controlled.
- The day to day activities and life style could not be controlled.
- The environmental factors at the time of responding to the experimental study would be attached the responses of the subjects which recognized as a limitation.

1.2. DELIMITATION: The study was delimited in terms of concerns and sample as follows:

- Only Kabaddi men players were are selected for the study.
- The age of the subjects were ranged from 19 to 25 years.
- Only the following performance related variables were selected for the stu namely, leg explosive strength and blocking

2. METHODOLOGY:

2.1. Selection of Subjects: The purpose of the study was to find out the effect of resistance and sand training on selected performance variables among intercollegiate kabaddi players. To achieve the purpose of this study, forty five intercollegiate level kabaddi players from different colleges in Andhra Pradesh were selected. The

selected subjects' age group was ranging from nineteen to twenty five years. The subjects were randomly divided into three groups and each group consists of fifteen subjects. Experimental group one underwent resistance training and experimental group two underwent sand training for twelve weeks, whereas the control group did not participate in any special training.

2.2. Selection of Variables: The investigator reviewed the available scientific literatures pertaining to the resistance training, sand training from books, journals, periodicals, magazines and research papers on performance variables and performances of kabaddi players. Based on the consideration of feasibility criteria, availability of instruments and the relevance of the variables to the present study, following variables were selected.

2.3. Dependent variables: Strength Block

2.4. Independent Variables: 1. Experimental Group I - Resistance Training for 12 weeks.

2. Experimental Group II - Sand Training for 12 weeks

2.5. Experimental Design: The study was formulated as a true random group design, consisting of a pre-test and post-test. The forty five men kabaddi players who represented their colleges in inter collegiate tournaments were randomly selected as subjects (N=45). The subjects were divided into three groups consisting of 15 in each group. The groups were assigned as Experimental Groups I, II, and group V. Experimental group I was given experiment resistance training, experimental group II was given sand training and the third one was considered as control group which did not underwent any special treatment. Pre-test was conducted for all forty five (N=45) subjects on selected performance variables such as, speed, strength agility, touching, kicking, rotation, hold, and block. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. The control group was did not underwent any experimental training. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA. In all cases 0.05 level was fixed to test the hypothesis of this study.

2.6. Criterion Measures: The following criterion measures were adopted to measure the test.

- Strength was measured using vertical jump test.
- Performance variables block were measured objectively by three experts.

The correlation of coefficient correlation obtained for the tests variables were given in Table I.

Table I - Intra Class Correlation Coefficient of Test – Retest Scores

S.No	Variables	Coefficient of Correlation
1	Strength	0.89*
2	Blocking	0.82*

* Significant at 0.05 level

2.7. Resistance Training: The experimental groups underwent resistance training for a period of twelve weeks. The experimental group had practices by wearing weight jackets in their body with different weights. They were also had practices on the sandy run way. The training schedule for resistance training group was detailed in Table II.

Table 2. Showing Schedule of Resistance Training to Experimental Group I

S.No.	Resistance Training	I and IV Weeks		V & VIII Weeks		IX to XII Weeks	
		Rep	Sets	Rep	Sets	Rep	Sets
1	Light weight Jackets	4	2	4	3	4	4
2	Heavy weight Jackets	4	2	4	3	4	4
3	Heavier weight Jackets	4	2	4	3	4	4
4	Sandy Run way	4	2	4	3	4	4

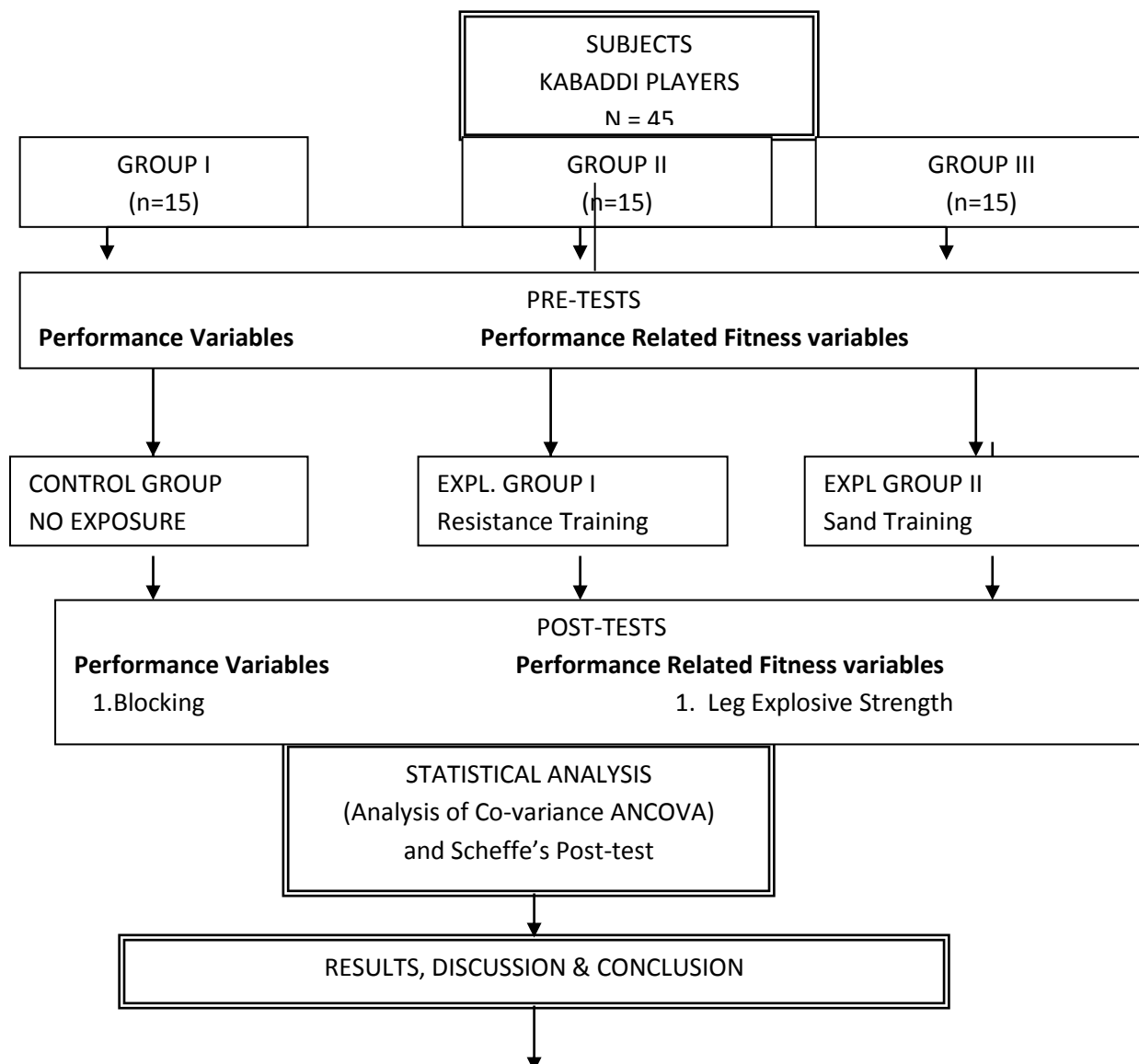
Table 3. Schedule of Sand Training

Days	Monday	Wednesday	Friday
First 4 weeks	1 ½ km Beach running	2 km Beach running	2½ km Beach running
Second	Beach running +	Beach running +	Beach running +

4 week's	1 ½ km plus Hopping and Bounding (repetition)	2 km plus hopping, bounding High knee & speed repetition.	2½ km plus hopping, bounding High knee & speed repetition.
Third 4 week	Beach running + 2 km plus Hopping and Bounding repetition.	Beach running + 2 ½ km plus Hopping, Bounding High knee & Speed Repetition.	Beach running + 3 km plus Hopping, Bounding High knee & Speed Repetition.

4.7. Statistical Techniques: To find out the effect of resistance training and aerobic training on selected anthropometric and skill related fitness variables among intercollegiate kabaddi players, the pre-test and post-test scores were analyzed by using ANCOVA statistical technique. When the F-ratio was found to be significant, Scheffe's post-hoc test was used to find out the paired mean significant difference (Thirumalaisamy, 1998).

Flow Chart Showing the Methodology adapted in the Study



3. RESULTS AND DISCUSSIONS: This chapter deals with analysis of data and discussions on the results presented. The purpose of the study was to find out the effect of resistance and sand training on selected performance variables among intercollegiate kabaddi players. To achieve the purpose of this study, forty five intercollegiate level kabaddi players from different colleges in Andhra Pradesh were selected. The selected subjects' age group was ranging from nineteen to twenty five years. The subjects were randomly divided into three groups and each group consists of fifteen subjects. Experimental group one underwent resistance training and experimental group two underwent sand training for twelve weeks, whereas the control group did not participate in any special training. Based on the consideration of feasibility criteria, availability of instruments and the relevance of the variables to the present study, following variables were selected.

1. Performance related variables: Strength

2. Performance variables: Block

Pre-test was conducted for all forty five (N=45) subjects on selected performance related and performance variables such as strength and block. The experimental groups participated in their respective, training such as, resistance training and sand training for twelve weeks. Immediately after the experimental period post-test was conducted on the above said dependent variables after a period of twelve weeks. The pre and post-test scores on selected criterion variables were tabulated and tested for statistical significance using ANACOVA.

3.1. Computation of Analysis of Variance and Post- Hoc test Results on Strength: The statistical analysis comparing the initial and final means of Strength due to Sand training and Resistance training among inter collegiate level kabaddi players is presented in Table IV.

Table 4. Ancova Results on Effect of Sand Training and Resistance Training Compared With Controls on Strength

	Sand Training	Resistance Training	Control Group	Source Of Variance	Sum Of Squares	df	Mean Squares	Obtained DF
Pre-test Mean	53.80	54.80	52.60	Between	36.40	2	18.20	0.62
				Within	1234.40	42	29.39	
Post-test Mean	62.73	58.93	53.73	Between	612.40	2	306.20	6.87*
				Within	1872.80	42	44.59	
Adjusted Post-test Mean	62.68	58.12	54.60	Between	489.17	2	244.58	8.74*
				Within	1147.21	41	27.98	
Mean Diff.	8.93	4.13	1.13					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.16, 2 and 41 (df) =3.16.

*Significant at 0.05 level

As shown in Table IV, the obtained pre-test means on Strength on Sand training group was 53.80, Resistance training group was 54.80 and control group was 52.60. The obtained pre-test F-value was 0.62 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Strength on Sand training group was 62.73, Resistance training group was 58.93 and control group was 53.73. The obtained post-test F-value was 6.87 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 8.74 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table V.

Table 5. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Strength

MEANS				Required C.I.
Sand training Group	Resistance training Group	Control Group	Mean Difference	
62.68	58.12		4.57	4.89

62.68		54.60	8.08*	4.89
	58.12	54.60	3.51	4.89

* Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: 8.08). There was insignificant difference between Resistance training group and control group (MD: 3.51). There was no significant difference between treatment groups, namely, Sand training group and Resistance training group (MD: 4.57). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure 1.

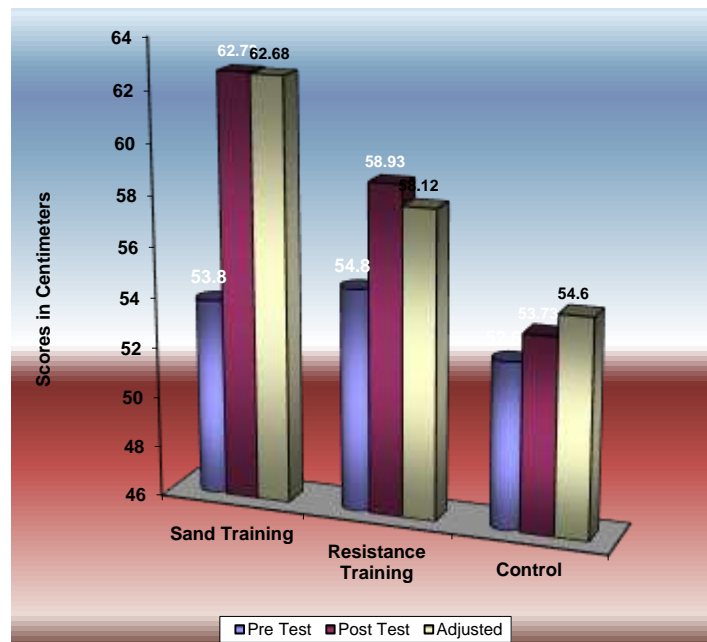


Figure 1. Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Strength

4. DISCUSSIONS ON FINDINGS ON STRENGTH: Strength of the kabaddi players was measured through vertical jump. In order to find out the effect of Sand training and Resistance training on Strength, the obtained pre and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Sand training and Resistance training on Strength is presented in Table V. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 8.74 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table VIII proved that there was significant difference between Sand training group and control group (MD: 8.08) and there was no significant difference between Resistance training group and control group (MD: 3.51). Comparing between the treatment groups, it was found that there was no significant difference between Sand training and Resistance training group among inter collegiate level kabaddi players. Thus, it was found that sand training was better than Resistance training and control group in improving Strength of the inter-collegiate level kabaddi players.

5. RESULTS ON BLOCK: The statistical analysis comparing the initial and final means of Block due to Sand training and Resistance training among inter collegiate level kabaddi players is presented in Table VI.

Table 6. Ancova Results on Effect of Sand Training and Resistance Training Compared With Controls on Block

	Sand Training	Resistance Training	Control Group	Source Of Variance	Sum Of Squares	df	Mean Squares	Obtained F
Pre-test Mean	11.67	11.80	11.93	Between	0.53	2	0.27	0.08
				Within	142.67	42	3.40	
Post-test Mean	13.67	14.47	12.47	Between	30.40	2	15.20	4.96*
				Within	128.80	42	3.07	
Adjusted	13.78	14.47	12.36	Between	34.73	2	17.36	24.37*

Post-test Mean				Within	29.21	41	0.71	
Mean Diff	2.00	2.67	0.53					

Table F-ratio at 0.05 level of confidence for 2 and 42 (df) =3.16, 2 and 41 (df) =3.16 *Significant at 0.05 level

As shown in Table VI, the obtained pre-test means on Block on Sand training group was 11.67, Resistance training group was 11.80 and control group was 11.93. The obtained pre-test F-value was 0.08 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post-test means on Block on Sand training group was 13.67, Resistance training group was 14.47 and control group was 12.47. The obtained post-test F-value was 4.96 and the required table F-value was 3.16, which proved that there was significant difference among post-test scores of the subjects. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F-value 24.37 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table VII.

Table 7. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Block

MEANS				Required C.I.
Sand training Group	Resistance training Group	Control Group	Mean Difference	
13.78	14.47		-0.69	0.78
13.78		12.36	1.42*	0.78
	14.47	12.36	2.11*	0.78

* Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Sand training group and control group (MD: 1.42). There was significant difference between Resistance training group and control group (MD: 2.11). There was significant difference between treatment groups, namely, Sand training group and Resistance training group (MD: -0.69). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure II.

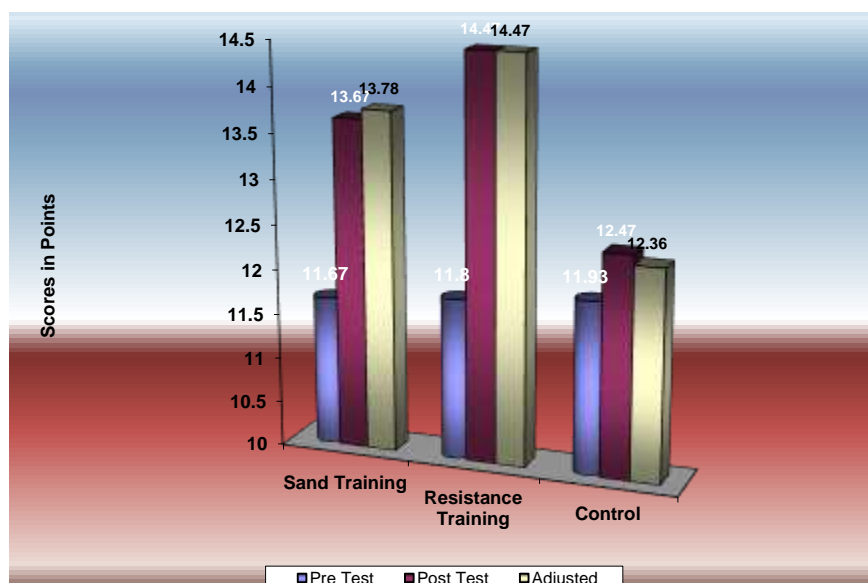


Figure 2. Bar Diagram Showing Pre-Test, Post-Test And Ordered Adjusted Means On Block

6. DISCUSSIONS ON FINDINGS ON BLOCK: In order to find out the effect of Sand training and Resistance training on Block the obtained pre and post-test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Sand training and Resistance training on Block is presented in Table VIII. The analysis of covariance proved that there was significant difference between

the experimental group and control group as the obtained F-value 24.37 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table VIII proved that there was significant difference between Sand training group and control group (MD: 1.42) and Resistance training group and control group (MD: 2.11). Comparing between the treatment groups, it was found that there was significant difference between Sand training and Resistance training group among inter collegiate level kabaddi players. Thus, it was found that sand training and Resistance training were significantly better than Sand training and control group in improving Block of the inter collegiate level kabaddi players.

7. CONCLUSIONS:

Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that 12 weeks sand training and resistance training significantly improved performance related variable strength of the kabaddi players, as the obtained F-value of 8.74 was significant at 0.05 level. The paired mean comparisons further proved that there was no significant difference between sand training and resistance training in altering strength of the kabaddi players.
- It was concluded that 12 weeks sand training and resistance training significantly improved performance variable block of the kabaddi players, as the obtained F-value of 24.37 was significant at 0.05 level. The paired mean comparisons further proved that there was no significant difference between sand training and resistance training in altering block skill of the kabaddi players.

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**EFFECTS OF VARIED INTENSITIES AND FREQUENCIES OF
WEIGHT TRAINING ON SELECTED MOTOR FITNESS AND
PERFORMANCE VARIABLES AMONG ATHLETES**

¹Adireddi Bhargava Ram ²Dr.D.Balakrishna ³Dr.P.P.S.Paul Kumar

¹Research Scholar, University College of Physical Education & Sports Sciences, A.N.U. A.P.

²Lecturer in Physical Education, AG & SGS Degree College, Vuyyuru

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies, Director of
Physical Education & Associate Professor, University College of Physical Education & Sports Sciences
Acharya Nagarjuna University

Abstract:

The purpose of the study was to find out the effects of varied intensities and frequencies of weight training on selected motor fitness and performance variables among athletes. The study was formulated as a true random group design, consisting of a pre test and post test. The subjects (n=60) were randomly assigned to three equal groups of twenty athletes each. The groups were assigned as Experimental Groups I, II and control group respectively. Pre tests were conducted for all the subjects on selected motor fitness and performance variables such as explosive power, stride length,. Two selected weight training exercises were selected for the study and 1 RM (Repetition Maximum) of the weight training exercises were determined for experimental group subject. The experimental groups participated in their respective high intensity (80% of 1 RM) low frequency (2 days per week) weight training and low intensity (60% of 1 RM) and high frequency (3 days per week) weight training a period of twelve weeks. The post tests were conducted on the above said dependent variables after the experimental period of twelve weeks for all the three groups. The difference between the initial and final scores of the subjects on each variable was the effect of respective treatments. Statistical significance was tested through applying ANCOVA.

Key Words:-Weight training, Motor fitness performance variables among athletes.

1. INTRODUCTION:

Sports in the present world have gotten very aggressive. It isn't the unimportant interest or practice that brings out triumph to a person. In this manner, sports life is influenced by different variables like physiology, biomechanics, sports preparing, sports prescription, humanism and brain science etcetera. Every one of the mentors, coaches, physical instructive personals and specialists are putting forth a valiant effort to improve the presentation of the players of their nation. Competitor players of the considerable number of nations are additionally making a decent attempt to bring trees, decorations for their nations in International rivalries.

Sports Training: Preparing is a program of activity intended to improve the aptitudes and to expand the vitality limit of a competitor for a specific occasion, subsequently preparing is basic for the advancement of physical wellness parts (William and Sperry, 1976. Sports preparing is the procedure of sports security dependent on logical and instructive standards for better (Hardayal Singh, 1991).

Effects of Training: The preparation procedure goes about as methods for development of sports execution. So as to guarantee quick advancement in each individual the physical instruction educators, the mentors and the teachers must have exhaustive information on the improvement part of sports preparing (Walter, 1969).

Intensity of Training: Exercise intensity should be checked frequently during and beginning of exercise programme. This requires some practice in taking one's pulse usually in the radial or carotid artery locations, since it is rather difficult to calculate the pulse during exercise. The pulse should be taken for a period of ten seconds immediately after stopping, beginning the count with zero. If the rate is below the prescribed training range, the intensity should be increased and if the rate is above the range, the intensity should be reduced.

Weight Training: Better exhibitions can be the result of various variables. This item is fundamentally the result of effective procedure. The movement of speed and the developing aggressive frame of mind on a sound premise of general perseverance, all round quality and general versatility. The improvement of all round quality is best accomplished the high-intensity aerobics and afterward advancing this through weight preparing. through a dynamic weight preparing.

Athletics: Games is the mother all things considered thus it has expected incredible significance lately. Game is an aggregate name for physical workout and game requiring aptitude and action. Athletic occasions are arranged into two specifically olympic style sports occasions. The track occasions incorporates short separation (run) long separation run, center separation run, transfers, leaping, strolling and steeple pursue. The field occasions incorporate bouncing occasions, (for example, long hop, triple hop, post vault and high hop) and tossing occasions, (for example, plate toss, hammer toss and putting the shot). Athletics is very important as a means of all round development of an individual. Athletic exercises and training have beneficial effects on the development of human organism. By practicing athletics, the basic form of motor activities of a man is consolidated and valuable skills are developed. They improve the coordination of organism, body activities of man and efficient solutions of physical task in everyday life. Athletic exercise and training contribute furthermore, to the mental development of a man. Finally the practice of athletics is during training and competition, the means of strengthening will power and molding the character of the young boys and girls. (Davis, B. et.al. 2000).

Motor Fitness: Engine Fitness alludes to the capacity of a competitor to perform effectively at their game. The segments of engine wellness are (Davis 2000) Agility, Balance, Co-appointment, Power (speed and quality) and Reaction Time.

Stride Length: Take a youthful Costa Rican sprinter and state, "Run with long walks for mentors." She would most likely misrepresent her steps to satisfy the direction of the mentor. She would build her real walk length from the toe of the correct foot at departure to the toe of the left foot at touchdown. This is the oversimplified idea numerous competitors have of walk length. Be that as it may, walk length is better comprehended in connection to the competitor's Center of Gravity (COG), and the separation the Center of Gravity makes a trip from bring off to contact down is utilized to calculate the real walk length.

2. NEED OF THE STUDY:

To study the ways and means by which the athletes can improve their performance and motor fitness are important principles of training methods. Sports consist of preparation and performance about 99% preparations and 1% performance. We need to make the most, effective use of our preparation time so that our athletes can achieve high level performance. For that the fitness and physiological systems should be taken care very much for the adaptation to their particular activities as because function decides structure. The system will change or adapt according to the nature of the activity. Therefore to know this fact among the players is very important for the improvement of performance. Because the level of fitness of physiological system may vary from players to player according to conditional status of the proper functioning of physiological system is needed to achieve in sports.

2.1. STATEMENT OF THE PROBLEM: The purpose of the study was to find out the effects of varied intensities and frequencies of weight training on selected motor fitness and performance variables among athletes.

2.2. OBJECTIVES OF THE STUDY: The objectives of this study are detailed as below:

- To formulate suitable weight training with manipulation of varied intensities and frequencies for the benefit of athletes.
- To experiment with varied intensities and frequencies of weight training on selected motor fitness variables, explosive power, performance variables stride length, of athletes.
- To compare the mean differences due to effect of varied intensities and frequencies of weight training on selected motor fitness and performance variables of athletes.

2.3. HYPOTHESES:

In light of the preceding discussion and for the purpose of the present investigation, the following were hypothesized.

- It was hypothesized that varied intensities and frequencies of weight training would significantly improve in selected motor fitness variables, explosive power, among athletes compared to control group.
- It was hypothesized that varied intensities and frequencies of weight training would significantly improve selected performance variables, stride length, among athletes compared to control group.

- It was hypothesized that there would be no significant differences among treatment groups involved in varied intensities and frequencies of weight training on selected motor fitness and performance variables of athletes.

3. SIGNIFICANCE OF THE STUDY: Better performances can be the product of a number of factors.

- This product is primarily the outcome of efficient technique, the progression of speed and the maturing competitive attitude on a sound basis of general endurance, all round strength and general mobility.
- The development of all round strength is best achieved through improving of motor fitness and performance variables by progressing through weight training.
- In the light of these theoretical foundations made by previous researches, the following are the significance of this research.
- This study is significant in developing a weight training schedule with different intensities and frequencies for the benefit of athletes.
- Through manipulation of weight training by varied intensities and frequencies, the study is unique in making the weight training exercises, which is anaerobic in nature into an aerobic one which is more beneficial for athletes.
- The findings of this study would help the coaches, physical educationists and players to apply the training schedule suggested in this study for improving selected motor fitness and performance variables of athletes.
- The findings would lay theoretical foundations on the importance of varied intensities and frequencies in weight training for the better development of athletes' motor fitness and performance variables.
- The finding of the study may be helpful for the coaches and instructors to apply proper frequency for better performance.
- Finding of the study may be helpful for the coaches and players to opt the intensity and frequency level for participation and coaching in future.
- The result of the study may be helpful to physical education teacher, coach in designing the training programs to improve athletics performance according to the individual concerned.

4. DELIMITATION: The study was delimited in the following aspects and while interpreting the results. It should be taken into consideration.

- The study was delimited to state level athletes who participated in interstate athletic events.
- The athletes were randomly selected from the contingent participated at Vijayawada sports meets.
- The athletes were in the age group of 18 to 25 years.
- In this study, the following variables were selected for the study.

Dependent Variables: Motor Fitness Components, Explosive power

Performance Variables: Stride Length

5. LIMITATIONS: The specialist couldn't control the way of life, mental pressure and factors that influence metabolic capacity.

- Psychological and sociological parts of their everyday life communications to their condition couldn't be controlled.
- The everyday standard, climatic conditions, healthful entertainers, inspirational components and financial variables, were not mulled over.
- The time of preparing and time of testing were the working days, in for the most part morning and night hours.

6. METHODOLOGY:

Selection of Subjects: The purpose of the study was to find out the effects of varied intensity and frequency of weight training on selected motor ability components and performance variables among athletes. To achieve the purpose of this study, sixty athletes who represented their college in Interstate Athletic meet organized in Vijayawada were randomly selected as subjects. The selected subjects' age group was ranging from eighteen to twenty five years. The subjects were randomly divided into three groups and each group consists of twenty subjects. Group one acted as experimental group I and Group two acted as experimental group II and group three acted as control group. Control group was not given any exposure. Experimental Group I underwent low intensity and high frequency of weight training and Experimental group II underwent high intensity and low frequency of weight training for twelve weeks.

Selection of Variables: The research scholar reviewed various scientific literature pertaining to weight training exercises and manipulation of weight training with different intensities and frequencies motor fitness and performance variables of athletes from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

Dependent Variables: Motor Ability Components, Explosive Power

Performance Variables: Stride Length

Independent Variables:

- High Intensity and low frequency Weight Training (80% of 1 RM Intensity for two days in a week) for twelve weeks.
- Low Intensity and high frequency Weight Training (60% of 1 RM Intensity for three days in a week) for twelve weeks.

Experimental Design: The study was formulated as a true random group design, consisting of a pre test and post test. The subjects (n=60) were randomly assigned to three equal groups of twenty athletes each. The groups were assigned as Experimental Groups I, II and control group respectively. Pre tests were conducted for all the subjects on selected motor fitness and performance variables such as explosive power, stride length, Two selected weight training exercises were selected for the study and 1 RM (Repetition Maximum) of the weight training exercises were determined for experimental group subject. The experimental groups participated in their respective high intensity (80% of 1 RM) low frequency (2 days per week) weight training and low intensity (60% of 1 RM) and high frequency (3 days per week) weight training a period of twelve weeks. The post tests were conducted on the above said dependent variables after the experimental period of twelve weeks for all the three groups. The difference between the initial and final scores of the subjects on each variable was the effect of respective treatments. Statistical significance was tested through applying ANCOVA.

7. TEST ADMINISTRATION:

Explosive Power: Purpose:-To measure leg explosive power.

Procedure:-The subject was asked to stand behind the take off line. The subject had to flex his knees and the extended arms taken behind. The arms were swing back and forth and subject, taking off with toes, fully extending the knees was to leap forward into the broad jump pit as far as possible. Three trials were given and the best jump was recorded in centimeters.

Performance Variables: Stride Length

Purpose: To measure the stride length of the subjects while performing 50 meters run.

Equipments: Stop watch, Clapper, Saw Dust.

Procedure: While the subjects were allowed to run fast in 50 metres run to measure speed, the estimation of the length of walk was taken in the test course, which comprises of a quickening zone of 20 meters and the test zone of 30 meters (between twentieth to 50th meter). The competitor utilizes the increasing speed zone to increase most extreme speed through the 30 meters test course. A light covering of sawdust was spread over the test zone that featured the impressions. Walk length was the good ways from the tip of the back toe to the tip of the front toe was recorded to the closest centimeter. To maintain a strategic distance from the respective inconsistencies two progressive steps are estimated to the closest centimeter. (Seagrave, L., 1996).

Scoring: The average of two consecutive strides of the subject was recorded in centimeter as the individual score.

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Purpose: To measure the stride length of the subjects while performing 50 meters run

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Procedure: While the subjects were allowed to run fast in 50 metres run to measure speed, the estimation of the length of walk was taken in the test course, which comprises of a quickening zone of 20 meters and the test zone of 30 meters (between twentieth to 50th meter). The competitor utilizes the increasing speed zone to increase most extreme speed through the 30 meters test course. A light covering of sawdust was spread over the test zone that featured the impressions. Walk length was the good ways from the tip of the back toe to the tip of the front toe was recorded to the closest centimeter. To maintain a strategic distance from the respective inconsistencies two progressive steps are estimated to the closest centimeter. (Seagrave, L., 1996).

Scoring: The average of two consecutive strides of the subject was recorded in centimeter as the individual score.

8. STATISTICAL TECHNIQUE: To find out the effects of high and low intensities of weight training on motor components and performance variables, the pre test scores were analyzed by using ANCOVA statistical

technique. When the F ratio was established to be noteworthy, Scheffe's post hoc test was to find out the balancing mean significant difference. (Thirumalaisamy, 1998).

9. RESULTS AND DISCUSSIONS:

Results on Explosive Power: The statistical analysis associating the initial and final means of Explosive power due to high intensity and low frequency (HILF) Weight training and low intensity and high frequency (LIHF) Weight training among athletes is presented in Table I

Table I - Ancova Results On Effect Of High Intensity And Low Frequency (Hilf) Weight Training And Low Intensity And High Frequency (Lihf) Weight Training Compared With Controls On explosive Power

	HILF WEIGHT TRAINING	LIHF WEIGHT TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	2.29	2.31	2.40	Between	0.13	2	0.06	2.53
				Within	1.43	57	0.03	
Post Test Mean	2.39	2.42	2.39	Between	0.01	2	0.01	0.22
				Within	1.67	57	0.03	
Adjusted Post Test Mean	2.43	2.44	2.32	Between	0.15	2	0.07	11.73*
				Within	0.36	56	0.01	
Mean Diff	0.10	0.11	-0.01					

HILF: High Intensity and Low Frequency: LIHF : Low intensity and High Frequency

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.

*Significant

As shown in Table I, the obtained pre test means on Explosive power on HILF Weight training group was 2.29, LIHF Weight training group was 2.31 and control group was 2.40. The obtained pre test F value was 2.53 and the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Explosive power on HILF Weight training group was 2.39, LIHF Weight training group was 2.42 and control group was 2.39. The obtained post test F value was 0.22 and the required table F value was 3.16, which proved that there was no significant difference among post test scores of the subjects. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 11.73 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II.

Table 2. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Explosive power

MEANS				Required C I
HILF Weight training Group	LIHF Weight training Group	Control Group	Mean Difference	
2.43	2.44		0.01	0.06
2.43		2.32	0.11*	0.06
	2.44	2.32	0.12*	0.06

HILF: High Intensity and Low Frequency: LIHF: Low intensity and High Frequency

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between HILF Weight training group and control group (MD: 0.11). There was significant difference between LIHF Weight training group and control group (MD: 0.12). There was no significant difference between treatment groups, namely, HILF Weight training group and LIHF Weight training group. (MD: 0.01). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure 1.

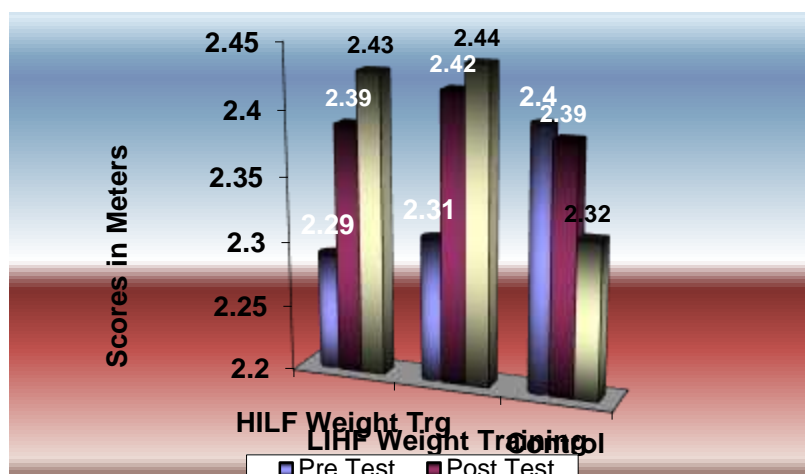


Figure I. BAR DIAGRAM SHOWING PRE TEST, POST TEST AND ORDERED ADJUSTED MEANS ON EXPLOSIVE POWER

HILF: High Intensity and Low Frequency: LIHF: Low intensity and High Frequency

9.1. Discussions on Findings on Explosive Power:

In order to find out the effect of varied intensities and varied frequencies of weight training the investigator selected high intensity and low frequency (HILF) Weight training and Low intensity and high frequency (LIHF) Weight training as independent variables. The results in table I shows the effects of varied intensities and varied frequencies on Explosive power. The obtained pre and post test means were subjected to ANCOVA and post hoc analysis through Scheffe's confidence interval test. The effect of HILF Weight training and LIHF Weight training on Explosive power is presented in Table I. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 11.73 was greater than the required table F value to be significant at 0.05 levels. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table II proved that there was significant difference between HILF Weight training group and control group (MD: 0.11) and LIHF Weight training group and control group (MD: 0.12). Comparing between the treatment groups, it was found that there was no significant difference between HILF Weight training and LIHF Weight training group among athletes. Thus, it was found that HILF weight training and LIHF Weight trains were expressively better than control cluster in improving Explosive power of the athletes. Motor fitness variable explosive power contributes for better performance of an athlete. The belongings of varied passions and frequencies of weight training were experimented in this study. The findings of this study that varied intensity and frequency weight training significantly improve motor fitness variable explosive power is in covenant with the findings of Rhea MR, et.al. (2009) who assessed the effect of heavy/slow actions and variable resistance training on peak power and strength development and found Variable resistance training with elastic bands appears to provide greater performance benefits with regard to peak force and peak power and speed which resulted in improved explosive power.

Results on Stride Length: The statistical analysis associating the initial and final means of Stride length due to high intensity and low frequency (HILF) Weight training and low intensity and high frequency (LIHF) Weight training among athletes is obtainable in Table III

Table 3. Ancova Results on Effect of High Intensity And Low Frequency (Hilf) Weight Training And Low Intensity And High Frequency (Lihf) Weight Training Compared With Controls On stride Length

	HILF WEIGHT TRAINING	LIHF WEIGHT TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean	1.94	1.95	1.95	Between	0.00	2	0.00	0.20
				Within	0.28	57	0.00	
Post Test Mean	1.96	1.96	1.95	Between	0.00	2	0.00	0.35
				Within	0.27	57	0.00	
Adjusted Post Test Mean	1.97	1.97	1.94	Between	0.01	2	0.00	7.55*
				Within	0.04	56	0.00	

Mean Diff	0.02	0.02	-0.01					
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HILF: High Intensity and Low Frequency; LIHF: Low intensity and High Frequency

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.

*Significant

As shown in Table III, the obtained pre test means on Stride length on HILF Weight training group was 1.94, LIHF Weight training group was 1.95 was and control group was 1.95. The obtained pre test F value was 0.20 and the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Stride length on HILF Weight training group was 1.96, LIHF Weight training group was 1.96 was and control group was 1.95. The obtained post test F value was 0.35 and the required table F value was 3.16, which proved that there was no significant difference among post test scores of the subjects. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 7.55 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table IV.

Table 4. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Stride length.

MEANS				Required C I
HILF Weight training Group	LIHF Weight training Group	Control Group	Mean Difference	
1.970	1.966		0.003	0.020
1.970		1.941	0.028*	0.020
	1.966	1.941	0.025*	0.020

HILF: High Intensity and Low Frequency; LIHF: Low intensity and High Frequency

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between HILF Weight training group and control group (MD: 0.028). There was significant difference between LIHF Weight training group and control group (MD: 0.025). There was no significant difference between treatment groups, namely, HILF Weight training group and LIHF Weight training group. (MD: 0.003). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure II.

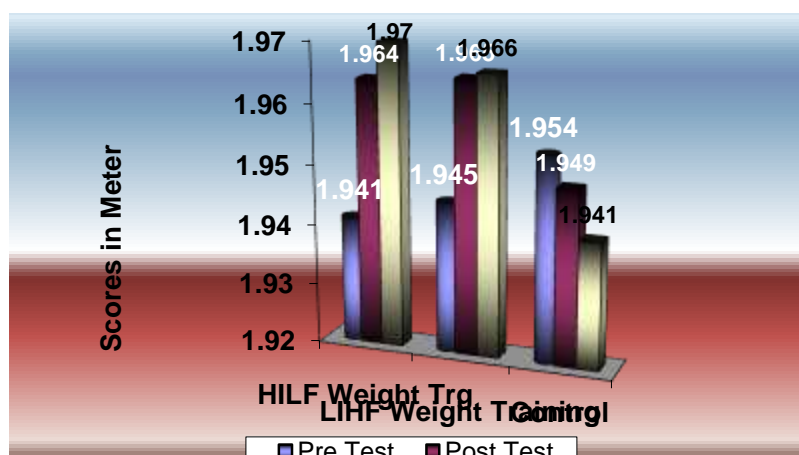


Figure 2. Bar Diagram Showing Pre Test, Post Test And Ordered Adjusted Means on Stride Length
HILF: High Intensity and Low Frequency; LIHF: Low intensity and High Frequency

10. DISCUSSIONS ON FINDINGS ON STRIDE LENGTH: In order to find out the effect of varied intensities and varied frequencies of weight training the investigator selected high intensity and low frequency (HILF) Weight training and Low intensity and high frequency (LIHF) Weight training as independent variables.

The results in table III shows the effects of varied intensities and varied frequencies on Stride length. The obtained pre and post test means were subjected to ANCOVA and post hoc analysis through Scheffe's confidence interval test. The effect of HILF Weight training and LIHF Weight training on Stride length is presented in Table III. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 7.55 was greater than the required table F value to be significant at 0.05 level. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table IV proved that there was significant difference between HILF Weight training group and control group (MD: 0.028) and LIHF Weight training group and control group (MD: 0.025). Comparing between the treatments groups, it was found that there was no significant difference between HILF Weight training and LIHF Weight training group among athletes. Thus, it was found that HILF weight training and LIHF Weight trains were suggestively better than control cluster in improving Stride length of the athletes. The intensity and length of the work interval should be based upon the primary energy system being used in the activity. Sprinters should have short high intensity intervals whereas marathons may run intervals of 3 miles at race pace or slower. There are several factors that affect the resulting heart rate besides exercise and training. Although the extent of variation differs with each individual body position has a definite effect upon the heart rate. The training effect of exercise depends upon the amount of stress imposed upon the relevant part of the body. There are variation in the resting heart rate response that is used in the exercise gives a better indication of intensity The findings of this study that varied intensity and frequency of weight training would significantly improve speed of the athletes is in agreement with the findings of Power man (2003) who found connective tissues are strengthened and increase speed and strength due to due to maximal and dynamic effect methods, heavy load training, light load training. This would result in enhanced stride length of the athletes. And the findings of this study were in agreement with the findings of Power man (2003) that varied intensities and frequencies of weight training would improve speed of athlete.

11. DISCUSSIONS ON HYPOTHESIS: For the purpose of the study the following were hypothesis:

- It was hypothesized that varied intensities and frequencies of weight training would significantly improve in selected motor fitness variables, explosive power, among athletes compared to control group.
- It was hypothesized that varied intensities and frequencies of weight training would significantly improve selected performance variables, stride length, among athletes compared to control group.
- It was hypothesized that there would be no significant differences among treatment groups involved in varied intensities and frequencies of weight training on selected motor fitness and performance variables of athletes.

The results presented in Tables I to II deals with analysis of covariance on motor fitness variables, explosive power, Since significant F values was obtained on adjusted mean comparisons, post hoc analysis was made and results presented. The results proved that varied intensities and frequencies of weight training, namely, high intensity low frequency (HILF) weight training and low intensity and high frequency (LIHF) weight training were significantly better than control group on, explosive power, and the formulated hypothesis No. 1 was accepted. The results presented in Tables III to IV deals with analysis of covariance on performance variables such as stride length of the athletes. Since significant F values were obtained on adjusted mean comparisons, post hoc analysis was made and results presented. The results proved that varied intensities and frequencies weight training, namely high intensity low frequency and low intensity and high frequency weight training were significantly improved stride length of athletes and the formulated hypothesis No. 2 was accepted except for stride frequency. As for stride frequency varied intensities and frequencies weight training failed to significantly improve and to this extent the hypothesis was rejected at 0.05 level. The formulated hypothesis No. 3 stated that there would be no significant differences among treatment groups involved in varied intensities and frequencies of weight training on selected motor fitness and performance variables of athletes. The post hoc analysis proved that there was no significant differences between HILF weight training and LIHF weight training on explosive power, stride length and the formulated hypothesis was accepted at 0.05 level except for arm length in which LIHF weight training was significantly better than HILF weight training group.

Findings: The results presented proved varied intensities and frequencies of weight training, that is, high intensity low frequency (HILF) weight training and low intensity and high frequency (LIHF) weight training were contributed for improvement of motor fitness variables, explosive power, and performance variables, stride length of inter collegiate level athletes.

12. CONCLUSIONS: Within the limitations and delimitations of the study, the subsequent conclusions were made:

- It was concluded that varied intensities and frequencies of weight training, namely, high intensity with low frequency (HILF) weight training and low intensity and high frequency (LIHF) weight training improved motor fitness variables, explosive power, compared to controls of intercollegiate level athletes.
- It was concluded that associating among the treatment groups, it was found that low intensity high frequency (LIHF) weight training was significantly better than high intensity low frequency (HILF) weight training in improving arm strength. There was no significant difference between treatment groups on muscular endurance, explosive power and leg strength.
- It was concluded that varied intensities and frequencies of weight training, namely, high intensity with low frequency (HILF) weight training and low intensity and high frequency (LIHF) weight training improved performance variables, stride length compared to controls of intercollegiate level athletes.
- It was concluded that comparing between the treatment groups, it was found that there was no significant differences between treatment groups on stride length of athletes.

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Two Day International E-Conference on
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Fit India Campaign Committee and Fit India Club, Manipur University, India

EFFECT OF YOGIC TRAINING ON BODY MASS INDEX OF SEDENTARY PEOPLE

¹Sapam Sanatombi Devi ²Dr. Maibam Nodiyachand Singh

¹Ph.D. Research Scholar, ²Assistant Professor (S-III),

Department of Physical education and Sports Science, Manipur University

Email-¹sana22sapam@gmail.com, ²nodiyachand@yahoo.com

Abstract:

Aim: The aim of the study was to investigate the effect of yogic training on Body Mass Index (BMI) of sedentary people.

Methodology: A total of thirty (30) obese subjects both male and female were purposively selected, from United People's Welfare Association (UPWA) the Langthabal Kunja Awang Leikai, Manipur whose age were ranged between 37-42 years. It was hypothesized that yogic training might significantly decrease and normalize the Body Mass Index (BMI). No control group was used. Yogic training was regularly practiced for 1 hour per day, 5 days in a week. The training continued for seventeen (17) weeks with a progressive training load method. The data were collected by using Body Mass Index (BMI) Machine. For statistical analysis, descriptive analysis and paired sample t-test were employed to see the characteristic of data and significant difference between pre and post-test.

Results: The means (M) and standard deviation (SD) of BMI for pre and post-test were 22.41 ± 3.74 and 22.34 ± 3.88 respectively. Respective range, standard error and variance of pre and post-test were 18.30, 0.68 & 14.04 and 19.80, 0.70 & 15.11 respectively. The p-value is 0.74, and found insignificant difference of means (M) comparison of Body Mass Index (BMI) between pre and post-test as the calculated 't' value was found to be 0.35, which was lesser than tabulated 't' = 2.045 at 0.05 level of confidence. No significant were found between pre and post-test mean comparison of Body Mass Index (BMI) at 0.05 ($P < 0.74$) level of confidence. There was insignificant difference BMI after 17 weeks of yogic training as compared to baseline data. Regular yogic training result beneficial health improvement in decreasing and normalizing the BMI in some individuals. These less changes might be due previous less body movement and body fitness and affect yogic training.

Conclusion: Regular yogic training could not reduces body weight much for obese but it benefited for better shape, flexibility and wellness. Yogic training may be helpful to reduce the occurrence of various diseases and helps to beat the sedentary lifestyle.

Key Words: Yogic training, BMI, and United People's Welfare Association (UPWA).

1. INTRODUCTION:

Studies have already proven that practice of yoga can improve physical fitness components such as speed, agility, strength, coordination, flexibility, balance, endurance, power, and reaction time. But there is no such randomized control trail on effect of only yogic training on Body Mass Index (BMI). With this in mind, the aim of the present study was to determine whether BMI can be improved through regular practice of yogic training. Yogic practices are becoming more popular in the curriculum of Indian schools, colleges, universities and every community of our societies in the world. The word Yoga comes from the Sanskrit word yuj meaning to union. Yoga is the an alternative and most effective program that has been used to treat many health conditions which include the inhibition of body weight gain, reduction of cholesterol levels, normalizing the blood pressure, and improving immune function.

1.1. Body Mass Index (BMI): The body mass index (BMI) or Quetelet index is a value derived from the mass (weight) and height of an individual. The Body Mass Index (BMI) is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m^2 , resulting from mass in kilograms and height in meters. It is an estimate of body fat based on height and weight. It doesn't measure body fat directly, but instead uses an equation to make an approximation. It can help to determine whether a person is at an

unhealthy or healthy weight. High BMI can be a sign of too much fat on the body, while low BMI can be a sign of too little fat on the body. The higher a person's BMI, the greater their chances of developing certain serious conditions, such as heart disease, high blood pressure, and diabetes. A very low BMI can also cause health problems, such as bone loss, decreased immune function, and anemia. The formula of $BMI = \frac{kg}{m^2}$ where kg is a person's weight in kilograms and m^2 is their height in meters squared. A BMI of 23.0 or more is overweight, while the healthy range is 18.5 to 23. BMI is suitable to applies most in adults 18-65 years.

Body Mass Index (BMI) for non-Asian adults

Low <18.5	Normal 18.5 – 24.9	Pre-obese 25.0 – 29.9	Obese > = 30
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Body Mass Index (BMI) for Asian adults

Low <18.5	Normal 18.5 – 23.0	Pre-obese 23.0 – 27.5	Obese > = 27.5
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Researchers felt the need of the hour to conduct a research work on BMI among the obese sedentary people. Therefore, the researchers conducted the study comparing the pre and post-test results of yogic training on the people of United People's Welfare Association (UPWA) the Langthabal Kunja Awang Leikai, Manipur.

1.2. Review of Related Literatures:

The study of relevant literature is an essential to know the work done in the field of training programme to enhance the playing ability of yoga practitioners. The research scholar made every necessary step to locate and collect the literature relevant to the study. **Dr. Alope Sen Borman (2016)**, studied on the effect of regular practice of yogic asana on Body Mass Index (BMI). After 12 weeks practice of yoga, it was concluded that the yogic asana alone may elicit a positive improvement in the Body Mass Index. **Johan Håkon Bjørngaard, et al., (2015)** they studied on association of Body Mass Index with Depression, Anxiety and Suicide-an Instrumental Variable Analysis of the HUNT Study. It was found that suicide mortality is inversely associated with body mass index. They also found support for a positive association between body mass index and depression, but not for anxiety. **Indranil Manna, (2018)** studied the effects of Yoga Training on Body Composition and Oxidant-Antioxidant Status among Healthy Male. No significant difference in height, weight, body mass index, body surface area and lean body mass among the yoga group after 12 weeks when compared to baseline data.

1.3. Objective of the study:

Keeping in view of the researchers interest, the main purpose of this present study was to find out the effect of yogic training on Body Mass Index (BMI) among the obese sedentary people of the United People's Welfare Association (UPWA) Langthabal Kunja Awang Leikai, Manipur.

1.4. Hypothesis of the study:

It was hypothesized that there might be reduce and significant difference between pre and post-test of BMI for selected subjects of the United People's Welfare Association (UPWA) Langthabal Kunja Awang Leikai, Manipur due to regular yogic training.

1.5. Significance of the study:

- The present study will be helpful to the yoga trainers to frame a good program schedules to normalized BMI among the persons suffering from various diseases.
- The present study will be benefited to yogis, physical educationist, players, and coaches, to enhance their physical performance.
- The present study will help the subjects to know their actual health benefits.
- The present study will be serving as a foundation of future research in the field of yoga.
- The present study will be useful to suggest in developmental program for yogic practitioners in the better way in different conditions.

On the basis of the above literatures, the present study was designed to find out the effect of yogic training on BMI among the selected obese sedentary people of the United People's Welfare Association (UPWA) Langthabal Kunja Awang Leikai, Manipur.

2. METHODOLOGY OF THE STUDY:

Researchers used the action research design to find out the effect of yogic training on BMI for the subjects. A total of 30 obese subjects were purposively selected, both male and female from the UPWA, whose ages were ranged between 37 to 42 years. These subjects were imposed seventeen (17) weeks of yogic training.

No control group was used. The required data were collected by using BMI infra-red -ray Machine. The pre-test were taken prior to the training program of the subjects.

The process for measuring BMI by using Body Mass Index Machine of the study is shown below:

Purpose: To measure Body Mass Index (BMI).

Equipment: BMI Machine or manually scales and stadiometer.

Procedure: BMI is calculated from body mass (M) and height (H)

$BMI = M / (H \times H)$, where M=body mass in kilograms and H=height in meters.

The higher the score usually indicating higher levels of body fat.

Scoring: The tester observed the rating scale and it will be noted down. The score will be recorded in kg/m². The rating scale is the same for males and females. But researchers used Infra-Red Ray BMI machine for this study.

The training protocol is as below:

Table-1

Sl.no.	Position	Practice	Repetition	Duration
1.	Prayer	Om chanting / Bhajan	1	5 mins.
2.	Loosening Exercises	Yogic Suksham Vyayam	48 poses	10 mins.
3.	Warming up exercises	Yogic Sthula Vyayam/Suriya Namaskara	6 poses/ 12 poses	9 mins.
4.	Asanas Standing	Quick Relax Technique (Q.R.T.) • Ardhakati Chakrasana • Vrikshasana	1 each side 1	1 min. 2 mins. 1 min.
5.	Sitting	Q.R.T. • Ustrasana • Pachimottanasana • Vakrasana	1 1 1 1 each side	1 min. 1 min. 1 min. 2 mins.
6.	Prone	Q.R.T. • Salabhasana • Bhujangasana • Naukasana	1 1 1 1	1 min. 1 min. 1 min. 1 min.
7.	Supine	Q.R.T. • Matsyasana • Setubhandhasana • Pawanmukta asana	1 1 1 1	1 min. 1 min. 1 min. 1 min.
8.	Supine	Savasana	1	2 mins.
9.	Pranayama	• Anuloma-Viloma/ Nadishuddhi • Surya Bedana • Chandra Bedana • Sitali • Sitkari • Bhramari	2 2 2 4 4 1	1 min. 1 min. 1 min. 1 min. 1 min. 1 min.
10.	Bandhas	• Jalandhara (chin lock) • Uddiyana (lifting of Diaphragm) • Mula (anus) • Maha (practice of all three Bandhas at the same time)	1	4 mins.
11.	Hasya yoga asana	Hasya yoga asana (laughter yoga)	1	2 mins.
12.	Prayer	Om chanting / Kritan (purna)	1	5 mins.
13.	Shat Karmas (purification)	• Trataka • Kapalabhati	1 60×2=120	1 min. 2 mins.

	technique of body)	<ul style="list-style-type: none"> Jalaneti Sutraneti 	strokes Once Once	weekly weekly
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After giving seventeen (17) weeks of yogic training, the post-test were conducted through data collection to see their effective results on BMI of the subjects. Then to analyse the collected data descriptive analysis and paired sample t-test were used to find out the characteristics of the data and significant difference of the training at 0.05 level of confidence. The data were analysed by using IBM SPSS version 20.

3. ANALYSIS AND INTERPRETATION OF DATA:

The collected data were statistically analysed by using descriptive analysis and paired sample t-test to find out the characteristics of the data and significant effect of the training. And the tables are as given below:

Table 2. Descriptive analysis of pre and post-test on Body Mass Index

Variable	N	Range	Min.	Max.	Mean	S.E.	S.D.	Variance
Pre-test	30	18.30	17.10	35.40	22.41	0.68	3.74	14.04
Post-test	30	19.80	16.10	35.90	22.34	0.70	3.88	15.11

Table 2 shows that the means (M) and standard deviation (SD) of BMI for pre and post-test were 22.41 ± 3.74 and 22.34 ± 3.88 respectively, respective range, standard error and variance were 18.30, 0.68 & 14.04 and 19.80, 0.70 & 15.11 accordingly.

Table 3. Mean comparison of pre and post-test on Body Mass Index

Variable	N	Mean	M.D.	S.D.	S.E.	df	t-value	p-value
Pre-test	30	22.41	0.07	1.08	0.20	29	0.35	0.74
Post-test	30	22.34						

*Significant at 0.05 level, where tabulated $t_{(0.05)29}=2.045$, and $N=30$.

From the above Table-3 reveals that there was not much significant difference of means (M) comparison of BMI between pre and post-test as the calculated 't' value was found to be 0.35, which was lesser than tabulated 't' = 2.045, 29 degree of freedom and the p-value is 0.74 is larger than 0.05 level of confidence. The mean difference of BMI between pre and post-test is shown below at figure-1.

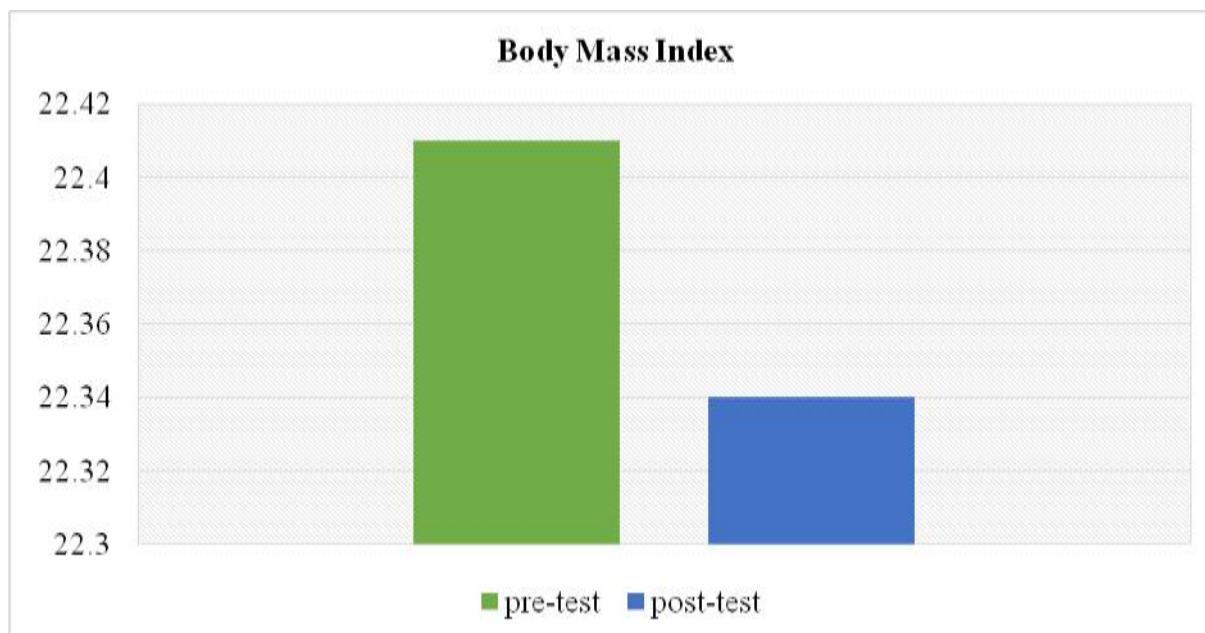


Figure 1: The mean difference of BMI between pre and post-test.

4. RESULTS:

The study summarizes pre and post intervention changes in the variable i.e. BMI. The descriptive analysis results of pre and post-test on Body Mass Index the means (M) and standard deviation (SD) were 22.41

± 3.74 and 22.34 ± 3.88 respectively. Range, standard error and variance of pre and post test were 18.30, 0.68 & 14.04 and 19.80, 0.70 & 15.11 respectively. (Table -2). Mean comparison of test results on Body Mass Index between pre and post-test as the calculated 't' value was found to be 0.35, which was lower than tabulated 't' = 2.045, 29 degree of freedom at 0.05 level of confidence and the p-value is = 0.74, ($p > 0.05$). And found that there were not much significant changes of means (M) comparison of BMI (table-3).

5. DISCUSSION:

Yoga plays a vital role in maintaining good health and physical fitness. The present study shows not much significant reduction in body fat after 17 weeks of yogic training for obese sedentary people. But It indicates that there was a slight significant reduction of BMI. The reduction in body fat might be due to a high level of yogic training over a period of 17 weeks, which resulted in lowering the percentage of body fat. Yoga involves variety of physical activity, change of postures, repeated contractions, and relaxations of the abdominal muscles might be the cause of reduction of body fat. Similar observations were noted by many researchers where reduction in body weight and fat was noted after practice of yogic training. Increase in body fat can elevate the risk factors for obesity, cardiovascular disease, diabetes, and many other complications. Regular yoga practice may reduce body fat, which is essential to maintain disease-free lifestyle. Regular yoga practice helps to maintain normal healthy lifestyle and increased physical fitness.

5.1. Discussion on Hypothesis:

The seventeen (17) weeks of yogic training have slightly decrease of BMI. but not up to the mark. Therefore, the hypothesis of BMI changes upon practicing yoga is rejected at 0.05 level of significance. The above results were substantiated by the experts mentioned in the review of literatures.

5.2. Finding:

The finding of the study shows that there was no significant difference found between pre and post-test on BMI. As the calculated value 't' = 0.35 was lower than the table value 't' = 2.045 and p-value = 0.74, ($p > 0.05$). However, there is a slight significant difference between pre and post-data of BMI mean value are represented as bar diagram (Fig. 1) for better understanding of the results. Hence, the study clearly shows that seventeen (17) weeks of yogic training programme have not significant effect on the body mass index (BMI) as compare to prior training data. But the findings of the present study suggest that yoga can be used as an effective lifestyle modality to reduce unnecessary body fat and excess weight, better body shaped. Thus, regular practice of yoga may be helpful to reduce body weight and normalize the BMI and maintain disease-free lifestyle.

6. CONCLUSION:

The present study concluded with the following points:

- Seventeen (17) weeks yogic training was found not much effective but some of the participants had better BMI. Due to some practitioner's health problem, whole score are affected. But over all participants got health benefits like better shapes, fitness, and wellness for the selected obese people of United People's Welfare Association (UPWA), Langthabal Kunja Awang Leikai, Manipur.
- Positive effect was found on BMI, so it can be practiced by the patients who have unnecessary fats in the body (under the guidance of a yogic expert).
- The study can also be done to different age categories at larger group for more effectiveness.

Hence, it is useful to the sedentary people to enhance better body and mind in the society.

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Effect of Selected Drills on the Skill Abilities of Hockey Players

¹Bob Dev Waikhom, ²Dr. Y. Santikumar Singh

¹Ph.D Scholar M.U., ²Asst. Professor

Department of PESS, M.U.

Abstract:

Hockey is one of the most popular games in the world. It is the game of two opposing teams consisting of eleven players in each team. Millions of people around the world are actively participating in this game. The hockey game is to be played at least playing ability and techniques are required for peak performance. It is one of the strenuous activities with high technical skill function. , it was hypothesized that there would be significant effect of selected training programme on hockey playing ability. The results of paired sample t-test analyses had shown the significant difference between the pre-test and post-test means of skill ability test for the experimental group as the obtained value of $t = 3.79$ is greater than the tabulated value of $t = 2.145$. However, there was no significant difference between the pre-test and post-test means of skill ability test for the control group as the obtained value of $t = 2.13$ is lesser than the tabulated value of $t = 2.145$. It shows that there was significant effect of six weeks selected hockey drills training programme on skill ability of hockey players for experimental group. However, no significant effect was found in case of control group.

1. INTRODUCTION:

The game hockey needs a high octane skilful performance in the competition at all. The hockey skill is the compose of various components like dribbling, passing, shooting, scooping, hitting, receiving, tackling, turning, etc. These performance factors can be improved by practicing different physical and skill drills. In hockey many more skill drills are adopted and implemented as per the level of the players. Primarily the performance enhancing skill drills are accounted as dribbling, hitting, pushing, juggling, scooping, receiving, dragging, shuffling, ball turning, shuttle dribbling etc. During the game practices, these different skill drills are practiced. Therefore, high skill performance of a hockey player is precisely depend on the regular training of skill drills.

1.1. Statement of the Problem:

On the above literatures discussed, varieties of drills are emphasized to practice under different situations ultimately for improvement of playing ability of field hockey players. On these literatures and backgrounds traced the problem has been stated that- **Effect of Selected Drills on Skill Ability of Field Hockey Players.**

1.2. Objective of the Study:

The objective of the study was to investigate the effect of selected skill drills on the skill ability of field hockey players.

1.3. Hypothesis of the Study:

It was hypothesized that there would be significant effect of selected hockey skill drills on the skill ability of field hockey players.

1.4. Delimitations of the Study:

The following delimitations had been drawn for the smooth conduct of study.

- The study was delimited to 30 male hockey players ranging the age between 18-25 years.
- The test was conducted in respective hockey ground of Manipur University.
- Freidal Field Hockey Skill Test was administered to test skill ability of field hockey players.

1.5. Limitations of the Study:

The following were considered as the limitations of the study, which could not be controlled and handled during the study.

- Variation in performance due to climatic conditions, player's physical and motivational factors were considered as limitation of this study.
- Errors in measuring the variable were considered as the limitation of the study.
- Other exercises and activities which may affect the result of this study were recognized as limitation.

2. DEFINITIONS AND EXPLANATION OF THE OPERATIONAL TERMS:

2.1. Field Hockey:

Field hockey is a team game combination of eleven players in each side including goalie. This game can be played on the grass field or turf as well as indoor board surface. Players use stick made up of wood or fiber glass to hit a round, hard, rubber like ball.

Hockey Drills:

Hockey drills are different kinds of exercise models practiced by the players to improve the parts and whole of the skills during the game.

3. SIGNIFICANCE OF THE STUDY

- The result of this study would detect the effect of selected drills on skill ability of field hockey player.
- The study would give the importance of different drills on the improvement of skills of field hockey players.
- This study would help the teachers, coaches and players to know and select the effective training methods for the improvement of skill ability of field hockey players.
- This study would help to select and develop new study design for further study.

4. SOURCES OF DATA:

The data for this study will be collected from the different hockey clubs of Imphal, and Department of Physical Education and Sports Science, MU, Canchipur. The male hockey players only will be considered as the sources of data.

5. SELECTION OF SUBJECTS:

Thirty (30) male hockey players from different hockey clubs of Imphal and Department of Physical Education and Sports Science, MU, Canchipur, for this study. Age was ranging from 18-25 years.

6. CRITERION MEASURES:

To investigate the effect of selected hockey drills on the skill abilities of field hockey players, Friedal Field Hockey Skill Test was selected as the criterion measure.

7. EXPERIMENTAL DESIGN:

The subjects were randomly divided into two groups in equal numbers of 15 players as Experimental group (A) and Control group (B). Various hockey skill drills were administered on Experimental group (A) and Control group (B) was kept without giving any specific types of training, but the subjects of both groups may take part in their daily physical activities.

Administration of Test

Friedal Field Hockey Test

Purpose:

To measure the skill ability of field hockey players.

Equipment:

Measuring tape, stopwatch, hockey stick and balls, open field.

Test Dimension:

A 10 –yard wide starting line is marked on the ground. The two ends of this line are extended perpendicularly by 25 yards long lines whose end are connected to provide a 10 yards end line parallel and opposite to the starting line. Another line known as restraining line is drawn parallel to starting line at a distance of 15yards from the starting line an 10 yards from the end line. A target two yards in length and one yard in breadth is drawn in the middle of the restraining line towards the starting line.

Test Administration:

The subject stands near one corner behind the starting line with a stick in his hand .on signal ready? A go .The subject move forward the stopwatch is started by the timer and ball is rolled from the corner towards target. The subject receives the pass on his right in the target area to carry the ball by dribbling to the end line where he reverses direction and drives the ball back to the starting line.

The subject must follow up the drive. The timer stops the watch as soon as the ball crosses the starting line. Ten passes each are to be receiving from right and left side. Time taken to execute each complete trial, is recorded.

Scoring and evaluation: Total time taken for 20 trials, 10 from right side and 10 from left side is the score of the skill test.

Table 1. Schedule of Training program

Weeks	Training	Time require	Duration min.
1 st and 2 nd weeks	Dribbling	5	30min
	Hitting	5	
	Passing	5	
	Scooping	5	
	Juggling	5	
	Receiving	5	
2 nd and 3 rd week	Dribbling	8	48min
	Hitting	8	
	Passing	8	
	Scooping	8	
	Juggling	8	
	Receiving	8	
4 th and 6 th weeks	Dribbling	10	60min
	Hitting	10	
	Passing	10	
	Scooping	10	
	Juggling	10	
	Receiving	10	

Collection of Data:

The data pertaining to this study will be collected from 30 male hockey players of different hockey clubs and dept of physical education and sports science, MU.

Analysis and Interpretation of Data:

To determine the level of skill ability of field hockey players, descriptive analysis will be administered. To investigate the significant effect of selected drills on skill ability of field hockey players, paired sample t-test statistical technique will be employed. The summary and conclusion of the study will be drawn by the result of statistical analysis. For further study, recommendation will be made lastly.

8. ANALYSIS OF DATA, RESULT AND DISCUSSION

The objective of the study was to investigate the effect of selected drills on the skill ability of Hockey players. Based on the objective of the study, descriptive analysis and t-test statistical technique was employed. Further, the analysis of covariance (ANCOVA) was employed to investigate the any significant effect or improvement between experimental and control groups. The data were analyzed by using the IBM- SPSS Version 20.

8.1. Findings:

The pertaining data collected on thirty (30) male hockey players of the Manipur University, Canchipur, firstly, the descriptive analysis was applied to find out characteristics of means (M) and standard deviations of the experimental and control groups. Secondly, to investigate pre and post means difference of experimental and control groups, the t-test statistical technique was employed. Further, by employing the analysis of covariance (ANCOVA), the significant effect of selected hockey skill drills on skill ability of hockey players, among the pre and post means between the experimental and control groups was investigated. The descriptive analysis of pre and post test of experimental group (A) has been shown in Table 2.

Table 2. Descriptive Analysis of Pre and Post Test of Experimental and Control Groups

Variable	N	M	SD	SE
Experimental-Pre	15	4.66	0.08	0.02
Experimental-Post	15	4.52	0.16	0.04
Control-Pre	15	4.55	0.30	0.08
Control-Post	15	4.52	0.28	0.07

Table 2 reveals that the pre and post test means and standard deviations of experimental group were 4.66 ± 0.8 and 4.52 ± 0.16 respectively ($N = 15$). In addition, the standard error of pre and post test means were also found 0.02 and 0.04 respectively. Further, the table reveals that the pre and post test means and standard deviations of control group were 4.55 ± 0.30 and 4.52 ± 0.28 respectively ($N=15$). In addition, the standard error of pre and post test means were also found 0.08 and 0.07 respectively. The graphical representation of pre and post test means comparison of experimental group and control group have been shown at Figure 1.

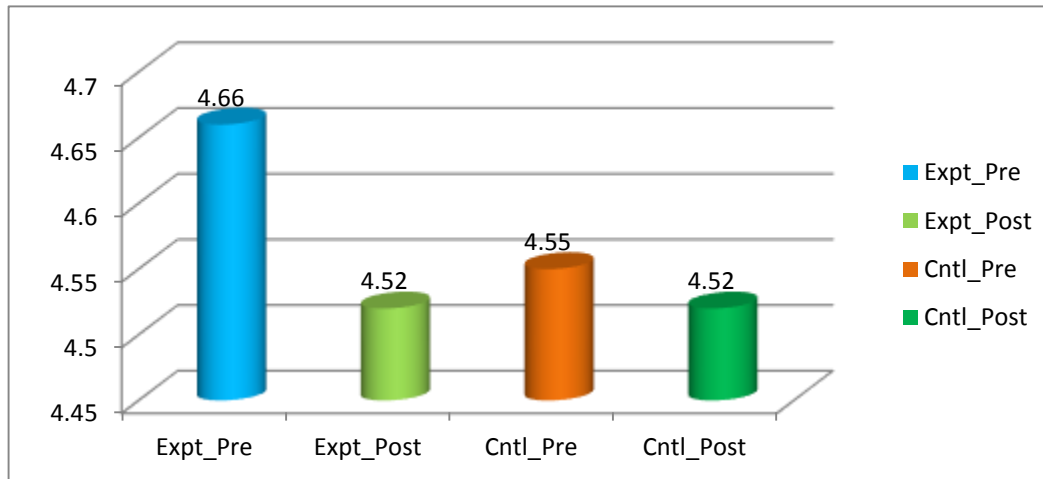


Figure 1: Pre and post test means comparison of experimental group and control group

The paired sample t-test analysis of pre and post means for experimental group and control group has been shown in Table 3.

Table 3. Pre and Post Test Means Comparison of Experimental Group (A)

Groups	Pre-mean	Post-mean	Paired Differences					t	df	Sig. (2-tailed)
			MD	SD	SEM	95% confidence interval of the diff.				
						Lower	Upper			
Expt. Pre-Post	4.66	4.52	0.14	0.15	0.04	0.06	0.22	3.79*	14	0.002
Cntl. Pre-Post	4.55	4.53	0.03	0.05	0.01	0.01	0.06	2.13	14	0.019

*Significant at 0.05 level of confidence

$t_{0.05 (14)} = 2.145$

Table 3 reveals that there was the significant difference between the pre-test and post-test means of the experimental group as the obtained value of $t = 3.79$ is greater than the tabulated value of $t = 2.145$. Further, the table reveals that no significant difference was found between the pre-test and post-test means of control group as the obtained value of $t = 2.13$ is lesser than the tabulated value of $t = 2.145$. It shows that there was significant effect of six weeks selected hockey drills training programme on skill ability of hockey players for experimental group. However, no significant effect was found in case of control group. The Table 4 shows the significant effect of selected hockey drills on skill ability of hockey players, among the pre and post test means comparison between experimental and control groups by employing the analysis of covariance (ANCOVA).

Table 4. Pre and Post Means Comparison Between Experimental and Control Groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
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Group	0.07	1	0.07	5.96*	0.00
Error	0.32	27	0.01		
Total	613.30	30			

***Significant at 0.05 level of confidence**

$F_{(1,27)}=4.21$, (N=30)

Table 4 reveals that there was the significant difference among the pre and post test means comparison between the experimental and control groups as the obtained critical value of $F = 5.96$ is greater than the tabulated value of $F = 4.21$. Further, it shows that the six weeks selected hockey skill drills training programme was effective for the improvement of skill ability of hockey players.

8.2. Discussion of Findings:

High level of skill could be accumulated by practicing more skill drills in the game of hockey. The hockey player who is obtaining higher skill ability could be considered the perfect player. The objective of the study was to investigate the effect of selected skills drills on the skill ability of hockey players. The findings of the study had shown that the pre and post test means and standard deviations of experimental group were 4.66 ± 0.8 and 4.52 ± 0.16 respectively (N=15). The finding also revealed the pre and post test means and standard deviations of control group were 4.55 ± 0.30 and 4.52 ± 0.28 respectively (N=15). The results of paired sample t-test analyses had shown the significant difference between the pre-test and post-test means of skill ability test for the experimental group as the obtained value of $t = 3.79$ is greater than the tabulated value of $t = 2.145$. However, there was no significant difference between the pre-test and post-test means of skill ability test for the control group as the obtained value of $t = 2.13$ is lesser than the tabulated value of $t = 2.145$. It shows that there was significant effect of six weeks selected hockey drills training programme on skill ability of hockey players for experimental group. However, no significant effect was found in case of control group. Further, the result of analysis of covariance (ANCOVA) had revealed the significant effect among the pre and post test means comparison between the experimental and control groups as the obtained critical value of $F=5.96$ is greater than the tabulated value of $F=4.21$. It was also shown that the six weeks selected hockey skill drills training programme was effective for the improvement of skill ability of hockey players. The discussion of the findings clearly revealed that the six weeks (42 days) selected hockey drills was effective for the improvement of skill ability of hockey players. The improvement on skill ability might be due to the training plan, structure and sincerity of the players. Above that, the researcher had full time dedication on the administration of training program as per the scheduled.

8.2. Discussion of Hypothesis:

It was hypothesized that there was significant effect of selected hockey skill drills on the skill ability of field hockey players. The analysis of paired sample t-test and analysis of covariance (ANCOVA) clearly showed the significant difference between the pre and post test means of experimental group, and pre and post test means comparison between the experimental and control groups respectively. Therefore, there was the significant effect of six weeks selected hockey skill drills on skill ability of hockey players. Hence, the hypothesis of the study was accepted.

9. CONCLUSION:

The present study was carried out with a view to study the effect of selected drills on the skill ability of hockey players. The hockey game is to be played at least playing ability and techniques are required for peak performance. It is one of the strenuous activities with high technical skill function. So, research scholar thought that hockey playing ability could be improved by practicing different skills drills and considered that selected training parameters i.e. passing, dribbling scooping, juggling, receiving and pushing also obviously effect on the hockey performance. Concerned to the present study, it was hypothesized that there would be significant effect of selected training programme on hockey playing ability. For this purpose, thirty (30) male hockey players of Physical Education and Sports Science, Manipur University and players of other Departments, Manipur University, were selected randomly as the subjects and the age of the subjects ranged between 18 to 25 years. All the subjects were randomly distributed in equal number into Experimental Group and Control Group. The Experimental Group had under gone a training programme consisting skill parameters like hitting, passing and dribbling, juggling, receiving and pushing which are leading to improve the hockey playing ability at least for a period six weeks (42 days). The data were collected before and at the end of six weeks training programme, by administering the Friedel Field Hockey Skill Test items to measures the playing ability. The scores were recorded in the nearest of a minute. To find out the significant effect of training programme, descriptive analysis and 't' test was employed and determined the significant mean difference between the pre-

test and post test scores of experimental and control group. Then the data were further treated with the analysis of covariance (ANCOVA), and the level of significance was set at 0.05 level of confidence. The finding of this study had significant effect was shown when compared the pre and post means of experimental group and control group by applying t-test and Analysis of Covariance (ANCOVA) after six week training of selected training program on three variable test. Therefore the six weeks selected skill drills had shown clear effect on playing ability efficiently. The significant improvement of playing ability on performance of selected subject of experimental group might be due to the nature of training for six weeks and the physical and skill adaptation which required for the development of selected training program.

Within the limitation of the present study and on the basis of the interpretations of findings the following conclusions are drawn:

- No significant difference in pre-test and post-test of control group was shown through the 't' test, whereas in experimental group there was significant effect on the skill ability of hockey players.
- Further, there was a significant improvement on the pre-test and post-test of the experimental group compared with the control group on playing ability of the hockey players through the analysis of covariance (ANCOVA) after six weeks (42 days) selected skill drills.
- Particularly to gain the effectiveness on the skill of hockey players the researcher had a strict control on the implementation of training as per the training schedule. Moreover, it might be essential with the same exercise considered that the six weeks (42 days) selected training programme were quite appropriate for improvement of hockey performance at all.

10. RECOMMENDATIONS:

On the basis of the results obtained from the study, the following recommendations are made:

- It is recommended that to improve the playing ability of hockey, the pushing, passing, dribbling, hitting, juggling and receiving skill drills are the effective training means to be employed.
- The same type of study may be constructed with longer duration of training program to get better improvement.
- It is also recommended that a similar study may be repeated by selecting subjects to different age, sex and level of achievement other than those employed in the present study.
- Similar study may also be recommended to other games or sports.

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THE STUDY OF STRESSFUL LIFE AND YOGA SCIENCE

¹Mr. Shashikant D. Gadhave ²Dr. Anand S. Bhatt

^{1,2}Dept. of Phy.Edu.& Sports. .

¹R.S. Law Collage Barshi(MS), ²Adarsh college Hingoli(MS)

Abstract:

Yoga is a physical, mental, and spiritual practice or discipline that aims to transform body and mind. Yoga is defined as physical, spiritual and mental discipline of the ancient Hindu that is aimed at training of the consciousness for being perfect both in spiritual insight and tranquillity. It can also be defined as exercises done to promote control of the body and mind. Yoga is a complete science of that originated in India many thousands of years ago. Human beings are made up of three components: Body, Mind, and Soul. Corresponding to these are three needs that must be satisfied for a contented life.

Key Words: Yoga, science, stressful life.

1. INTRODUCTION:

Yoga is a science of right living. It works on all aspects of person i.e. physical, emotional, spiritual, mental and social levels. The word yoga means “unity” or “oneness”. It is derived from Sanskrit word ‘YUJ’ which in spiritual terms means the union of the individual consciousness with the universal consciousness. Yoga develops balance, harmonizing between body and mind.

1.1. Title of the study:

The study of stressful life and yoga science

1.2. Objective of Study:

To study of stressful life and yoga science

2. METHODOLOGY:

To prepare and present this study secondary data is analysed from the various sector. Viz, secondary data is collected from some related books and journals /periodicals

2.1. History of Yoga:

First mention of science of yoga is in ancient texts of Vedas, which are more than ten thousand years old. The oldest copy of Vedas found is about 7500 years old. But it is believed that Vedas were orally transmitted for much longer than ten thousand years or even more. Patanjali is considered as the father of yoga yet yoga was long before patanjali. Patanjali taught the world about yog sutra (total 8 limbs of yoga). There are 8 limbs of yoga i.e. Yamas, Niyamas, Asanas, Pranayamas, Prathara, Dharna, Dhyana, and Samadhi.

2.2. Stressful life of human being:

Stressful life of human being is a common thing used by people when they encounter a problem in their life. This problem could be anything from the work environment to the death of a family member. Stress; in biological terms refer to the after effects of person failing to respond properly to an event that has occurred in their life, whatever physical or emotional. Imagine a person encountering a problem at bottling up these emotions inside without releasing them. This behaviour brings stress upon the body and gets worse with time. Stress is shown to happen in three stages. The first is an initial state of alarm which produces a rush of adrenaline in the persons’ body. The second stage is short term ‘resistance’ mechanism in that our body sets up to cope with the problem. The final state of exhaustion in the body.

3. YOGA HELPS TO RELIEF STRESSFUL LIFE OF HUMAN BEING:

Yoga is a way of living whose aim is ‘a healthy mind in a healthy body’. The art of yoga practicing yoga helps in controlling an individual mind, body and soul. It brings together physical and mental disciplines

to achieve a peaceful body and mind, it also helps to manage stress and anxiety and keep you relaxing. It also helps in increasing flexibility, muscle strength and body tone. It improved respiration, energy and vitality. Practicing yoga might seem like just stretching, but it can much more for your body from the way you feel. Life can be stressful for starters, there's your busy – schedule – walking super early school, studying late night for tests, juggling ports practice, home works and meals it's to balance. Yoga can help reduce stress because it promotes relaxation, which is the natural apposite of stress. Yoga can benefit of natural apposite of stress. Yoga can benefit of here aspects of ourselves that are often affected by stress; our body, mind and breathing. Breathing technique helps to relax and learn the various type of pranayama. Can be done either lying down, or sitting posture to ensure rhythmic breathing in and out. Practice joint relaxing exercises and instant whole body relaxation techniques with deep breathing.

4. CONCLUSION:

Stressful life of human being is a complex concept. It involves an interaction between the demands of the environment and how an individual perceive their ability to cope with these. Modern life has increase the level of stress. So it is necessary that we should adopt some technique depending upon the situation to deal with stress in positive way to have a smooth life and good health.

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MENTAL HEALTH AMONG RESEARCH SCHOLARS OF MANIPUR UNIVERSITY

¹Laishram Lakshmee, ²Dr. Rajkumar Suresh Singh

¹Ph.D. Scholar, ²Assistant Professor

^{1,2}Department of Adult Continuing Education and Extension, Manipur University

Abstract:

This study is to determine the mental health status among the research scholars of Manipur University. A cross-sectional study was conducted among research scholars from different schools of studies of Manipur University. A total of 83 respondents (43 female and 40 male) who are pursuing Ph.D. in different departments of Manipur University were taken as sample by adopting simple random sample technique. General Health Questionnaire 28 (GHQ-28) developed by D. P. Goldberg and V.F. Hillier and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) developed under the support of the World Health Organization (WHO) by an international group of addiction researchers and clinicians has been used. The mean score of GHQ 28 items of respondent was 4.96 ($\sigma = 5.21$) which indicates sub-clinically disturbed level suggesting threatening prevalence of psychiatric morbidity. Further, it was found out that research scholar used alcoholic beverage ($M=4.65$), tobacco products ($M=3.81$), cannabis ($M=0.66$), inhalants ($M=0.06$) and sedatives or sleeping pills ($M=0.04$). Moreover there is a correlation between the use of substance (tobacco product, sedative/sleeping pills) and general health of the research scholars.

Key Words: General Health Questionnaire; Mental Health; Research Scholars; Substance use

1. INTRODUCTION

Health is essential for the growth, development and productivity of a society and is vital for a happy and healthy life anywhere in the world. It is more than the mere lack of mental disorders. The positive dimension of mental health is stressed in WHO's definition of health as contained in its constitution: "Health is a state of complete physical, social, spiritual and mental health, and not merely the absence of disease or infirmity. Mental health is about enhancing competencies of individuals and communities and enabling them to achieve their self-determined goals. The maxim, "there is no health without mental health" underlines the fact that mental health is an Integral and essential component of health.

Mental health is defined as a "state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" according to the World Health Organization. The American Psychiatric Association (APA, 1980) defines mental health as: "Simultaneous success at working, loving and creating with the capacity for mature and flexible resolution of conflicts between instincts, conscience, important other people and reality". Global mental health refers to the international perspective on varied aspects of mental health and has been defined as "the area of study, research and practice that places a priority on improving mental health and achieving equity in mental health for all people worldwide" (Koplan et al, 2009). Defining mental health by the absence of mental disorder does not convey the full picture of mental health. Thus mental health would include not only the absence of diagnostic labels such as schizophrenia and obsessive compulsive disorder, but also the ability to cope with the stressors of daily living, freedom from anxieties and generally a positive outlook towards life's vicissitudes and to cope with those. Mental illness may arise from naturalistic factors such as the genetic and psychological makeup of an individual and also from the socio-environmental conditions (Patel, Chisholm, Dua, Laxminarayan, & Medina-Mora, 2015; WHO, 2014). The global data on the Burden of Disease (2010) suggest that youth are the most vulnerable segment of population in terms of mental and substance use disorders (Vos et al., 2012; Whiteford et al., 2013; Whiteford et al., 2015). According to WHO estimates, around one in four young people aged 12-24 experience a mental disorder in any one year

(World Health Organization, 2014) whereas Fisher et al. (2011) estimates that one in five adolescents suffer from a mental health issue each year.

Mental health in adulthood is characterised by the successful performance of mental function, enabling individuals to cope with adversity and flourish in their education, vocation and personal relationship¹. According to WHO report, practically all psychiatrists who have had extensive experience in working with college students agree that about 10% of the members of any institution of higher learning are likely to have emotional problems at some time or other during each year which interferes seriously with their work. As a result of changing social and emotional picture of university students, they become more vulnerable for developing mental health problems (Benton, Robertson, Tseng, Newton, & Benton, 2003; Eisenberg, Gollust, Golberstein, & Hefner, 2007; Stanley & Manthorpe, 2001).

According to the World Health Organization substance abuse is persistent or sporadic drug use inconsistent with or unrelated to acceptable medical practice. All over the world, millions of people with drug addiction are leading miserable lives between life and death (Daniel LT, Krishnan G & Gupta S, 2017). Substance abuse and its associated problems are a global concern. Substances such as tobacco, alcohol, cannabis and various allopathic drugs have been widely abused by students for various reasons despite their known ill effects (Arora A, Kannan S, Gowri S, Choudhary S, Sudarasan S & Khosla PP, 2016). The history of use and abuse of psychoactive substances is as old as history of civilizations. Human beings have been using various forms of substances derived from plants, as well as alcohol for thousands of years. The recorded history indicates that some of these substances were used not just for their presumed therapeutic effects, but also for recreational purposes to enhance pleasure and relieve stress (Baba TA, Ganai AM, Qadri SS, Margoob MA, Iqbal QM & Khan ZA, 2013). Substance use refers to consumption of alcohol or psychoactive drugs not necessarily leading to addiction or dependence. Substance dependence refers to addiction causing tolerance and withdrawal symptoms; whereas substance abuse is daily or regular consumption of alcohol or drugs. Substance use disorder is the inability to have voluntary control over substance use resulting in poor health and social function. It is the use of intoxicating substances causing a clinically significant impairment. Substance use disorders can be subsumed into three categories in terms of severity: mild, moderate and severe (Njoroge MW, 2017).

1.1. Rationale

Being healthy doesn't mean you will be free from diseases but mentally, socially and economically healthy then only can be defined as a happy, satisfaction and healthy life of a person. Depression is the leading cause of disability worldwide and a major contributor to the overall global burden of disease (WHO). And when depression is worsening, it can even be life threatening to the individual which tempt towards suicidal attempt. As the work of research scholar has been a weary job. And the age range of the scholar is the beginning of early adulthood, where concerns involve career, relationships, family and responsibilities. The life of a research scholar is very stressful itself as it's a long process of study. Very less number of researches is conducted in India which focuses on the aspect of mental health of research scholars. In a study done by Mahesh Kumar Maurya, 2018 reported that the role of life satisfaction determine mental health of research scholars. Psychological wellbeing of research scholar was significantly, positively correlated with family, friends, university, living environment & self and negatively correlated with psychological distress. There is a significant difference between life satisfaction and mental health status of male and female research scholars in a study done by Raj D, Verma N (2017). Because of all the psychological issues which is rising up globally mark the need to study concerning about scholar mental health status and used of substance abuse to improve the well-being and productivity of the scholars. The present study attempts to fill up the lacuna in this area of research. The findings of the study will provide an overview of the general health status as well as the rate of using substance by the scholars, which may provide groundwork for the educationist, administrators and program frames in formulating various intervention programme and policies.

1.2. Statement of the Problem:

The title of the study is "Mental Health among research scholars of Manipur University" which attempt to find out the prevalence of mental health among research scholars of Manipur University. The study aims to evaluate the differences of prevalence of mental health with substance used among research scholars of Manipur University. By taking some distinctively selected socio-demographic parameters like gender, age, place of residence, department, family income, religion, etc. will be undertaken.

1.3. Objectives:

- To find out the prevalence of mental health among research scholars of Manipur University.
- To study the difference in the prevalence of mental health among the different schools of Manipur University.
- To study the difference on the substances used among research scholars.

- To find out the correlation between general health questionnaire (GHQ-28) and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) of research scholars.

1.4. Hypothesis:

- The prevalence of mental health among research scholars of Manipur University is high.
- There is no difference in the prevalence of mental health among the different schools of Manipur University.
- There is no difference on the substances used among research scholars.
- There is no correlation between general health questionnaire (GHQ-28) and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) of research scholars.

1.5. Delimitation of the Study:

The sample of the study population is undertaken only from research scholars of Manipur University.

2. RESEARCH METHODOLOGY:

2.1. Research Design: A cross-sectional study was conducted among research scholars from different schools of studies of Manipur University by adopting descriptive survey method.

2.2. Population of the study: Research scholars of Manipur University were considered as the target population of the study.

2.3. Sample size: There are 6 schools of studies including schools of Medical sciences in Manipur University. Excluding the Schools of Medical sciences, this study is carried out on the schools of:

- I. Humanities
- II. Human & Environmental sciences
- III. Life Sciences
- IV. Mathematical & Physical Sciences
- V. Social Sciences

A total of 83 respondents (43 female and 40 male) from 18 different departments of Manipur University who are pursuing Ph.D. were taken as sample by adopting simple random sampling techniques.

2.4. Tools for Data Collection:

- Socio demographic - It includes the relevant data of the respondents. The respondents were asked to provide details of their
 Name:
 Age:
 Gender:
 Name of the Departments:
 Monthly income of the family:
 Residents:
 Religion:
- A self-reported Goldberg's General Health Questionnaire (GHQ-28) which is developed by D. P. Goldberg and V.F. Hillier in 1972 was used. This 28 item GHQ contains four subscales having seven questions each and dealing with somatic symptoms, anxiety/insomnia, social dysfunction and severe depression. The scoring method (0-0-1-1) has been used for this scale. The higher the score the poorer the psychological well-being of the respondent. The participants with threshold scores 4/5 were identified as 'sub-clinically disturbed'.

GHQ Score (28 item)	
High	12-28 6-11 5
Low	0-4

- The alcohol, smoking and substance involvement screening test (ASSIST) was developed under the support of the World Health Organization (WHO) by an international group of addiction researchers and clinicians have been used. The ASSIST (version3.1) is an 8 item questionnaire can be administered across a variety of cultures to *screen* for use of the following substances:
 - I. Tobacco products
 - II. Alcohol
 - III. Cannabis
 - IV. Cocaine

- V. Amphetamine-type stimulants (ATS)
- VI. Sedatives and sleeping pills (benzodiazepines)
- VII. Hallucinogens
- VIII. Inhalants
- IX. Opioids
- X. 'Other' drugs

For scoring, scored from questions 2 to 7 has to be added and will get a score which will indicate whether the individual is in risk or not. Responses to Q8 are not included in calculating specific substance involvement score but injecting is an indicator of risk. The higher the score determines high risk level.

	Alcohol	All other substances
Lower Risk	0-10	0-3
Moderate risk	11-26	4-26
High Risk	27+	27+

2.5. Procedures of the Study:

To progress with the study, necessary permission was taken from the concerned authority. Participants were informed about the matter of the study prior to its commencement and their data will be used for research purpose only and hence confidentiality will be maintained. A General health questionnaire (GHQ-28) and the alcohol, smoking and substance involvement screening test (ASSIST) was provided to fill up. Subsequently questionnaires have been collected and field editing was done so as to find out any unanswered item of the response sheet.

3. STATISTICAL ANALYSIS:

Data was sorted, coded and entered into the computer and analysed using MS-Excel. Descriptive statistics such as frequencies, mean, and standard deviation were used to describe and summarize the data. One-way ANOVA test was used to test the level of significance amongst the variable and Pearson correlation methods were also used for inferences.

4. RESULTS AND OBSERVATION:

The present study is based on a sample of 83 research scholars of Manipur University. There are four sections in the study namely:

- Section I deals with the prevalence of mental health among research scholars of Manipur University.
- Section II deals with the difference in the prevalence of mental health among the different schools of Manipur University.
- Section-III deals with the difference on the substances used among research scholars.
- Section-IV deals to find out the correlation between general health questionnaire-28 and the alcohol, smoking and substance involvement screening test (ASSIST) of research scholars.

Section – 1

Hypothesis 1: The prevalence of mental health among research scholars of Manipur University is high.

Table No.1

Mean	Variance	Std. Deviation
4.96	27.15	5.21

Table 1: This table explains the prevalence rate of mental health through questioning General Health Questionnaire-28 to the sample of the study. The mean score 4.96 ($\sigma = 5.21$) which indicates a 'sub-clinically disturbed' level. Hence the hypothesis 'the prevalence of mental health among research scholars of Manipur University is high is rejected.

Section- 2

Hypothesis 2: There is no difference in the prevalence of mental health among the different schools of Manipur University.

Table No.2

SCHOOLS	N	Mean	Std. Deviation	F	Sig.
i. Humanity	3	4.33	1.52	0.962	0.433

ii. Human & Environmental Sciences	19	5.21	5.58		
iii. Life Sciences	27	5.96	5.02		
iv. Mathematical and Physical Sciences	15	2.73	4.13		
v. Social Sciences	19	5.15	6.05		
Total	83	4.96	5.21		

Table 2: This explains the prevalence of mental health among the different schools of the study sample. The number of sample is very less from school of humanities still the mean score 4.33 ($\sigma=1.52$) is high as compared with the mean score of other schools. The mean score 5.96 ($\sigma=5.02$) of life science school show the highest and mean score 2.73 ($\sigma=4.13$) of mathematical and physical sciences acquired the least among the different schools of Manipur University. There is no significant difference (at $p=0.05$) in the prevalence of mental health among the different schools of Manipur University. Hence the hypothesis no.2 is accepted.

Section –3

Hypothesis 3: There is no difference on the substances used among research scholars.

Table No.3

	Mean	Std. Deviation	F	Sig.
Tobacco	3.81	7.456	0.863	0.490
Alcohol	4.65	7.677	0.478	0.752
Cannabis	0.66	2.715	2.034	0.098
Cocaine/Coke	0.00	0.000	n.a.	n.a.
Amphetamine Type Stimulant (ATS)	0.00	0.000		
Inhalants	0.06	0.549	0.835	0.507
Sedatives /Sleeping pills	0.04	0.329	0.835	0.507
Hallucinogens	0.00	0.000		
Opioids	0.00	0.000		
Others	0.00	0.000		

Table no.3: This table illustrate the substances used among the various schools of the study sample. The highest mean score of alcohol ($M=4.65$, $\sigma=7.67$), followed by tobacco ($M=3.81$, $\sigma=7.45$), cannabis ($M=.66$, $\sigma=2.71$), inhalants ($M=.06$, $\sigma=.549$) and sedatives/sleeping pills ($M=.04$, $\sigma=.329$) respectively. However, there is no significant difference (at $p=0.05$) in the substances used among various schools of the study sample. Henceforth, the hypothesis no.3 is accepted.

Section – 4

Hypothesis 4: There is no correlation between general health questionnaire-28 and ASSIST of research scholars.

Table No.4

	GHQ	
	Pearson correlation	Sig.(2-tailed)
Tobacco	0.282	0.010**
Alcohol	0.154	0.165
Cannabis	0.156	0.159
Cocaine/Coke		
Amphetamine Type Stimulant (ATS)		
Inhalants	0.214	0.052
Sedatives /Sleeping pills	0.235	0.032*
Hallucinogens		
Opioids		
Others		

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table no.4: This table describe the correlation between the general health questionnaire-28 and ASSIST of research scholars. There is a significant correlation (0.010) between the tobacco and general health of the research scholar. As well as there is a slight correlation (0.032) between the sedatives/sleeping pills and general health of the research scholars. Therefore the hypothesis no.4 is rejected.

5. DISCUSSION

This study was carried out to identify the prevalence rate of mental health among research scholars of Manipur University. Further explore the screening of substances used by the research scholars also conducted and to see if there is any relation with the general health of the scholars and also try to find out other relevant characteristics of the samples. The first objective was to find out the prevalence of mental health among research scholars of Manipur University. It has been found out that the mental health of research scholars of Manipur University is in sub-clinical level suggesting threatening prevalence of psychiatric morbidity. In a study prepared by Singh M, Goel NK, Sharma MK & Bakshi RK, (2017) indicates high co-morbidity between DAS (Depression, Anxiety and Stress) among the students of Punjab University. Prevalence was higher in younger students, which contradicts with the finding of the present study.

Study conducted by R. P. Auerbach¹, J. Alonso, W. G. Axinn, P. Cuijpers et al., (2016) on college students suggested that mental disorders are common and have onsets that mostly occur prior to college entry which is contradict to the outcome of the present study on research scholars. Another study explore that depression represents a significant health concern in university populations with, on average, nearly a third of students affected (Ahmed K. Ibrahim, Shona J. Kelly, Clive E. Adams & Cris Glazebrook, 2013). The current study results didn't agree with the same findings. The second objective is to study the difference in the prevalence of mental health among the different schools of Manipur University. The mean score 5.96 ($\sigma=5.02$) of life science school show the highest among the different schools. Then mean score 2.73 ($\sigma=4.13$) of mathematical and physical sciences acquired the least among the different schools of Manipur University. However there is no significant difference (0.05 levels) in the prevalence of mental health among the different schools of Manipur University. There is a need for in depth studies where we can add on more informative and understandable approach about mental health. The third objective of the study is to explore the difference on the substances used among research scholars. The mean score of alcohol ($M=4.65$, $\sigma=7.67$) is the highest used substance by the scholars of Manipur University, followed by tobacco ($M=3.81$, $\sigma=7.45$), cannabis ($M=.66$, $\sigma=2.71$), inhalants ($M=.06$, $\sigma=.549$) and sedatives/sleeping pills ($M=.04$, $\sigma=.329$) respectively. There is no significant difference (0.05 levels) on the substances used among research scholars. According to the present study alcohol is used the most among research scholars. Similar finding has been reported by the studies conducted by Raphael L, Raveendran R & Sajna MV (among college students) and Babalola E O, Ogunwale A, & Akinhanmi A (final year student of Nigeria) indicating higher prevalence of alcohol use.

Prevalence of substance use (smokeless tobacco, smoke and alcohol) in Manipur was found highest in smokeless tobacco (57.9) followed by smoke (29.4) and alcohol (25.4) respectively (Yadav J, Singh JKH & Gautam S, 2016) which is contradictory to the findings of the current study.

Tobacco is the most abused substance in Sudan (Osman T, Victor C, Abdulmoneim A, Mohammed H, Abdalla F & Ahmed A et. al, 2016), a study done among medical students of Vellore CMC found high prevalence of tobacco use (39.5%) (Venkataraman S, Mukhopadhyaya A & Muliyl J, 1996) and tobacco products found the most common substance being abused in Kashmir valley, India (Baba TA, Ganai AM, Qadri SS, Margoob MA, Iqbal QM & Khan ZA, 2013); it could be the outcome of the tradition and culture of indigenous people, where they brew and sell it in cheap price even though it is not legalised by the state government. The findings of cannabis used found in the third rank in the current study however cannabis is the world's most widely used illicit substance, ranging from 2.6% to 5% of the adult population: 119-224 million estimated users aged 15-64 years, (WHO, 2003) as well as a study done in Varanasi found a high prevalence of cannabis use (Reddy DC, Singh SP, Tiwari IC, Shukla KP & Srivastava MK, 1993).

Amphetamine-type stimulants (ATS) (excluding "ecstasy") second with an estimated prevalence of 0.3-1.2% (14.3-52.5 million users), and opioid (mainly heroin, morphine, and non-medical use of prescription opioids) placed third at 0.6-0.8% of the population aged 15-64 years: 26.4-36 million opioid users, (WHO, 2003) where the current study finding shows the use of ATS and opioid are null character among research scholars. The last objective is to find out the correlation between general health questionnaire and ASSIST of research scholars. There is a significant correlation (0.010) between the tobacco and general health of the research scholar which means that scholar who has mental illness uses tobacco products, higher the occurrence of illnesses higher intake of tobacco products. As well as there is a slight correlation (0.032) between the sedatives/sleeping pills and general health of the research scholars which signify that a person who has mental illness used to take sleeping pills. Henceforth, from the study it can be inferred that person who has mental

illnesses used to take drugs to control stress or depression, and may smoke to signal to their friends or classmates when they are distressed or unhappy (American Lung Association, Washington, DC, 2008). People who are dependent to drugs, in comparison to the common population have signs of psychological pathology and psychiatric disorders and they will be encountered more with depression, anxiety and stress in relation to the comparison group (Nasirzadeh, M., Eslami, A. A., Sharifirad, G., & Hasanzadeh, A, 2013).

6. CONCLUSION:

This study is conducted to screen the general mental health status of the research scholars of Manipur University. Moreover the study also tries to find out the frequency of using drugs among the research scholars as well as does the use of drugs have any correlation with the mental health status. The score of the general health questionnaire indicates that the scholars' mental health status is in sub-clinical level which means mental health status is above the low level but haven't reach mild level. Psychiatric morbidity of scholar is in threatening prevalence rate. Anticipation from the concerned authorities is very much needed for the wellness of the students. However scholar who has inclined to psychiatric morbidity used tobacco and sedative/sleeping pills could be to manage the hassle of life.

Limitations:

The study has been limited in sample size, demographic details and period of study.

Implications of the Present Study:

The present study put in more enhancements in the knowledge of Manipur University scholar mental health and use of substance abused. Research programme is a very essential part of a university; scholars physical, mental, social and economic should be healthy. Timely intervention is very much needed for the welfare of the students. This research may also highlight the need to open a counselling cell in the university with qualified professional. University should promote prevention programme regarding drugs and educate about the harmful effects of drugs to students as well as staff. The concerned legislature should prohibit drug use in the university for the better man of the students. This study will provide further groundwork for future research in this field and it will be beneficial for the students.

Scope of Future Research:

Further in-depth study to explore the various facets of research scholar could be conducted.

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EFFECT OF BREATHING EXERCISES AND MENTAL TRAINING ON ANXIETY AND COORDINATION AMONG KABADDI PLAYERS

¹B. Santhi Kiran. ²Dr. T. Suseelamma, ³Dr. P.P.S. Paul Kumar

¹Research scholar, University College of Physical Education & Sports Sciences, ANU.

²Lecturer in physical education, Govt.Degree College for women, Guntur

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies, Director of Physical Education & Associate Professor, University College of Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

Purpose of this study to find out the Effect of Breathing Exercises and Mental Training on Anxiety and Coordination among Kabaddi Players. The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects. The mean differences were subjected to statistical treatment using ANCOVA.

Key Words: Anxiety and Coordination

1. INTRODUCTION:

SPORTS: Sport is an activity that is governed by a set of rules or customs and often engaged in competitively. Sports commonly refer to activities where the physical capabilities of the competitor are the sole or primary determinant of the outcome (winning or losing), and motor sports where mental acuity or equipment quality are major factors. Sport is commonly defined as an organized, competitive and skillful physical activity requiring commitment and fair play. Some view sports as differing from games based on the fact that there are usually higher levels of organization and profit involved in sports. Accurate records are kept and updated for most sports at the highest levels, while failures and accomplishments are widely announced in sport news.

1.1. OBJECTIVES OF THE STUDY:

The objectives of this study are detailed as below:

- To formulate suitable breathing exercises and mental training that can beneficially alter selected psychological and performance variables for the benefit of kabaddi players.
- To experiment with the breathing exercises and mental training among kabaddi players and to find out the effect of breathing exercises and mental training on selected psychological and performance variables.
- To compare the effect of breathing exercises and mental training on selected psychological and performance variables of kabaddi players to find out which of the two experimental treatment is more useful than the other on selected psychological and performance variables.

1.2. STATEMENT OF THE PROBLEM:

The purpose of the study was to find out The Effect of Breathing Exercises and Mental Training on Anxiety and Coordination among Kabaddi Players.

1.3. HYPOTHESIS: It was hypothesized that:

- There would be significant influence due to breathing exercises and mental training on Anxiety and Coordination among kabaddi players compared to control group.
- There would be significant influence due to breathing exercises and mental training on selected performances variable among kabaddi players compared to control group.
- There will not be any significant difference between breathing exercises and mental training on selected psychological and performance variables among kabaddi players.

1.4. SIGNIFICANCE OF THE STUDY:

The present investigation will contribute significantly to the field of physical education and sports in the following ways.

- This study may help the Coaches and Physical Educators to train the kabaddi players to improve their selected psychological variables, anxiety and performance variables coordination of kabaddi.
- This research may help the sports scientists to suggest ways and means to improve better standard in sports through suggesting suitable training methods.
- The results of this study will give a clear picture to the sports coaches that which are all the specific exercises to be included in the training schedule for the improvement of selected psychological of kabaddi players.
- The study will give a clear conception to the researcher, whether the breathing exercises or mental training influences selected psychological and performance variables of kabaddi players
- This finding of this research would pave further ways and means to explore similar researches on framing suitable training methods for the improvement of players.
- This study stimulates the players' interest in activities through self evaluation of the performance they do and the importance they show.

1.5. DELIMITATIONS: The study was delimited as follows:

- The study was conducted only on school level men kabaddi players who represented their schools in inter school competitions.
- The subjects were taken from the age group of 16 to 18 years.
- Only 60 randomly selected school level kabaddi players were selected and randomly assigned into three groups, namely, breathing exercise group, mental training group and control group.
- Breathing exercises advocated through Manavalakalai Yoga Physical Exercises were adopted for this study.
- The kabaddi performance variables, touch, kicking, rotation, hold, block were measured subjectively through experts.
- The following are the dependent and independent variables selected for this study.

1.6. LIMITATIONS: The study was limited in the following way:

- Regular activities pertaining to their day to day routine were not taken into account.
- Certain factors like rational habits like life style, daily routine, diet and climatic conditions were not taken into account in the study.
- The influence of vigorous academic activity of students could have discouraged or motivated the subjects during training and during testing period.
- The heterogeneous characters of the subjects in hereditary and environmental factors were recognized as a limitation.
- The subject's body type and socio-economic status of the students were not taken into consideration.
- The environmental factors at the time of responding to the experimental study would be attached the responses of the subjects which recognized as a limitation.

2. METHODOLOGY:

SELECTION OF SUBJECTS: Sixty school level male kabaddi players aged sixteen to eighteen were randomly selected from different schools in Andhra Pradesh as subjects for this study. All the subjects selected were school level kabaddi players who have represented their school in different local competitions including inter-school level competitions. They were assigned into three different groups, namely, experimental group I, experimental group II and control group consisting of twenty subjects in each group. Experimental group I was considered as breathing exercises group, experimental group II was considered as mental training group and the third group, control group was not provided with any special training. The requirements of the experimental procedures, testing as well as exercise schedules were explained to the subjects so as to avoid any ambiguity of the effort required on their

part and prior to the administration of the study, the investigator got the individual consent from each subject.

SELECTION OF VARIABLES: The research scholar reviewed the various scientific literatures pertaining to breathing exercises and mental training on psychological variables and performance variables of kabaddi from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

Dependent Variables: 1. Anxiety 2. Coordination

Independent Variables: 1. Breathing exercises for 12 weeks 2. Mental Training for 12 weeks

3. EXPERIMENTAL DESIGN:

The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects. The mean differences were subjected to statistical treatment using ANCOVA.

CRITERION MEASURES: By glancing the literature, and in consultation with professional experts, the following variables were selected as the criterion measures in this study.

1. Psychological variable anxiety was assessed through Spielberger's Anxiety Test Questionnaire.
2. Coordination was measured through Hand Eye Coordination test and scores recorded in seconds.

The intra class correlation coefficient obtained for test-retest data are presented in Table I.

Table I- Intra Class Correlation Coefficient of Test – Retest Scores

S.No.	Variables	Coefficient of Correlation
1	Anxiety)	0.83*
2	Coordination	0.78*

* Significant at 0.05 level

4. MEASUREMENT OF PSYCHOLOGICAL VARIABLES:

SPORTS COMPETITION ANXIETY: A Sport Competition Anxiety was measured through the anxiety questionnaire developed by Spielberger (1979), the anxiety questionnaire was designed to measure the degree of sports competition anxiety experience prior to the competition. The questionnaire consists of twenty items were adopted from Spielbergers Trait Anxiety questionnaire for this investigation. The complete questionnaire is scores as follows:

S.No.	Response	Score of Positive statements	Score of Negative statements
1	Not at all	1	4
2	Some what	2	3
3	Moderately so	3	2
4	Very much	4	1

Positive Statements	1,2,5,8,10,11,15,16,19,20+
Negative Statements	3,4,6,7,9,12,13,14,17,18

5. COORDINATION:

Purpose: To measure hand eye coordination

Equipments: Two large boxes (or) containers (capable of holding more than 5 balls of 10 inches diameter each) and a stopwatch.

Procedure: The tester after giving a demonstration asks a subject to stand in the middle of two boxes lying a distance of 15 feet from each five (or) more ordinary play ground balls of 10 inches diameter are put in the box lying on the left

hand side of the subjects. The tester gives the commands ready, set, go, at the word go the tester switches the stopwatch. While the subjects runs to the box on his left, takes out one ball, runs back to the right box puts the ball in the box run back to the left box to take another ball for putting in the might box and repeats the process till the last ball in the right box. As soon as the subjects puts the last ball in the right box, the tester stops the stop watch to record the time taken by the subject to transfer the balls.

Scoring: The subject was given two trials after a slow practice trial. The best timing is the score of the test.

6. STATISTICAL TECHNIQUE:

In this study, random group design was used. The selection of subjects, allotment of groups as control and experimental group were done randomly. Data were collected before and after breathing exercises and mental training on the selected dependent variables. No attempt was made to equate the groups before the commencement of training. Thus, to nullify the differences in the initial means on the post data, analysis of covariance was used. The level of significance was set at 0.05 level. The data obtained were analysed by analysis of variance (ANOVA) and analysis of covariance (ANCOVA). The analysis of variance was used to assess the significance of difference between the pre-test and post-test, for each of the variables on the assisted, resisted and combination of assisted and resisted sprint training groups separately. Analysis of covariance was computed for any number of experimental groups, the final means were adjusted for differences in the means were tested for significance. The analysis of variance was first computed to find out the difference between the initial means. The obtained 'F' ratio compared with critical F-value for significance, will provide confidence that the critical samples came from the same population and are devoid of sampling bias.

When the F-ratio was found to be significant, Scheffe's post-hoc test was used to find out the paired mean significant difference (Thirumalaisamy, 1998). Scheffe post-hoc test has the greatest power and is the most conservation with respect to Type 1 error: this method loads to the smallest number of significance differences. The difference between two means would be significant if it exceed Scheffe F. In order to be significant, F' must equal $(k - 1) (F_{.05} \text{ or } F_{.01})$. Thus, the necessary F' ratios for the difference between paired adjusted mean $(k-1)$ would be computed and compared for significance.

7. RESULTS AND DISCUSSIONS:

The purpose of the study was to find out the effect of breathing exercises and mental training on selected psychological and performance variable of Kabaddi players. Sixty school level male kabaddi players aged sixteen to eighteen were randomly selected from different schools in Andhra Pradesh as subjects for this study. They were assigned into three different groups, namely, experimental group I, experimental group II and control group consisting of twenty subjects in each group. Experimental group I was considered as breathing exercises group, experimental group II was considered as mental training group and the third group, control group was not provided with any special training. Psychological variables, anxiety, and performance variables, coordination in kabaddi were selected for this study. The randomly selected subjects (N=60) were grouped into three groups, namely experimental group I, experimental group II and control group respectively, each consisting of twenty subjects. Pre-tests were conducted for all the subjects on selected psychological and performance variables such as anxiety, and coordination in kabaddi. The experimental group participated in their respective treatments, experimental group I in breathing exercises and experimental group II in mental training for twelve weeks. The control group was strictly under the supervision of the investigator and did not participate in any special activity except of their routine. Immediately after completion of experimental period, all the subjects were measured of the selected psychological and performance variables which formed Post-Test scores. The difference between the initial and final means was considered as the effect of respective experimental treatments on the subjects.

8. COMPUTATION OF ANALYSIS OF VARIANCE AND POST- HOC TEST RESULTS ON ANXIETY

The statistical analysis comparing the initial and final means of Anxiety due to Breathing exercises and mental training among school level kabaddi players is presented in Table-III.

Table 3. ANCOVA RESULTS ON EFFECT OF BREATHING EXERCISES AND MENTAL TRAINING COMPARED WITH CONTROLS ON ANXIETY

	BREATHING EXERCISES	MENTAL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
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Pre-Test Mean	59.00	61.15	60.35	Between	47.23	2	23.62	0.99
				Within	1355.10	57	23.77	
Post-Test Mean	54.40	53.55	59.65	Between	436.63	2	218.32	9.81*
				Within	1268.30	57	22.25	
Adjusted Post-Test Mean	55.29	52.80	59.51	Between	459.46	2	229.73	26.82*
				Within	479.62	56	8.56	
Mean Diff.	-4.60	-7.60	-0.70					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.

*Significant at 0.05 level.

As shown in Table 3, the obtained Pre-Test means on Anxiety on Breathing exercises group was 59.00, Mental training group was 61.15 was and control group was 60.35. The obtained Pre-Test F-value was 0.99 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained Post-Test means on Anxiety on Breathing exercises group was 54.40, Mental training group was 53.55 was and control group was 59.65. The obtained Post-Test F-value was 9.81 and the required table F-value was 3.16, which proved that there was significant difference among Post-Test scores of the subjects. Taking into consideration of the Pre-Test means and Post-Test means adjusted Post-Test means were determined and analysis of covariance was done and the obtained F-value 26.82 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 4.

Table 4. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Anxiety

MEANS				Required C.I.
Breathing exercises Group	Mental training Group	Control Group	Mean Difference	
55.29	52.80		2.49*	2.32
55.29		59.51	-4.22*	2.32
	52.80	59.51	-6.71*	2.32

* Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between breathing exercises group and control group (MD: -4.22). There was significant difference between mental training group and control group (MD: -6.71). There was significant difference between treatment groups, namely, Breathing exercises group and mental training group (MD: 2.49). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

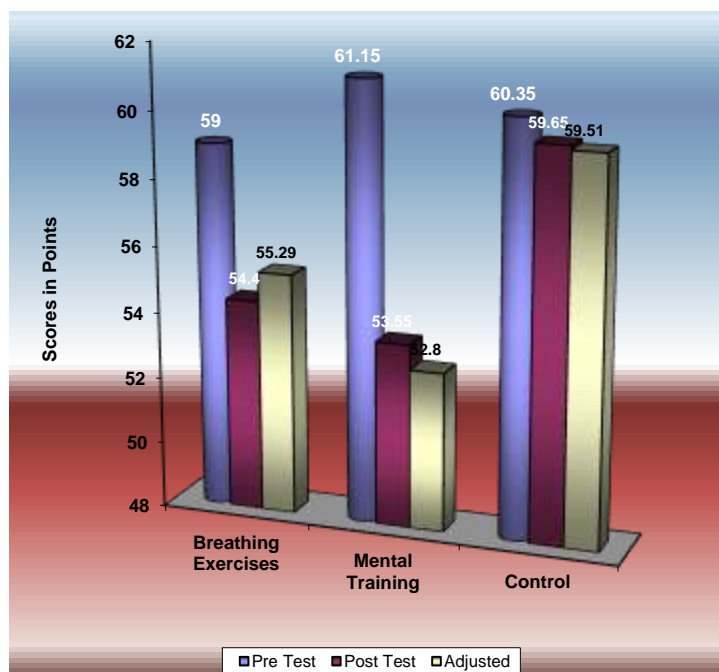


Figure I - BAR DIAGRAM SHOWING PRE-TEST, POST-TEST AND ORDERED ADJUSTED MEANS ON ANXIETY

9. DISCUSSIONS ON FINDINGS ON ANXIETY

In order to find out the effect of Breathing exercises and mental training on Anxiety, the obtained pre and Post-Test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Breathing exercises and mental training on Anxiety is presented in Table III. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 26.82 was greater than the required table F-value to be significant at 0.05 levels.

Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table IV proved that there was significant difference between Breathing exercises group and control group (MD: -4.22) and Mental training group and control group (MD: -6.71). Comparing between the treatments groups, it was found that there was significant difference between Breathing exercises and Mental training group among school level kabaddi players. Thus, it was found that mental training was significantly better than Breathing exercises and control group in reducing Anxiety of the school level kabaddi players.

10. RESULTS ON COORDINATION:

The statistical analysis comparing the initial and final means of Coordination due to Breathing exercises and mental training among school level kabaddi players is presented in Table 5.

Table 5. ANCOVA RESULTS ON EFFECT OF BREATHING EXERCISES AND MENTAL TRAINING COMPARED WITH CONTROLS ON COORDINATION

	BREATHING EXERCISES	MENTAL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre-Test Mean	27.70	28.65	27.80	Between	10.90	2	5.45	0.19
				Within	1601.95	57	28.10	
Post-Test Mean	34.45	33.55	28.40	Between	426.23	2	213.12	8.29*
				Within	1464.70	57	25.70	
Adjusted Post-Test Mean	34.74	33.06	28.61	Between	401.52	2	200.76	29.71*
				Within	378.43	56	6.76	
Mean Diff	6.75	4.90	0.60					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16.

*Significant at 0.05 level.

As shown in Table V, the obtained Pre-Test means on Coordination on Breathing exercises group was 27.70, Mental training group was 28.65 was and control group was 27.80. The obtained Pre-Test F-value was 0.19 and the required table F-value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained Post-Test means on Coordination on Breathing exercises group was 34.45, Mental training group was 33.55 was and control group was 28.40. The obtained Post-Test F-value was 8.29 and the required table F-value was 3.16, which proved that there was significant difference among Post-Test scores of the subjects. Taking into consideration of the Pre-Test means and Post-Test means adjusted Post-Test means were determined and analysis of covariance was done and the obtained F-value 29.71 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post-hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 6.

Table 6. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Coordination

MEANS				Required C.I.
Breathing exercises Group	Mental training Group	Control Group	Mean Difference	
34.74	33.06		1.68	2.06
34.74		28.61	6.13*	2.06
	33.06	28.61	4.45*	2.06

* Significant at 0.05 level

The post-hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between breathing exercises group and control group (MD: 6.13). There was significant difference between mental training group and control group (MD: 4.45). There was no significant difference between treatment groups, namely, Breathing exercises group and mental training group. (MD: 1.68). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure 2. .

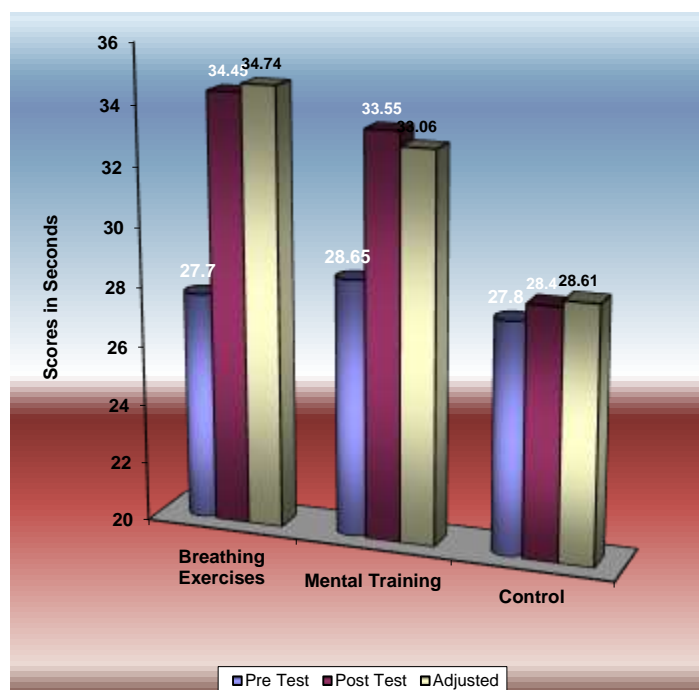


Figure 2. BAR DIAGRAM SHOWING PRE-TEST, POST-TEST AND ORDERED ADJUSTED MEANS ON COORDINATION

11. DISCUSSIONS ON FINDINGS ON COORDINATION: In order to find out the effect of Breathing exercises and mental training on Coordination the obtained pre and Post-Test means were subjected to ANCOVA and post-hoc analysis through Scheffe's confidence interval test. The effect of Breathing exercises and mental training on

Coordination is presented in Table VII. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F-value 29.71 was greater than the required table F-value to be significant at 0.05 level. Since significant F-value was obtained, the results were further subjected to post-hoc analysis and the results presented in Table VII proved that there was significant difference between Breathing exercises group and control group (MD: 6.13) and Mental training group and control group (MD: 4.45). Comparing between the treatment groups, it was found that there was significant difference between Breathing exercises and Mental training group among school level kabaddi players. Thus, it was found that breathing exercises and Mental training were significantly better than control group in improving Coordination of the school level kabaddi player

12. CONCLUSION:

Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that breathing exercises and mental training significantly reduced psychological variable, anxiety among school level kabaddi players compared to control group. Comparing between the treatment groups, it was found that mental training was significantly better than breathing exercises in altering anxiety of the subjects.
- It was concluded that breathing exercises and mental training significantly improved performance variable, coordination among school level kabaddi players compared to control group. Comparing between the treatment groups, it was found that there was no significant difference between breathing exercises and mental training.

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**EFFECTS OF SKILL RELATED TRAINING ON AGILITY AND
BREATH HOLDING TIME OF KABADDI PLAYERS**

¹Mohammad .Nasima Sultana, ²Dr. P.P.S. Paul Kumar

¹Research scholar, University College of Physical Education Sports Sciences, ANU.

²Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of
Studies Director of Physical Education & Associate Professor, University College of
Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

The purpose of this study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=60) were randomly assigned to two groups of thirty inter collegiate level men kabaddi players. The groups were designed as experimental group I – skill related training group and control group respectively. Pre test was conducted for all the 60 subjects on agility and breath holding time. The experimental group participated in skill related training for a period of twelve weeks. The control group did not participate in any of the training programme. The post test was conducted on the above said dependent variables after a period of twelve weeks for all the four groups. The differences between the initial and final tests were considered as the effect of respective treatments. To test statistical significance of the differences, ANCOVA was employed. In all cases 0.05 level was fixed.

Key Words: Agility and Breath holding time.

1. INTRODUCTION:

Kabaddi is basically a combative sport, with seven players on each side; played for a period of 40 minutes with a 5 minutes break (20-5-20). The core idea of the game is to score points by raiding into the opponent's court and touching as many defense players as possible without getting caught on a single breath. One player, chanting Kabaddi!!! Kabaddi!!!! Kabaddi!!!! Charges into the opponent court and try to touch the opponent closest to him, while the seven opponents make maneuvers to catch the attacker. This is Kabaddi, the match of one against seven, known as the game of struggle. Thus, in Kabaddi, two teams compete with each other for higher scores, by touching or capturing the players of the opponent team. Each team consists of 12 players, of which seven are on court at a time, and five in reserve. The two teams fight for higher scores, alternating defense and offense. The court is as large as that for a dodge ball game. The game consists of two 20-minute halves, with a break of five minutes for change of sides. The kabaddi playing area is 12.50m x 10m, divided by a line into two halves.

Training: Performance sports aim at high sports performance and for most physical and psychic capacities of sports men are developed to extreme limits. This normally does not happen in other areas of human activities. As a result, performance sports field possess valuable knowledge about the limits to which human performance and various performance factors can be developed. It also lead to discovery of means and methods for improving various physical and psychic capacities (performance factors) to exceptionally high level. This knowledge can be faithful by applied to other areas of sports and human activities.

Agility: Agility is the ability to change direction of the body and its parts rapidly. Agility is a combination of several athletic trails, including strength, reaction time, and speed of movement, power and co-ordination. Agility is very important in all activities involving quick changes in direction are fundamental to foot performance in practically all court games, such as basketball, tennis, badminton, volleyball and in many field games such as handball, soccer, speedball and baseball. These games require, running agility. Agility either general or specific, can be improved by increasing the athletic components.

Breath Holding Time: Breath holding time is defined as the duration of time through which one can hold his / her breath without inhaling and exhaling after a deep inhalation. There are two types of breath hold time:

- Positive Breath holding time
- Negative Breath holding time

Endurance type of training will improve the breath holding time. Breath holding time also plays a vital role in the sports performance. (P.J.Strukic, 1981)

1.1. OBJECTIVES OF THE STUDY:

There are various training methods followed by players to improve their physical fitness and physiological variables. Every player intends to improve their skills, which will also benefit to improve their physical fitness and physiological levels. Keeping these in mind, the investigator selected this study to find out the effect of skill related training on physical fitness and physiological variables of kabaddi players. In doing so, the investigator would formulate suitable skill related training schedule for the kabaddi players. Further, the aim of the study was to experiment the skill related training on kabaddi players and to determine how far the skill related training improves agility and breath holding time,

1.2. STATEMENT OF THE PROBLEM:

The purpose of the study was to find out the effects of skill related training on agility and breath holding time of kabaddi players.

1.3. HYPOTHESIS:

In light of the preceding discussion and for the purpose of the present investigation, the following hypothesis was made in this study.

- It was hypothesized that selected physical fitness variables, agility would be significantly improved due to 12 weeks skill related training compared to control group.
- It was hypothesized that selected physiological variables, breath holding time, would be significantly improved due to 12 weeks skill related training compared to control group.

1.4. SIGNIFICANCE OF THE STUDY:

In recent years physical educationists, sports psychologists and sports scientists have started realizing the importance of specific training methods through which selected training methods to improve selected physical fitness physiological and performance variables among kabaddi players. Thus, the significance of study are:

- The findings of this study throw light on the efforts of scheduling a skill related training to kabaddi players that would cater to the needs of their physical fitness and physiological levels.
- The findings of the study is useful to examine the changes occur in physical fitness components agility as a result of skill related training.
- The findings of the study is useful to examine the changes occur in physiological variable breath holding time, as a result of skill related training.
- The finding of the study is helpful to understand weather skill related training formulated in this study, is beneficial for kabaddi players.
- The result of the study will create awareness among players, physical education teachers and coaches on the usefulness of skill related training.

1.5. DELIMITATIONS:

To achieve the objectives of the study, the investigator delimited the research for the following factors.

- This study was conducted only on sixty intercollegiate level men kabaddi players in the age group of 18 to 23 years.
- This study was delimited to the kabaddi players who represented their college in intercollegiate level tournaments.
- The skill related training schedule selected for the study was formulated with aerobic fitness, strength training, core training, offensive skill practice and defensive skill practice with the aim to influence core muscular, strength, speed and physiological levels of the kabaddi players.
- The study was restricted to the following dependent and independent variables.

Dependent Variables: Agility Breath Holding time

Independent Variables: 12 weeks Skill related training

1.6. LIMITATIONS:

This research was limited in the following respects.

- The day today activities, rest period, food habits and life style could not be controlled.

- The researcher could not control the humidity, temperature, and other environmental conditions, while measuring the performance.
- No special motivation technique was given to the subjects during training and testing period.

2. METHODOLOGY:

In this chapter, the selection of subjects, selection of variables, orientation of subjects, reliability of instruments, competency of tester, reliability of data, test administration, experimental design and the statistical procedure used have been explained.

Selection of Subjects: To facilitate the study, 60 inter collegiate level men kabaddi players, who represented their colleges at inter collegiate level tournaments were randomly selected from different colleges in Andhra Pradesh. The age groups of the subjects selected were between 18 to 23 years. They were further divided into two groups namely skill related training group, and control group (CG), on random basis.

Before the commencement of the training, purpose of the study and method of performing skill related training exercises were explained to the subjects for their cooperation and to avoid injuries.

Selection of Variables: The researcher reviewed the various scientific literatures pertaining to different forms of training on selected physical fitness components, physiological variables from books, journals, and research papers. Taking into consideration the feasibility and availability of instruments the following variables were selected.

Dependent Variables: 1. Agility 2. Breath Holding time

Independent Variables: 12 weeks Skill Related Training

3. EXPERIMENTAL DESIGN: The study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=60) were randomly assigned to two groups of thirty inter collegiate level men kabaddi players. The groups were designed as experimental group I – skill related training group and control group respectively. Pre test was conducted for all the 60 subjects on agility and breath holding time. The experimental group participated in skill related training for a period of twelve weeks. The control group did not participate in any of the training programme. The post test was conducted on the above said dependent variables after a period of twelve weeks for all the four groups. The differences between the initial and final tests were considered as the effect of respective treatments. To test statistical significance of the differences, ANCOVA was employed. In all cases 0.05 level was fixed to test the hypothesis. .

Selection of Test: The tests used to assess selected physical fitness and physiological variables are given in Table I.

TABLE I - Tests Used To Assess the Physical Fitness, Physiological and Performance Variables

S.No	Variable	Test
1	Physical Fitness Components Agility	Shuttle run
2	Physiological Variables Breath Holding time	Nose Clip Method

The intra class correlation coefficient obtained for test-retest data are presented in Table II.

TABLE 2. Tests Used To Assess the Physical Fitness Components Physiological and Performance Variables

S.No	Variable	Test	Co-efficient of Correlation
1	Physical Fitness Variables Agility	Shuttle run	0.86*
2	Physiological Variables Breath Holding tim	Nose and Clip Method	0.84*

* Significant at 0.01

Required table value at 0.01 with 8 degrees of freedom 0.811

3.1. Collection of Data: The purpose of the study was to estimate the effects of skill related training on selected physical fitness components and physiological variables among inter collegiate level men kabaddi. For this purpose the research scholar followed the following procedures. The subjects of the study were selected at

random and divided into two equal groups. Among the two groups, the control group was strictly under control, without undergoing any special activity. The experimental group underwent 12 weeks skill related training. Pre and post tests were conducted on all dependent variables prior to experimental treatment and immediately after 12 weeks experimental period. The initial and final scores on the dependent variables were tabulated for statistical treatment.

Test administration: Agility

Objective: The purpose of this test was to measure agility.

Facilities and Equipments: Floor, stop watch, whistle, score sheet, measuring tape, chunnam powder, two wooden blocks (2"x2"x4"), score card and pencil.

Administration: Two parallel lines were drawn on the floor 10 metres apart. The blocks were placed behind online of the lines. The subjects were instructed to start from behind the other line. To start the shuttle run a whistle was blown and the subject ran to the blocks up one block, run back to the starting lines and placed the block on the ground beyond the line. Then the subject ran back picked up the other block and run across the starting line as fast as possible. The stop watch was started as the whistle blew and stopped when the subject crossed the starting line.

Scoring: The trials were administered with a rest period of five minutes in between the best of the two times were recorded as the scores in seconds.

3.2. Breath Holding Time:

Objective: The purpose of this test was to measure the breath holding time.

Equipments: For recording the breath holding time, a stop watch (1/10th of second) and nose clip were used.

Administration: The subject was instructed to stand at ease and to inhale deeply after which he holds his breath for a length of time possible by him. A nose clip was placed on nose to avoid letting the air through nostrils. The duration from the time of holding his breath until the movement he let air out was clocked by using the stop watch to the nearest one tenth of a second as breath holding time. The co-operation of the subject to let out the air by opening the mouth was sought to clock the exact breath holding time.

Scoring: The time is recorded in seconds and the beset of two trials were recorded (Mathew, 1988).

Statistical Techniques: The following statistical techniques were used to find out the effects of skill related training on selected physical fitness and physiological variables among inter collegiate level men kabaddi players. Analysis of co-variance was used to test the adjusted post test mean differences among the experimental groups. Since only two groups were compared the mean comparisons between the groups were made without calculating Scheffe's confidence interval. (Thirumalaisamy, 1997). The level of significance was fixed at 0.05 level.

4. RESULTS AND DISCUSSIONS:

In this study deals with analyzing the data from the data samples under study. The purpose of the study was to find out the effect of skill related training on selected agility and breathe holding time of kabaddi players. For this purpose 60 inter collegiate level men kabaddi players, who represented their colleges at inter collegiate level tournaments were randomly selected from different colleges in Andhra Pradesh. The age group of the subjects selected were between 18 to 23 years. They were further divided into two groups namely skill related training group, and control group (CG), on random basis. Taking into consideration the feasibility and availability of instruments agility and breath holding time were selected. The study was formulated as a true random group design consisting of a pre-test and post test. The subjects (N=60) were randomly assigned to two groups of thirty inter collegiate level men kabaddi players. The groups were designed as experimental group I – skill related training group and control group respectively. The post test was conducted on the above said dependent variables after a period of twelve weeks for all the four groups. The differences between the initial and final tests were considered as the effect of respective treatments. To test statistical significance of the differences, ANCOVA was employed. In all cases 0.05 level was fixed to test the hypothesis. .

Results on Analysis of Covariance

Results on Agility: The initial and final means on Skill related training group and control group on Agility among kabaddi players and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table 3.

Table 3 - Computation of Analysis of Covariance on Agility

	Experimental group	Control	Source of Variance	Sum of Squares	DF	Mean Squares	Obtained F
Pre Test Mean	10.87	11.01	Between	0.29	1	0.29	1.60
			Within	10.46	58	0.18	

Post Test Mean	10.24	10.95	Between	7.70	1	7.70	66.35*
			Within	6.73	58	0.12	
Adjusted Post Test Mean	10.27	10.92	Between	6.34	1	6.34	73.14*
			Within	4.94	57	0.09	
Mean Diff	-0.63	-0.05					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01. * Significant

The pre test mean on experimental group was 10.87, and control group was 11.01 and the obtained F value was 1.60, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage. The comparison of post test means, experimental group 10.24 and control group 10.95 proved to be significant at 0.05 level as the obtained F value 66.35 was greater than the required table F value of 4.01 to be significant at 0.05 level. Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 73.14 was greater than the required F value to be significant 4.01 and hence, there was significant difference. Thus, it was proved that experimental group gained mean difference on, Agility -0.63 was due to Skill related training given to kabaddi players, and the difference was found to be significant at 0.05 level. The initial, post and adjusted means values of experimental and control group on Agility is presented in Figure I for better understanding of the results of this study.

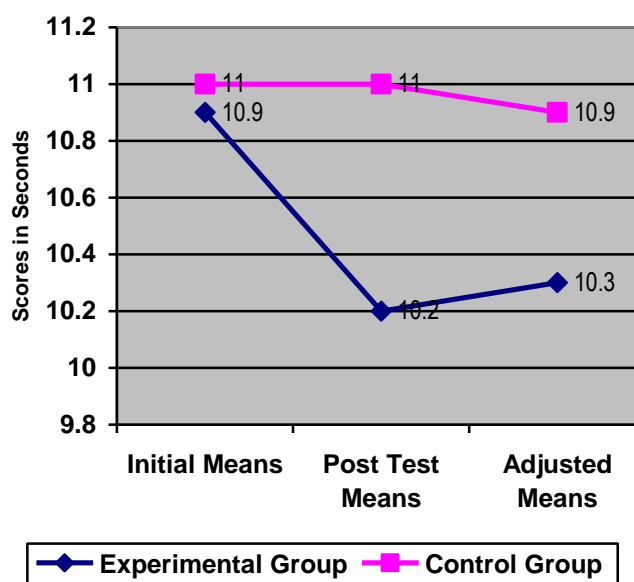


Figure I -Bar Diagram Showing Initial, Final and Adjusted Means on Agility of Experimental and Control Groups

5. DISCUSSIONS: The results presented in Table 3 proved that the Agility has not been significantly improved among control group as they do not underwent Skill related training. However, the twelve weeks Skill related training given to the experimental group significantly improved Agility among kabaddi players. The statistical mean difference between initial test and final test of experimental group stood at -0.63 and control group stood at -0.05. The adjusted mean taking into consideration of initial and final means on Agility among experimental group was 10.27 and control group was 10.92 and showed favourable effects on skill related training group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 73.14 was greater than the required table F value of 4.01 to be significant at 0.05 level. Thus, it was proved that Skill related training was significantly better than control group in favourably influencing Agility of the kabaddi players.

Results on Breath Holding Time: The initial and final means on Skill related training group and control group on Breath holding time among kabaddi players and the obtained results on Analysis of Covariance (ANCOVA) is presented in Table IV

Table 4. Computation of Analysis of Covariance on Breath Holding Time

	Experimental Group	Control	Source of Variance	Sum of Squares	DF	Mean Squares	Obtained F
Pre Test Mean	51.80	52.97	Between	20.42	1	20.42	0.49
			Within	2435.77	58	42.00	
Post Test Mean	57.40	53.13	Between	273.07	1	273.07	9.10*
			Within	1740.67	58	30.01	
Adjusted Post Test Mean	57.85	52.68	Between	398.23	1	398.23	84.98*
			Within	267.10	57	4.69	
Mean Diff	5.60	0.17					

Table F-ratio at 0.05 level of confidence for 1 and 58 (df) =4.01, 1 and 57(df) =4.01. * Significant

The pre test mean on experimental group was 51.80, and control group was 52.97 and the obtained F value was 0.49, which was less than the required F value of 4.01 to be significant. Hence, it was not significant and the groups were equal at initial stage. The comparison of post test means, experimental group 57.40 and control group 53.13 proved to be significant at 0.05 level as the obtained F value 9.10 was greater than the required table F value of 4.01 to be significant at 0.05 level. Taking into consideration the initial and final mean values adjusted post test means were calculated and the obtained F value of 84.98 was greater than the required F value to be significant 4.01 and hence, there was significant difference. Thus, it was proved that experimental group gained mean difference on, Breath holding time 5.60 was due to Skill related training given to kabaddi players, and the difference was found to be significant at 0.05 level. The initial, post and adjusted means values of experimental and control group on Breath holding time is presented in Figure VI for better understanding of the results of this study.

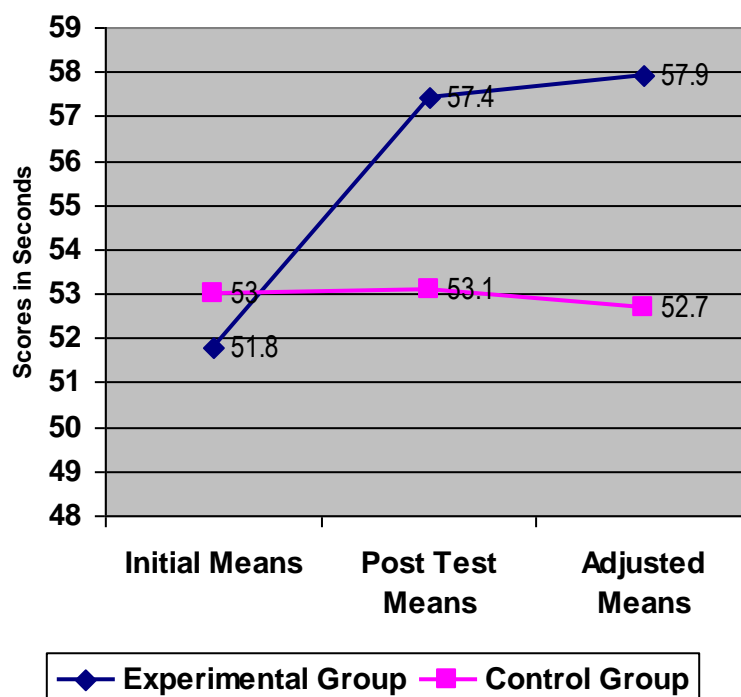


Figure 2. Bar Diagram Showing Initial, Final and Adjusted Means on Breath holding time of Experimental and Control Groups

DISCUSSIONS: The results presented in Table IV proved that the Breath holding time has not been significantly improved among control group as they do not underwent Skill related training. However, the twelve weeks Skill related training given to the experimental group significantly improved Breath holding time among kabaddi players. The statistical mean difference between initial test and final test of experimental group stood at 5.60 and control group stood at 0.17. The adjusted mean taking into consideration of initial and final means on Breath holding time among experimental group was 57.85 and control group was 52.68 and showed

favourable effects on skill related training group than control group. And the differences, statistically treated using ANCOVA, were found to be significant at 0.05 level as the obtained F value of 84.98 was greater than the required table F value of 4.01 to be significant at 0.05 level. Thus, it was proved that Skill related training was significantly better than control group in favorably improved Breath holding time of the kabaddi players.

5. CONCLUSION: Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that skill related training significantly improved agility of kabaddi players.
- It was concluded that skill related training significantly beneficially altered breath holding time, of kabaddi players.
- It was concluded the skill related training formulated for this study was found to be beneficial to the kabaddi players.

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**EFFECT OF AEROBICS, RESISTANCE AND CONCURRENT
TRAINING AEROBIC AND RESISTANCE TRAINING ON SPEED
AND RESTING HEART RATE AMONG COLLEGE MEN
STUDENTS**

¹M. Narasimha Raja, ²K. Durga Rao, ³Dr. P.P.S. PAUL KUMAR

^{1,2}Research scholars, University College of Physical Education & Sports Sciences, ANU.

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of
Studies Director of Physical Education & Associate Professor, University College of
Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

Purpose of this study to find out the effect of aerobics, resistance and concurrent training aerobic and resistance training on speed and resting heart rate of college men students. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=80) were randomly assigned to four equal groups of twenty college men students each. The groups were assigned as Experimental Groups- I, II, III and control group respectively. Pre-tests were conducted for all the subjects on selected biomotor and physiological variables such as, speed, resting heart rate, and formed initial scores of the subjects the experimental groups participated in their respective training programmes for 12 weeks. Immediately after completion of the experimental period of 12 weeks, all the subjects were measured of their selected biomotor and physiological variables through standard tests which formed the final scores. The difference between the initial and final mean scores was considered as the effect of respective experimental treatment on the subjects. To test statistical significance of the differences, statistical tool ANCOVA was used. In all cases 0.05 levels was fixed to test the hypothesis of the study.

Key Words: Speed and Resting Heart Rate

1. INTRODUCTION:

Evolution of human life started from the movement. Human beings have been very creative and active nature and physical activity has been part of their life all-long since evaluation. For primitive man, search for good and shelter was the first physical activity was necessitated by his instinct for survival physical activity was also the first mode of communication, it was also a means of expression, as human beings evolved culturally, emotionally and socially physical activity also evolved. As the society become more and more complex leading towards the modern age physical activity came to be recognized as an organized and supervised form of education.

1.1. Aerobic Exercises: The word aerobic meaning with oxygen to represent idea, even so the dynamics of the idea are more complicated than implied by the definition. Aerobic can be viewed as an intricate system of bodily supply and demand. That is the body needs energy for any kind of activity and the need is filled by burning off the foods that eat. Oxygen is the spark the fuel needs to burn regardless aerobics is the word in general use. The fact is that **Cooper (1969)** codified and organized what fitness means to many people.

1.2. Resistance Training: Resistance Training involves the application of elastic or hydraulic resistance to muscle contraction rather than gravity. Weight training provides the majority of the resistance at the beginning, initiation joint angle of the movement, when the muscle must overcome the inertia of the weight's mass. After this, point the overall resistance alters depending on the angle of the joint. In comparison, hydraulic resistance provides a fixed amount of resistance throughout the range of motion, depending on the speed of the movement. Elastic resistance provides the greatest resistance at the end of the motion, when the elastic element is stretched to the greatest extent.

1.3. OBJECTIVES OF THE STUDY

This research is to find out answers to the following research questions:

- Does participation in Aerobics, Resistance training and concurrent training of Aerobic and Resistance Training would improve speed of college men students.
- Does participation in Aerobics, Resistance training and Concurrent training of Aerobic and Resistance Training would improve resting heart rate of college men students.

1.4. STATEMENT OF THE PROBLEM: The purpose of the present study was to determine the effect of aerobics, resistance and concurrent training aerobic and resistance training on speed and resting heart rate of college men students.

1.5. HYPOTHESES: The following hypotheses were formulated on the basis of available literature, the subject knowledge and experience of the research scholar.

- It was hypothesized that “there will be significance difference on selected biomotor variables such as speed, due to aerobics, resistance training and concurrent training of aerobics and resistance training among college men students compared to control group”.
- It was hypothesized that “there will be significance difference on selected physiological variables such as resting pulse rate, due to aerobics, resistance training and concurrent training of aerobics and resistance training among college men students compared to control group.
- It was hypothesized that “there will be no significant difference on selected biomotor and physiological variables among experimental groups, namely, aerobic training, resistance training and concurrent aerobic and resistance training among college men students”.

1.6. DELIMITATIONS: The following delimitations were recorded for this study.

- The study was delimited to eighty college men students selected from different colleges in Andhra Pradesh.
- In the present study, random method of sampling was used.
- In distribution of samples to experimental group used in the study, the present study was confined to equal number of samples, each group consisting of 20 men. The age of the samples for the present study was confined to the range of 21–25 years.
- For the purpose of the study, treadmill exercises were considered as aerobic training for college men students.
- For the purpose of the study, resistance training consisting of weight training were considered as resistance training.
- For the purpose of the study concurrent training consists of both treadmill training and weight training for the college men students.
- As biomotor variables, the present study was confined to speed as physiological variables; the present study was confined to resting heart rate.
- The duration of the treatments for the present study was confined to six days a week for 12 weeks as total period.

1.7. LIMITATIONS: The study was limited in the following ways, which would be taken into consideration at the time of findings of this study.

- The influence of certain factors like life style, daily routine work, diet and other factors on the results of the study were not taken into consideration.
- No attempt has been made to control the factors like air resistance, intensity of light atmosphere and temperature during training and testing period.
- The difference in economic and educational back ground of the subjects was not taken into consideration.
- The knowledge of the subjects in exercise science and their previous experiences in doing physical activities were not taken into consideration.
- Since the subjects were motivated orally during testing and training periods no attempt was put to differentiate their level of motivation.
- The psychological stress and other factors which affect the metabolic function were not taken into consideration.
- The heredity of the subjects and its influence on the selected criterion variables.

2. METHODOLOGY:

Selection of Subjects: To facilitate the study 80 college men students from different colleges in Andhra Pradesh were randomly selected as subjects and their age was between 21 to 25 years. The subjects were from

different colleges and expressed' willingness to participate in the research programme were got by explaining the usefulness of this research, the benefits of incorporating different training methods in the daily routine and the resultant health benefits. Thus, all the subjects selected for this study were volunteers. The selected subjects were assigned into four groups consisting of 20 in each group. The first group served as aerobic exercise group, group two served as resistance training group, third group served as concurrent training group and fourth group served as control group. The requirements of the experimental procedures, testing as well as exercise schedules were explained to the subjects so as to avoid any ambiguity of the effort required on their part and prior to the administration of the study, the investigator got the individual consent from each subject.

Selection of Variables: The research scholar reviewed the various scientific literatures pertaining to the different forms of aerobic exercises, resistance training and concurrent training and its effects on biomotor abilities and physiological variables among different groups from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

Dependent Variables: Speed Resting Heart Rate

Independent Variables: 1. Twelve weeks of aerobic exercises in treadmill.

2. Twelve weeks of resistance training in multi gym.

3. Twelve weeks combined aerobic exercises in treadmill and resistance exercises Multi Gym.

3. EXPERIMENTAL DESIGN: The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (n=80) were randomly assigned to four equal groups of twenty college men students each. The groups were assigned as Experimental Groups- I, II, III and control group respectively. Pre-tests were conducted for all the subjects on selected biomotor and physiological variables such as, speed, resting heart rate, and formed initial scores of the subjects the experimental groups participated in their respective training programmes for 12 weeks. Immediately after completion of the experimental period of 12 weeks, all the subjects were measured of their selected biomotor and physiological variables through standard tests which formed the final scores. The difference between the initial and final mean scores was considered as the effect of respective experimental treatment on the subjects. To test statistical significance of the differences, statistical tool ANCOVA was used. In all cases 0.05 levels was fixed to test the hypothesis of the study. The interclass correlation coefficient obtained for test-retest data are presented in Table I.

Table I - Intra Class Correlation Coefficient of Test – Retest Scores

S.No.	Variables	Coefficient of Correlation
1	Speed	0.92*
2	Resting Heart Rate	0.82*

* Significant at 0.01 level

Subjects Reliability: The interclass correlation value of the above test and retest also indicated subject reliability as the same subjects were used under similar conditions by the same tester. The co-efficient of reliability were significant at 0.01 levels, for the above test under investigation.

3.1. Training programme

Experimental group I: Aerobic Training

Experimental group I underwent treadmill exercises training. The training schedule consists of selected exercises, duration, rest period are given in Table II.

Table 2. Training schedule for experimental group I (Aerobic Training)

S.No.	Description of Exercises	Time	Sets	Rest in between Sets
1	Low pace walking	2 mts	2	30 seconds
2	Medium pace walking:	2 mts	2	30 seconds
3	30° Inclination (uphill) Walk	2 mts	2	30 seconds
4	Fast pace walking	2 mts	2	30 seconds
5	30° declination (downhill) walk	2 mts	2	30 seconds
6	Low pace running	2 mts	2	30 seconds
7	Medium pace running:	2 mts	2	30 seconds
8	30° Inclination (uphill) running	2 mts	2	30 seconds
9	Fast pace running	2 mts	2	30 seconds
10	30° declination (downhill)	2 mts	2	30 seconds

running			
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Schedule of aerobic exercises shown in Table 2 was followed by experimental group for aerobic training for six days in a week for 12 weeks with a brief warm up at the beginning and cool down at the end.

Experimental Group II (Resistance Training): After the completion of multi gym exercises as scheduled in Table 3, the subjects underwent cool down session for 5 minutes with slow walking.

Table 3. Schedule of Gym Exercises for Experimental Group II (Multi Gym Training)

S.No.	Description of Exercises	Sets	No. of Repetitions
1	Bench Press	2	15
2	Flyes	2	15
3	Behind the Neck Press (Standing)	2	15
4	Leg Presses	2	20
5	Squats	2	15
6	Leg Extensions	2	15
7	Seated Rows	2	15
8	Wide Grip Pull downs	2	15

The experimental group underwent resistance training for six days in a week days, thus experimental group II underwent resistance training for 12 weeks. Each session started with a brief warm up and brief cool down sessions.

Experimental Group III (Concurrent Training): Experimental group III underwent concurrent training consisting of aerobic training and resistance training. This group under aerobic training on 3 days in a week days alternatively, namely, Monday, Wednesday and Friday as showed in Table II. And on Tuesday, Thursday and Saturday underwent resistance training in multi gym as shown table III. Thus experimental group underwent concurrent training of aerobic and resistance training for 12 weeks.

Computation of analysis of covariance and post-hoc test Results on speed: The descriptive statistics comparing the initial and final means of variable Speed due to aerobic training, Resistance training, concurrent training and control groups of college men is presented in Table 4.

Table 4. Descriptive Statistics on effect of Aerobic training, Resistance training, Concurrent training and Control Groups of College Men

Groups	Test	Mean	Standard Deviation	RANGE	
				Min.	Max.
Aerobic training	Initial	7.34	0.32	6.80	7.70
	Final	7.08	0.17	6.80	7.30
	Adjusted Mean	7.03			
Resistance training	Initial	7.25	0.31	6.80	7.90
	Final	7.10	0.26	6.70	7.70
	Adjusted Mean	7.11			
Concurrent training	Initial	7.17	0.42	6.70	8.00
	Final	7.05	0.33	6.70	7.80
	Adjusted Mean	7.12			
Control Group	Initial	7.33	0.33	6.70	7.70
	Final	7.36	0.32	6.70	7.80
	Adjusted Mean	7.32			

Table 5 shows that the pre-test mean on Speed of aerobic training group was 7.34 with standard deviation ± 0.32 pre-test mean of resistance training group was 7.25 with standard deviation ± 0.31 , the pre-test mean of concurrent training group was 7.17 with standard deviation ± 0.42 , the pre-test mean of control group was 7.33 with standard deviation ± 0.33 . The descriptive statistics on post-test mean on Speed of aerobic training group was 7.08 with standard deviation ± 0.17 post-test mean of resistance training group was 7.10 with standard deviation ± 0.26 , the post-test mean of concurrent training group was 7.05 with standard

deviation ± 0.26 , the post-test mean of control group was 7.36 with standard deviation ± 0.32 . The adjusted mean on Speed on aerobic training group was 7.03, resistance training group was 7.11, concurrent training group was 7.12 and control group was 7.32, as shown in Table 4. The obtained mean values on the experimental and control groups were presented in Figure I.

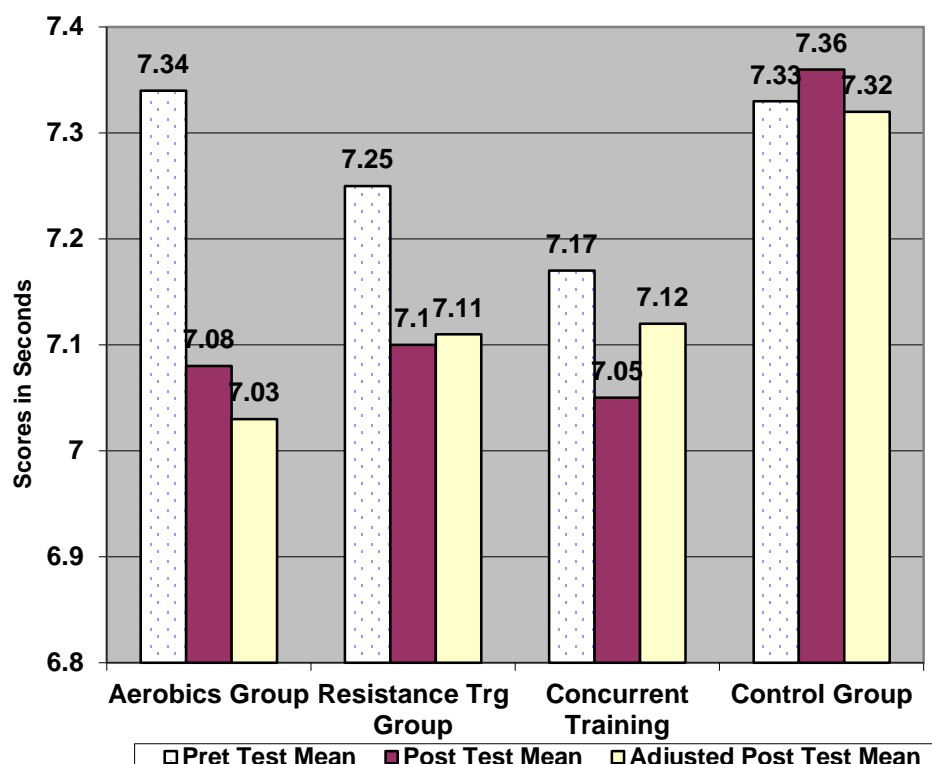


Figure I. Bar Diagram Showing Pre, Post and Adjusted Means on Speed Due To Aerobic, Resistance and Concurrent Training among College Men

The results on descriptive statistics proved that physiological variable Speed was improved by reduction of running time. And to test statistical significance of the differences, the obtained data on Speed using ANCOVA was presented in Table 5.

Table 5. Computation of Analysis of Covariance due to Aerobic, Resistance and Concurrent Training and Control Group on Speed among College Men

	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre-test Mean	Between	0.38	3	0.13	1.05
	Within	9.22	76	0.12	
Post-test Mean	Between	1.26	3	0.42	5.53*
	Within	5.79	76	0.08	
Adjusted Post-test Mean	Between	0.90	3	0.30	31.00*
	Within	0.72	75	0.01	

Required $F_{(0.05), (df 3,75)} = 2.77$

* Significant at 0.05 level of confidence

As shown in Table 5, the obtained F-ratio of 1.05 on pre-test means of the groups was not significant at 0.05 level as the obtained F-value was less than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage. The results presented in Table 5, the obtained F-ratio of 5.53 on post-test means of the groups was significant at 0.05 level, as they obtained F-value was greater than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups at initial stage. Taking into consideration of the pre-test means and post-test means, adjusted post-test means were determined and analysis of covariance was done.

The obtained F-value on adjusted means was 31.00. The obtained F-value was greater than the required value of 2.77 and hence, it was accepted that there was significant differences among the adjusted means on the Speed of the subjects.

4. RESULTS ON RESTING HEART RATE: The descriptive statistics comparing the initial and final means of variable Resting heart rate due to aerobic training, Resistance training, concurrent training and control groups of college men is presented in Table 6.

Table-6- Descriptive Statistics on effect of Aerobic training, Resistance training, Concurrent training and Control Groups of College Men

Groups	Test	Mean	Standard Deviation	Range	
				Min	Max
Aerobic training	Initial	72.55	1.90	70.00	76.00
	Final	70.95	1.39	69.00	73.00
	Adjusted Mean	71.00			
Resistance training	Initial	73.30	1.49	70.00	75.00
	Final	70.70	1.42	69.00	74.00
	Adjusted Mean	70.67			
Concurrent training	Initial	73.25	1.83	70.00	76.00
	Final	69.50	2.35	65.00	72.00
	Adjusted Mean	69.48			
Control Group	Initial	73.00	2.10	69.00	76.00
	Final	72.90	2.20	69.00	76.00
	Adjusted Mean	72.90			

Table 6 shows that the pre-test mean on Resting heart rate of aerobic training group was 72.55 with standard deviation ± 1.90 pre-test mean of resistance training group was 73.30 with standard deviation ± 1.49 , the pre-test mean of concurrent training group was 73.25 with standard deviation ± 1.83 , the pre-test mean of control group was 73.00 with standard deviation ± 2.10 . The descriptive statistics on post-test mean on Resting heart rate of aerobic training group was 70.95 with standard deviation ± 1.39 post-test mean of resistance training group was 70.70 with standard deviation ± 1.42 , the post-test mean of concurrent training group was 69.50 with standard deviation ± 1.42 , the post-test mean of control group was 72.90 with standard deviation ± 2.20 . The adjusted mean on Resting heart rate on aerobic training group was 71.00, resistance training group was 70.67, concurrent training group was 69.48 and control group was 72.90, as shown in Table 6. The obtained mean values on the experimental and control groups were presented in Figure –2.

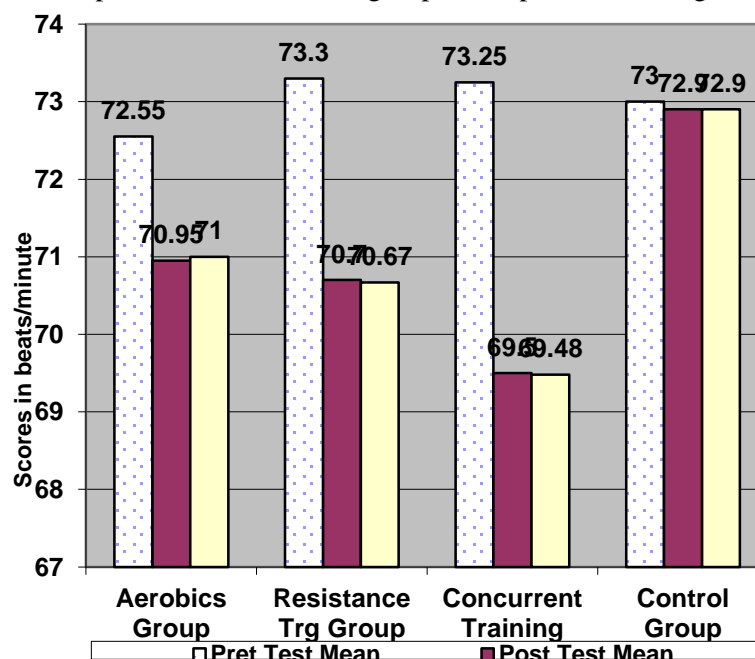


Figure 2 - Bar Diagram Showing Pre, Post and Adjusted Means on Resting Heart Rate Due To Aerobic, Resistance and Concurrent Training Among College Men

The results on descriptive statistics proved that physiological variable Resting heart rate was improved. And to test statistical significance of the differences, the obtained data on Resting heart rate using ANCOVA was presented in Table 4.

Table 7. Computation of Analysis of Covariance Due To Aerobic, Resistance and Concurrent Training and Control Group On Resting Heart Rate Among College Men

	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre-test Mean	Between	7.05	3	2.35	0.69
	Within	258.90	76	3.41	
Post-test Mean	Between	119.04	3	39.68	11.09*
	Within	271.95	76	3.58	
Adjusted Post-test Mean	Between	120.61	3	40.20	11.20*
	Within	269.17	75	3.59	

Required $F_{(0.05), (df 3,75)} = 2.77$

*Significant at 0.05 level of confidence

As shown in Table 7, the obtained F-ratio of 0.69 on pre-test means of the groups was not significant at 0.05 level as the obtained F-value was less than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was no significant difference in means of the groups at initial stage. The results presented in Table 7, the obtained F-ratio of 11.09 on post-test means of the groups was significant at 0.05 level as the obtained F-value was greater than the required table F-value of 2.77 to be significant at 0.05 level. This shows that there was significant difference in means of the groups at initial stage. Taking into consideration of the pre-test means and post-test means, adjusted post-test means were determined and analysis of covariance was done. The obtained F-value on adjusted means was 11.20. The obtained F-value was greater than the required value of 2.77 and hence it was accepted that there was significant differences among the adjusted means on the Resting heart rate of the subjects. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 8.

Table 8- Multiple Paired Adjusted Means Comparisons between varied physical exercises among college men on Resting heart rate

Aerobic training Group	Resistance training Group	Concurrent training Group	Control Group	MEAN DIFF	C.I
71.00	70.67			0.33	1.71
71.00		69.48		1.52	1.71
71.00			72.90	-1.90*	1.71
	70.67	69.48		1.19	1.71
	70.67		72.90	-2.23*	1.71
		69.48	72.90	-3.43*	1.71

*Significant at 0.05 level.

The post-hoc analysis of obtained ordered adjusted means proved that to be significant at 0.05 level confidence, the required confidence interval was 1.71. The following paired mean comparisons were greater than the required confidence interval and were significant at 0.05 levels.

Aerobic training Vs Control Groups (MD: -1.90).

Resistance training Vs Control Groups (MD: -2.23).

Concurrent training Vs Control Groups (MD: -3.43).

The following paired mean comparisons were less than the required confidence interval and were not significant at 0.05 level.

Aerobic training Vs Resistance training Groups (MD: 0.33).

Aerobic training Vs Concurrent training Groups (MD: 1.52).

Resistance training Vs Concurrent training Group (MD: 1.19).

5. CONCLUSIONS: Within the limitations and delimitations of the study, the following conclusions were drawn:

- It was concluded that aerobic dance, resistance training and concurrent training significantly improved biomotor variable speed, as they obtained F-value was greater than the required table F-value to be significant at 0.05 level. The paired adjusted mean comparisons on speed proved that aerobic training, resistance training and concurrent training were significantly better than control group in improving speed of college men. The comparisons on effect of these experimental protocols proved that aerobic training was significantly better than resistance training and concurrent training of college men.
- It was concluded that physiological variable resting heart rate can be significantly altered through aerobic training, resistance training and concurrent training compared to among college men. The comparative effect between treatment groups proved that there were no significant differences among aerobic training, resistance training and concurrent training among college men in altering resting heart rate.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

BIO-MOTOR OF MALE BASKETBALL PLAYERS OF MANIPUR

¹Angpong Augustine Roel ²Dr. L. Santosh Singh

¹Research Scholar, ²Assistant Professor,

^{1,2}Dept. of Physical Education & Sports Science, Manipur University, Manipur

Abstract:

Bio-motor demands of basketball players to create successful physiological profile athletes. Aim of the study was the bio-motor variables for 100 male basketball players of Manipur between the age group of 19-24 years. Descriptive statistics (mean \pm standard deviation) were employed to analyse the reliability data. The calculation values were resulted as 7.27 ± 3.94 for speed, 3.38 ± 1.92 for explosive power, 10.81 ± 1.69 for agility, 22.5 ± 1.92 for flexibility, 29.45 ± 0.73 for strength endurance and 2603.5 ± 13.68 for cardiovascular endurance correspondingly.

Key Words: Basketball, speed, explosive power, agility, flexibility, strength endurance, cardiovascular endurance

1. INTRODUCTION:

Unique of the world's furthestmost prevalent game, being play without exception is Basketball. Specific skills are required for the sport of basketball under dynamic situations which can be accomplished though moving at a high speed or changing directions. High strength, power and agility are tending for successful basketball athletes while maintaining a fairly slender body composition. This paper searches scientific data on bio-motor demands of basketball players to create successful physiological profile athletes.

2. METHODOLOGY:

Using SPSS, data were entered and analysed. To achieve the purpose, 100 male Basketball players had been selected from their age ranged from 19 - 24 years randomly where the levels of participation of players were at least the National and State Level Competitions. Table 1(One) highlighted the male basketball players of Manipur to study the bio-motor characteristic using the following test. The reliability data was analysed by descriptive statistics (mean \pm standard deviation).

Table 1: Test Selection and the unit of Measurement

S.No	Variables	Test	Unit of Measurement
1	Speed	20 meters dash	Seconds
2	Explosive power	Sergeant jump	Meter
3	Agility	Illinois test	Seconds
4	Flexibility	Sit and reach test	Centimetre
5	Strength endurance	Sit-up jump	Number
6	Cardiovascular endurance	Queens college step test	VO ₂ max

3. RESULTS AND DISCUSSION

The Table 2 (Two) highlighted the calculation values for bio-motor of male basketball players of Manipur as 7.27 ± 3.94 for speed, 3.38 ± 1.92 for explosive power, 10.81 ± 1.69 for agility, 22.5 ± 1.92 for flexibility, 29.45 ± 0.73 for strength endurance and 2603.5 ± 13.68 for cardiovascular endurance correspondingly.

Table 2: Mean and Standard Deviation for Bio-motor Variables of Male Basketball Players of Manipur

Sl. No.	Variables	Mean \pm S.D.
1	Speed	7.27 \pm 3.94
2	Explosive Power	3.38 \pm 1.92
3	Agility	10.81 \pm 1.69
4	Flexibility	22.5 \pm 1.92
5	Strength Endurance	29.45 \pm 0.73
6	Cardiovascular Endurance	2603.5 \pm 13.68

Thus, the developments of all the bio-motor abilities make the basketball players more complex which bring attention to strength and conditioning professionals of the composite nature of emerging task-specific.

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**DETERMINATION OF ATHLETICS ABILITY FROM
ENDURANCE AND MEAN ARTERIAL BLOOD PRESSURE OF
SCHOOL BOYS**

¹P.V.K. D. Prasad, ²Dr. Y. Polireddy, ³Dr. P.P.S. Paul Kumar

¹Research scholars, University College of Physical Education & Sports Sciences, ANU.

²Lecturer in Physical Education, Dr. Lankapalli Bulaiah Degree College, Visakhapatnam

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of
Studies, Director of Physical Education & Associate Professor, University College of
Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

The purpose of the study was a repeated measure research design was used with athletic ability as the criterion variable and selected physical fitness and physiological variables as the predictor variables. The selected 100 school boys, who have participated at inter school athletic meets were measured of their physical fitness variables, endurance, physiological variables, mean arterial blood pressure. To determine the athletic ability of the subjects, the norms prescribed by the Sports Development Authority was used and the scores of the selected tests were converted into standard scores. The obtained data were analysed using Pearson Correlation Coefficient to find out the relationship between athletic ability and selected criterion variables. Multiple Regression Analysis used to predict the athletic ability of the school boys from selected anthropometric, physical fitness and physiological variables. The statically analyzed SPSS PC (version 11.0) In all cases 0.05 level was fixed.

Key Words: Endurance, Mean arterial blood pressure & Athletic ability of the school boys

1. INTRODUCTION:

The method by which athletes are selected for a team can have a significant impact on that team's success. In the past, decisions have been made based largely on judgments of an individual's physical characteristics with little attention given to the psychological factors that contribute to athletic success. Coaches are experts in identifying the physical characteristics needed for success in their field; however, they lack the skills necessary to assess the psychological factors that have been proven to have a significant impact on athletic performance. Coaches have relied on informal judgments of constructs such as an athlete's motivation and level of aggression to determine their potential to succeed. Everyone has heard stories of athletes that were told they lacked the physical skill to perform but due to the psychological resources of drive and determination, these individuals have overcome their physical limitations and gone on to be highly productive individuals. The identification, quantification and implementation of these psychological attributes in selection decisions can therefore have a significant impact on a program's success.

1.1. STATEMENT OF THE PROBLEM: The purpose of this study was to Determination of Athletics Ability from Endurance and Mean Arterial Blood Pressure of School Boys

1.2. DELIMITATIONS: The study was delimited in the following ways:

- This study was confined only hundred to school boys in Andhra Pradesh.
- The subjects selected were in the age group between 13 to 14 years.
- The variables selected for this study were endurance & Endurance And Mean Arterial Blood Pressure.

1.3. LIMITATIONS: This study is limited in the following aspects and these limitations have to be taken into considerations.

- The students were from different social, economic and cultural status which was taken as a limitation for this study.

- Heredity and environmental factors which contribute to performance have not been controlled.
- No effect would be made either to control or to assess the quality of the food ingested, life style, effect of metabolic functions as these are recognized as a limitation for this study.
- No other motivational technique was followed to assess selected physical, physiological and performance variables.

Selection of Variables: The researcher reviewed number of books, journals, research articles, coaching manuals and found that athletic ability may have relationship with selected physical fitness and physiological variables. Based on these observations, the investigator selected the following variables for this study.

Dependent Variable: Athletic Ability of School boys

Independent Variables: Endurance and Mean arterial blood pressure,

2. RESEARCH DESIGN:

A repeated measure research design was used with athletic ability as the criterion variable and selected anthropometric, physical fitness and physiological variables as the predictor variables. The selected 100 school boys, who have participated at inter school athletic meets were measured of their anthropometric variables, height, hand span, arm length, arm girth, physical fitness variables, hand grip strength, speed, leg strength, endurance, physiological variables, mean arterial blood pressure, vital capacity, resting pulse rate and breath holding time. To determine the athletic ability of the subjects, the norms prescribed by the Sports Development Authority was used and the scores of the selected tests were converted into standard scores. The obtained data were analysed using Pearson Correlation Coefficient to find out the relationship between athletic ability and selected criterion variables. Multiple Regression Analysis used to predict the athletic ability of the school boys from selected anthropometric, physical fitness and physiological variables. In all cases 0.05 level was fixed.

Criterion Measures: By glancing the literature, and in consultation with professional experts the following measures were applied to collected data on selected criterion and independent variables.

1. Endurance was measured through 600 M Walk test (Yobu, 1988)
2. Mean Arterial Blood pressure was measured for by a period of one minute and recorded in beats per minute. It was measured by using Sphygmomanometer and stethoscope. (Clarke, 1976).

Table I shows the variables selected, the tests and tools used for measurement and the unit of measurement.

Table I - Showing the Variables, Tests / Tools and the Measured Units

S.No	Variables	Test / Tools Administered	Unit of Measurement
1	Endurance	600 M run	Seconds
2	Mean Arterial Blood Pressure	Sphygmomanometer	Mm/Hg

The intra class correlation coefficient obtained by test, retest method is presented in Table 2.

Table 2. The Reliability Coefficient of the Subjects in Anthropometric, Physical, Physiological variables by Test and Retest Method

S.No	Test Items	Coefficient of Correlation
1	Endurance	0.91*
2	Mean Arterial Blood Pressure	0.89*

Table value $r = (0.01) (2,7) = 0.735$

* Significant at 0.01 level

3. RESULTS AND DISCUSSIONS:

To achieve the purpose of the study, the investigator selected 100 school boys from Andhra Pradesh state schools. The subjects selected were in the age group between 13 to 14 years. In this study, the athletic ability was determined for school boys with the help of selected predictor variables such as endurance, mean arterial blood pressure. The athletic ability was determined through the norms prescribed by the Sports Development Authority was used and the scores of the selected tests were converted into standard scores. The backward selection in multiple regression method was used to determine the prediction equation (Thomas and Nelson, 1990).

Computation of Descriptive Statistics and Relationships:

The descriptive statistics on selected physical fitness variables of subjects are presented in Table 3

Table 3 - Descriptive Statistics on Selected Physical Fitness Variables of the Subjects

S.No	Variables	N	Mean (M)	Standard Deviation (SD)	Range
1	Endurance (Seconds)	100	229.86	± 21.58	197-206

Table I shows the mean values, standard deviation and the range for selected physical fitness variables of the subjects. The mean of the endurance was 229.86 with standard deviation of ± 21.58 . The correlation coefficient between athletic ability and the selected physical fitness variables were computed through Pearson Correlation Coefficient and the results are presented in Table 4.

Table 4 - Results on Correlation Coefficient between Athletic Ability and Selected Physical Fitness Variables of School Boys

S.No	Athletic Ability Vs Anthropometric Variables	N	Mean (M)	Obtained 'r'	Significance
1	Endurance (Seconds)	100	229.86	0.204	Sig

Required table 'r' value to be significant at 0.05 level with df (1,99) = 0.164
NS: Not Significant Sig: Significant at 0.05 level.

The results presented in Table 2 showed that there was significant relationship between athletic ability and Endurance 0.204 as the obtained 'r' values were greater than the required table 'r' value to be significant at 0.05 level. Table 5 shows the descriptive statistics on selected physiological variables of the subjects.

Table 5. Descriptive Statistics on Selected Physiological Variables of The Subjects

S.No	Variables	N	Mean (M)	Standard Deviation (SD)	Range
1	Mean Arterial Blood Pressure (mmHg)	100	115.69	± 4.14	105.5-122.5

Table 5 shows the physiological variables of the subjects. The mean of mean arterial blood pressure was 115.69 with standard deviation of ± 4.14 . The correlation coefficient between athletic ability and the selected physiological variables were computed through Pearson Correlation Coefficient and the results are presented in Table 6.

Table 6 - Results on Correlation Coefficient between Athletic Ability and Selected Physiological variables of School Boys

S.No	Athletic Ability Vs Psychological Variables	N	Mean (M)	Obtained 'r'	Significance
1	Mean Arterial Blood Pressure (mmHg)	100	115.69	0.117	NS

Required table 'r' value to be significant at 0.05 level with df (1,99) = 0.164
NS: Not Significant Sig: Significant at 0.05 level.

The results presented in Table 6 showed that there was no significant relationship between athletic ability and mean arterial blood pressure (r:0.117) as the obtained 'r' values were lesser than the required table 'r' value of 0.164 to be significant at 0.05 level.

Table 7 shows the Multiple Correlation R, R Square, R Square change and significance of the selected predictor variables by backward selectors.

Table 7 - Multiple Correlation, R Square, R Square Change and Significance of the Selected Predictor Variables by Backward Selectors

S.No	Variables Predicted	R	R square	F change	ANOVA 'F'	Significance of 'F' change
1	Endurance	0.504	0.254	0677	5.28	0.413

In Table 7 the selected predictor variables by backward regression method, that is., model I from Table V are presented, namely, Endurance. The multiple correlation R 0.504 with R square value of 0.254, F change

of 2.516 and ANOVA 'F' of 5.28 with the significant F change of 0.413 are presented in the above table. The significant F change of 0.413 with the set significance level of 0.10 where all the other variables were removed.

3. CONCLUSIONS:

Within the limitation and delimitation of the present research study, it was concluded that:

- It was concluded that athletic ability of schools boys were significantly related with physical fitness variables, endurance.
- The athletic ability could be best predicted from following variables, namely, , endurance,
- It was concluded that mean arterial blood pressure were not good predictors of athletic ability of school boys. For the above factors null hypothesis was accepted.

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**A LITERATURE REVIEW ON THE EFFECT OF DIFFERENT
TYPES OF TRAINING ON CHOLESTEROL LEVELS**

¹Mr. Ajinkya Avadhut Kudtarkar, ²Dr. Suresh Nivartirao Jondhale

¹College Director of Physical Education & Sports, Shree Damodar College, Margao, Goa.

¹PhD. Scholar- Physical Education at Nanded University, Maharashtra, India

²College Director of Physical Education and Sports

²Saraswati Sangeet Kala Mahavidyalaya, Latur, Maharashtra- India

Abstract:

This paper is a literature review of research articles on a topic that has been rarely studied in India. The following review aims at understanding how different types of exercise can affect Cholesterol. In this study, attempts have been made to analyze the effect of different kinds of training, such as Endurance Training, Resistance Training, and Combined Training on total Cholesterol, HDL-C, LDL-C, and Triglycerides. After reviewing the literature in this area the conclusion drawn is that Endurance Training, Resistance Training, and Combined training has a significant effect in reducing LDL-C Cholesterol, Triglycerides, and Total Cholesterol. However, Endurance training alone is more Beneficial in elevating HDL-C cholesterol. This literature may be effective if applied to the Indian population as India is being recognized for its fast growth as a capital for lifestyle illnesses as per the World Health Organization.

Key Words: *Endurance Training, Resistance Training, Mixed training, LDL-Cholesterol, HDL Cholesterol, Total Cholesterol and Triglycerides.*

1. INTRODUCTION:

Blood Lipids are improved by regular exercise and eventually, it has a beneficial effect on endothelial cells of the blood vessel, which thus slows down or prevents the advancement of Arteriosclerosis. From the different therapy for obesity like Dietary Therapy, Exercise Therapy, Medication Therapy, and Behavior Therapy. Exercise therapy is considered the cheapest, Safe, and easiest method of all obesity treatment. Additionally, it was found that 67.5 % of obese people lacked exercise and high weight category people are those who sit on a chair for a long duration. These results suggest how physical activity is related to obesity. Calorie Restricted dietary therapy is Obesity treatment. However, This treatment also has a positive effect on losing weight but it also decreases lean body mass due to the loss of muscular tissues Basal metabolic rate, and Induction of Myofunctional disorder. (Lee & Heo, 2014). Cardiovascular disease is a major contributor to death worldwide. Major Risk factor for cardiovascular disease is the low levels of High- density lipoprotein (HDL-C). HDL-C high levels are found in those people who are physically more active, suggested by cross-sectional data. Thus, the importance of the regular presence of oxygen exercise in raising serum HDL-C level and in decreasing the risk CVD has been widely accepted. However, findings of the presence of oxygen exercise have wide results, depending on the kind of exercise program (eg. Volume, intensity, etc) and characteristics of subjects at baseline. (Kodama et al., 2007). Exercise such as walking, jogging, swimming, biking, golfing, etc is advised to prevent metabolic syndrome. Additionally, strength training was also advised. The findings of various studies have confirmed that physical activity is a good tool for preventing MS as it builds muscle mass, reduce percent body fat and body weight, limit diabetes, lowered the blood pressure and overall CV risk factors. (Ha & So, 2012).

Although it has been seen that aerobic exercise helps greatly in lowering blood LDL-C concentrations, it has also noticed that such exercise may end up in the loss of protein or muscle mass, effectively lowering resting metabolic rate and fat metabolism. Thus, by combining Aerobic and resistance training, excess muscle loss may be overcome to preserve muscle mass and build a pleasing increase in resting metabolic rate and fat metabolism. This may probably end up in a gained stimulus for decreasing blood LDL-C Concentration instead

of performing aerobic training alone. (Shaw et al., 2009). The purpose of the study is to examine effects of different types of training such Endurance Training, Resistance training and Mixed Training on Cholesterol Levels of Individuals

2. REVIEW OF LITERATURE.

Endurance Training and Cholesterol.

Leo & Heo (2014) in their study titled “Effects of Exercise Therapy on Blood Lipids of Obese Women” have found out that significant difference was seen in total cholesterol and triglycerides between the control and experimental group after the intervention. The present study was conducted on 24 obese women, they were further divided into experimental and control groups (n =12 each). The experimental group performed aerobic exercise 5 times a week for a total of 10 weeks at HRmax40 to 70 percent with diet restriction. Blood was taken to measure blood lipids profile of obese women, this was taken before and after the intervention. From the above study, we can conclude that after intervention significant improvements were found in total cholesterol and triglycerides in the experimental group. Thus it may be said that aerobic training helped to reduce total cholesterol and triglycerides.

(Kodama et al., 2007) in their study titled “Effect of Aerobic Exercise Training on Serum Levels of High-Density Lipoprotein Cholesterol”, have reviewed 25 research papers and noticed that the mean score of change in HDL-C was significant, however, the changes were small. It was found that to increase HDL Cholesterol minimum of 900 kcal should be expended per week or 120 minutes of exercise should be performed for a week. The univariate regression analysis has identified that when an individual prolongs the exercise session for 10 minutes, it has a positive relationship with increasing HDL-C cholesterol. In contrast, it was noticed that there is no relationship between exercise frequency or intensity. Meta-regression analysis identified that subject with BMI 28 and Total Cholesterol level of 220mg/dl has a greater increase in HDL-C level compared to those people who have less than BMI 28 & total cholesterol 220 mg/DL. It is concluded that aerobic exercise performed regularly slightly increases HDL-C. It was found that the minimum volume of exercise should be performed to significantly increase the HDL-C level. Exercise duration was considered an important factor for exercise prescription. This study was more effective for those who have an initially high level of total cholesterol or low body mass index.

(Ahmeti et al., 2020), in their study titled “Endurance Training vs. Circuit Resistance Training: Effects on Lipid Profile and Anthropometric/Body Composition Status in Healthy Young Adult Women” found that post-hoc analysis indicated significant improvements in total cholesterol, High-density lipoprotein, Low-density lipoprotein, and triglycerides within the group for both Endurance and circuit Resistance Training groups. For the control group, only a significant decrease was found in Triglycerides. When between the group comparison was done, a significant difference was found in triglycerides and HDL Cholesterol in both the training groups however the control group showed a higher number in Triglycerides and HDL cholesterol. Total cholesterol and Low-density lipoprotein were more in the control group than the endurance training group. No significant difference was noticed between the resistance and endurance training group in the post-test. For the above study 57 women participants with a mean age of 23 ± 3 , bodyweight 165 ± 6 , body mass: 66.79 ± 7.23 kg, BMI: 24.37 ± 2.57 kg/m² were further divided into endurance training (N=20), circuit resistance training (N=20), and control group (N=18) were participants for the study, pre and post-test was conducted on total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL). The endurance training group, underwent treadmill training 3 times a week for a period of 8 weeks similarly circuit resistance training group underwent equal times of circuit strength training. From the study, It can be concluded that 8 weeks of endurance and circuit strength training showed improvement in TC, HDL-C, LDL-C, and triglycerides. However, this study could not prove the difference of training benefits in each of these factors.

Leon and Sanchez. In their study have found out that HDL cholesterol raised by 4.6% whereas triglycerides level decreased by 3.7 percent and LDL cholesterol lowered by 5 percent however total cholesterol remained unchanged, although the ratio between HDL & LDL showed great improvement. this study was conducted on 4700 individuals. They underwent 51 different interventions for 12 weeks or more of Aerobic training. This study suggests that higher intensity and structure of aerobic exercise has a more beneficial effect for \triglycerides and LDL Cholesterol than moderate level of exercise. From this study, we can conclude that aerobic exercise had helped in reducing bad cholesterol and raising good cholesterol

3. RESISTANCE TRAINING AND CHOLESTROL

(Prabhakaran et al., 1999).in their study titled “Effect of 14 weeks of resistance training on lipid profile and body fat percentage in premenopausal women” Have found out that after fourteen weeks of resistance training there was a decrease in total cholesterol by 9 percent. LDL cholesterol saw a decrease of 14

percent. Total cholesterol /HDL cholesterol ratio and LDL/HDL cholesterol ratio decreased in the interventions group. However, no significant changes could be found in the case of triglycerides and HDL cholesterol. The Control group did not see any changes in any of these variables. After 14 weeks of training, it can be said that total cholesterol was significantly lower in the intervention group than the control group. For this study 24 women participated, they were further divided into intervention groups and control groups. Interventions group had undergone resistance training (85 percent of 1 Rm) for 45 to 50 minutes in a day, for 3 times a week continued for 14 weeks. The control group was not physically active. It was concluded that lipid profiles have shown healthy changes after resistance training.

Lira et al., (2010) in their study titled “Low and moderate, rather than high-intensity strength exercise induces benefit regarding plasma lipid profile” have found out that, the 75 percent 1 Rm group, showed more triglycerides decrease compared to other groups and it was noticed that 110 percent group saw an increase in triglycerides concentration compared to 50 and 75 percent 1 Rm group. After resistance exercise in 50 and 75 percent RM group, noticed a greater concentration of HDL-c when compared to 110 percent RM group. Thus 50 percent 1 RM group had higher HDL-C concentration after 48 and 72 hours than 110 percent Rm group. Additionally, a 50 percent 1RM group noticed less LDL-c concentrations than 110 percent RM group after 24 hours. However, there was no significant difference in total cholesterol concentrations. The study was conducted on 30 untrained volunteers placed accordingly to their 1 Rm performance into four different groups namely 50 percent 1 RM, 75 percent 1 Rm, 90 percent 1 Rm, and 110 percent 1 Rm. All groups performed the same total volume of exercise (sets * rep* load). The lipid profile was measured during rest and after 1, 24, 48, and 72 hours of exercise. It was concluded from this study that low and moderate exercise has shown better results on lipid profile compared to high-intensity exercise.

Sheikholeslami Vatani et al, (2011), in their study titled “Changes in cardiovascular risk factors and inflammatory markers of young, healthy, men after six weeks of moderate or high-intensity resistance training” have found out that triglycerides level in the intervention group showed no changes. LDL cholesterol and LDL/HDL cholesterol ratio in the interventions group lowered significantly. It was also seen that in high-intensity group HDL level increased and Plasma level of fibrinogen decreased. The beneficial effect was noticed in few inflammatory and cardiovascular risk markers after 6 weeks of resistance training in young healthy males. When you compare both the groups, the high-intensity group showed better results in reducing plasma fibrinogen and plasma HDL level than the moderate-intensity group. For the present study, 30 young healthy males were selected and were categorized into 2 different intensities and control group Moderate intensity group performed 45 to 55 percent of 1 Rm and High-intensity group performed 85 to 90 percent of 1 Rm and Control group had no training. Both the training groups performed exercise 3 times a week continued for a total of 6 weeks. It was concluded that the High-intensity group showed more effective results than a moderate-intensity group.

Fett et al,(2009) in their study titled “Circuit Weight Training vs Jogging in Metabolic Risk Factors of Overweight/Obese Women” have found out that, total body mass, fat body mass, BMI, plasma uric acid lowered and metabolic equivalent showed an increase in both circuit and jogging group. However, no changes were noticed for lean body mass, resting energy expenditure, and resting heart rate. Circuit weight training group lowered total cholesterol, Plasma triglycerides, nitrogen balance and flexibility showed improvement. The jogging group lowered waist/hip ratio, glucose, systolic blood pressure, LDL-cholesterol, and total cholesterol/HDL-cholesterol ratio increased. For the present study, fifty women were selected however only 26 could complete the study. In the circuit training group total of 14 members finished the study, their mean age was 36 and BMI mean average was 32. In the jogging group, 12 members finished the study, their mean age was 37 and BMI mean average was 29. Both the groups underwent 60 minutes of training in a day for thrice a week for first and during the second month, they underwent 04 days a week. From the study, it was concluded that both the group showed improvement in Cardiovascular and Metabolic risk factors. The circuit training group showed better changes in case of lipid profile and flexibility however glucose, waist to hip ratio, and blood pressure showed better changes in the jogging group. For better results aerobic and resistance, training together should be implemented for obese people.

4. MIXED TRAINING AND CHOLESTROL:

Tambalis, K.et.al (2009) in their study titled “Responses of Blood Lipids to Aerobic, Resistance, and Combined Aerobic With Resistance Exercise Training: A Systematic Review of Current Evidence” has found out that resistance exercise has a beneficial effect for the LDL-c Cholesterol levels, mixed training (Aerobic and resistance) showed improvement in Both HDL-c and LDL-c cholesterol where one showed an increase and other showed decrease respectively. High-intensity aerobic training showed a rise in HDL-c Cholesterol. For the present study, 84 studies were reviewed, out of which 58 were randomized control trials. While selecting the

studies following criteria was considered, a minimum of 12 weeks of training should be implemented, they should measure at least one or more of this variables-Triglycerides, Total cholesterol, HDL, and LDL Cholesterol and should involve aerobic or resistance or combined exercise training. From the study, it could be concluded that results are inconsistent for combined training.

Shaw et al.,(2009), in their study titled “Comparison of aerobic and combined aerobic and resistance training on low-density lipoprotein cholesterol concentrations in men” have found out that the control group showed no significant change in LDL cholesterol. Both the groups i.e aerobic and combined training noticed similar and significant fall of LDL-cholesterol. The present study was conducted on 38 healthy participants with their mean age of 25 years and 6 months, who were never trained before and subjects were at borderline with high LDL-cholesterol. They were further divided into the control group (n=12), aerobic training group (n=12), and Combined training group (n=13). The exercise training group performed training for 16 weeks and three times in a week. Aerobic training group performed exercise for 45 minutes at 60 percent of maximal heart rate by using treadmills, rowers, steppers, and cycle ergometers. After every four weeks intensity was increased by 5 percent. The combined exercise group performed equal duration of resistance and aerobic training. The combined exercise group performed 22 minutes of aerobic training by using combinations of treadmills, rowers, steppers, and cycle ergometers at 60 percent of maximal heart and eight resistance exercises for 2 sets of 15 repetitions at 60 percent of 1 Rm. Aerobic training intensity was similarly raised as the Aerobic training group and 1 Rm was newly calculated after every four weeks and appropriately intensity was adjusted. The Control group was asked to maintain their normal routine and not to indulge in any planned physical activity. It was concluded that both types of training showed a similar decrease in LDL-cholesterol. It can be said by doing additional aerobic training does not cause any benefits in decreasing LDL-cholesterol

S.J Yang, et.al (2011) in their study titled “Effects of a three-month combined exercise program on fibroblast growth factor 21 and fetuin-A levels and arterial stiffness in obese women” have observed that after the intervention program BMI, waist circumference, Systolic blood pressure, diastolic blood pressure, and triglyceride levels were lowered significantly. baPWV values increased significantly and FGF21 levels lowered slightly. However, Fein –A levels did not change greatly. For the present study 40 obese women (nondiabetic) with their mean average of BMI = 27.6 ± 2.4 kg/m² were subject to the study. The exercise program included 45 minutes of aerobic training at 60-75 percent of the maximum heart rate and 20 minutes of resistance training, five times a week for a 3 months period. It could be concluded that 3 months of combined aerobic and resistance training lowered the FGF21 levels as well as arterial stiffness in obese Korean women.

Ha & So, (2012), in their study titled “Effects of Combined Exercise Training on Body Composition and Metabolic Syndrome Factors” have found out that after using ANOVA, no interaction effects (time * group) could be identified on the MS-related factors of blood lipid components such as triglycerides, high-density lipoprotein, glucose, total cholesterol, and low-density lipoprotein. Though on percent body fat, waist circumference, systolic blood pressure, and diastolic blood pressure interaction effects (time * group) were identified. For the present study, the exercise group consists of (n=7) and control group (n=9). The exercise group trained for 80 minutes which include 10 minutes of warm-up, 30 minutes of aerobic exercise at 60 to 80 % of maximum heart rate, 30 minutes of resistance exercise for 10 to 15 repetitions of maximum (RM), and at last 10 minutes of cooling down. The exercise group performed the above-mentioned training 3 times a week and continued for 12 weeks. It could be concluded that after 12 weeks of interventions percent body fat, Waist Circumference, Systolic Blood Pressure, and Diastolic Blood Pressure was lowered. However, it did not reduce MS-related factors of blood lipid composition such as Triglycerides, HDL cholesterol, glucose, Total Cholesterol, and LDL cholesterol of obese Korean female college students.

5. CONCLUSION:

From the different studies reviewed on different age groups, it may be said that in most of the studies it was found that endurance training had helped in lowering LDL-C Cholesterol, Total Cholesterol, and Triglycerides and Raising HDL-C Cholesterol. However, it showed Contradictory results where few studies suggest High-intensity exercise is helpful in raising HDL-C cholesterol and Lowering LDL-C Cholesterol, Total Cholesterol, and Triglycerides whereas some study favors Low-intensity exercise for the all the above results. After reviewing several studies it may be said that resistance training alone helped in lowering LDL-C cholesterol and triglycerides However HDL-C Cholesterol didn't show many changes except one study where high-intensity resistance training helped in raising HDL-C Cholesterol. After undergoing various studies it may be said that combined training helped in Lowering HDL-C cholesterol and triglycerides. However, no much significant evidence is present to say that combined training raised HDL-C cholesterol and lowered total Cholesterol.

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Two Day International E-Conference on
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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

COMPARISON OF SELECTED PHYSIOLOGICAL PARAMETERS BETWEEN VOLLEYBALL AND BASKETBALL PLAYERS

L. Pungding

Assistant Professor

Dept. of Physical Education and Sports Science
Manipur University, Imphal

Abstract:

Background: The aim of this present study was to compare the physiological parameter between volleyball and basketball players of Manipur. For this study 30 players were selected consists of 15 each males players from basketball and volleyball players of Manipur. Independent 't' test was employed as statistical tool for finding the statistical significant difference between the volleyball and basketball players of Manipur. To calculate as analysis data 't' test was employed and the finding of the study revealed that there is no significant difference in physiological parameters between volleyball and basketball players of Manipur.

1. INTRODUCTION

An average volleyball player should have a number of fitness components in order to become an all-round and be ready for whatever comes their way during a game. Players need to move quickly around the court to counter the speed of serves and smashes. Volleyball players need the abilities of Power, Agility, Flexibility, Balance, Hand eye coordination, Endurance. Basketball is a non-contact team game sport played on a rectangular court by two sport players each. The objective is to shoot a ball through a hoop 18 inches (46cm) in diameter and 10 feet (3.048m) high that is mounted to a backboard at each end of the court.

1.2. Objective of the Study

The objective of this study was to compare the selected physiological variables between volleyball and basketball players.

1.3. Hypothesis

It was hypothesized that there would be significant difference between selected motor volleyball and basketball players in respected to their selected physiological variable.

2. METHODOLOGY:

2.1 Selection of Subjects

The subject for this study were (N=30) males, 15 each from volleyball and basketball players of Manipur. The age of the subject ranged from 20 to 25 years.

2.2 Collection of Data

The data pertaining to this were collected by administering physiological parameters of heart rate and blood pressure.

2.3. Data Analysis

The mean (M) and standard deviation (SD) were calculated, and t- test statistical technique was applied to find out the significant difference of selected physiological parameters between volleyball and basketball players of Manipur. The level of significance was set at 0.05.

3. RESULTS:

The mean (M), standard deviation (SD) and t-test on selected physiological parameter between volleyball and basketball players of Manipur are shown in table 1-4.

TABLE 1. Significant mean difference of respiratory rate between volleyball and basketball players

Respiratory rate	N	Mean	Std. deviation	Computed value "t"
Volleyball	15	22.60	2.97	.063
Basketball	15	22.66	2.84	

*significant at 0 .05 level

t0.05 = 2.04

From the finding of above table, the mean values of the volleyball and basketball player is 22.60 and 22.66. after analysis the data t ratio is .063 at level of significance. Hence there is no significance difference was found between the volleyball and basketball players of Manipur.

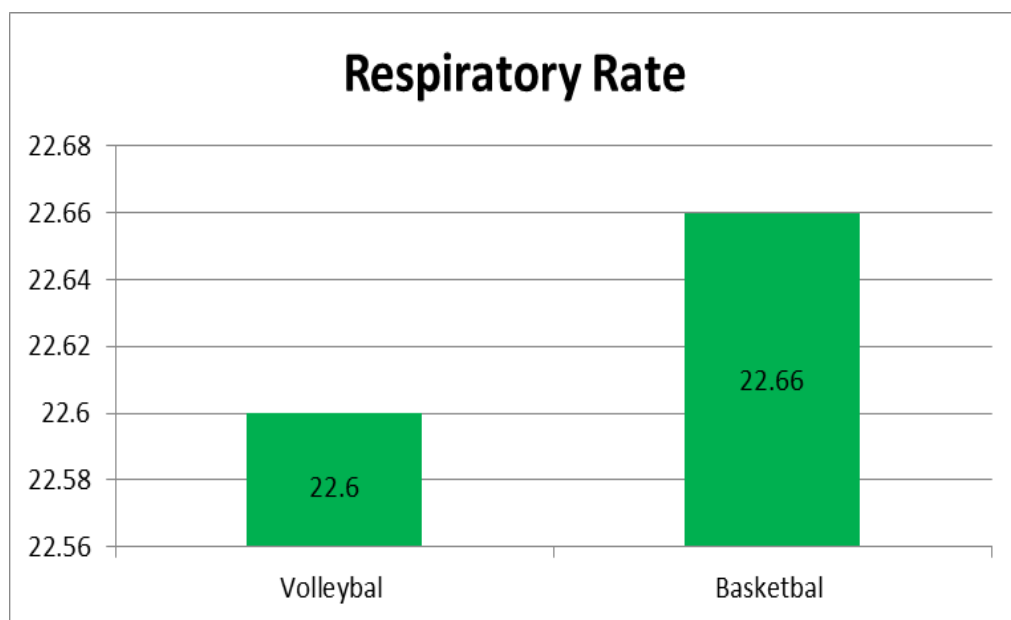


Figure 1: Significant mean difference of respiratory rate between volleyball and basketball players

Table 2.

Significant Mean Difference of Heart Rate between Volleyball and Basketball Players.

Hart rate	N	Mean	Std. deviation	't' value
Volleyball	15	76.0667	4.14844	0.98
Basketball	15	75.9667	4.08598	

*significance at .05 level;

t 0.05 = 2.04

From the finding of above table, the mean value of volleyball and basketball players is 76.06 and means of basketball player is 75.96. after analysis the date t ratio is 0.98 at 0.05 level of Significance. Hence no significant difference was found between volleyball and basketball players of Manipur.

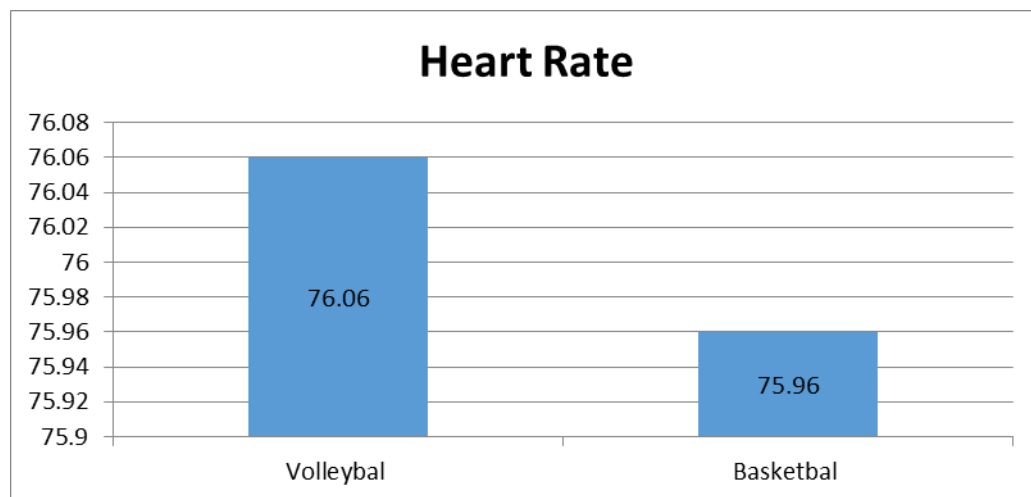


Figure 2: Significant mean difference of heart rate between volleyball and basketball players.

TABLE 3. Significant mean difference of systolic blood pressure between volleyball and basketball players.

Systolic	Groups	N	Mean	Std. deviation	't' value
	Volleyball	15	120.93	4.71	1.13
	Basketball	15	119.20	3.60	

*Significant at .05 level

$t_{0.05} = 2.04$

From the finding of above, the mean value of volleyball players is 120.93 and the mean value of basketball players is 119.20. After analysis the data t ratio is 1.13 at 0.05 level of significance. Hence no significant difference was found between the volleyball and basketball players of Manipur.

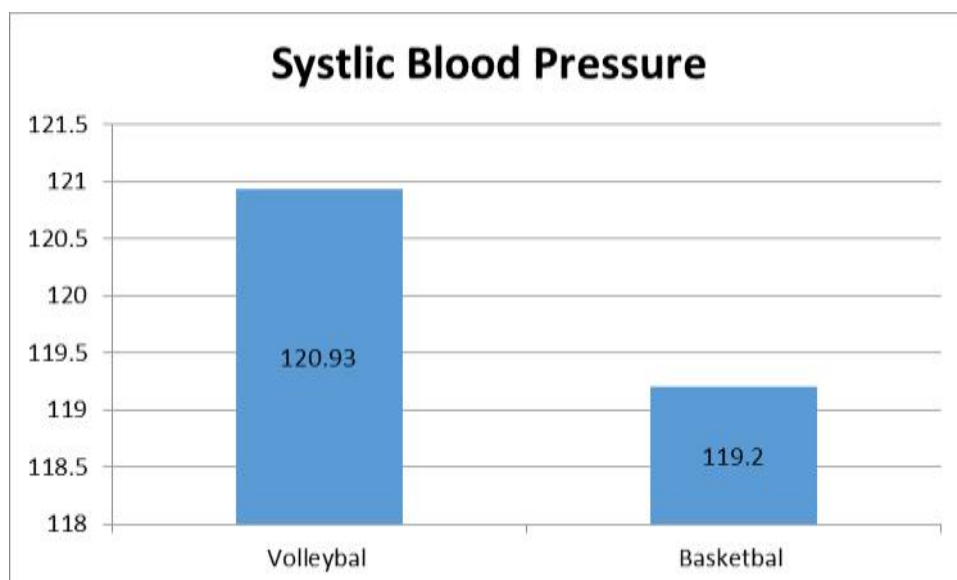


Figure 3: Significant mean difference of Systolic B.P. between volleyball and basketball players

TABLE 4. Significant mean difference of diastolic blood pressure between volleyball and basketball players

Diastolic B.P	Groups	N	Mean	Std. deviation	't' value
	Volleyball	15	81.86	5.68	0.74
	Basketball	15	82.00	4.00	

*Significant at .05 level

$t_{0.05} = 2.04$

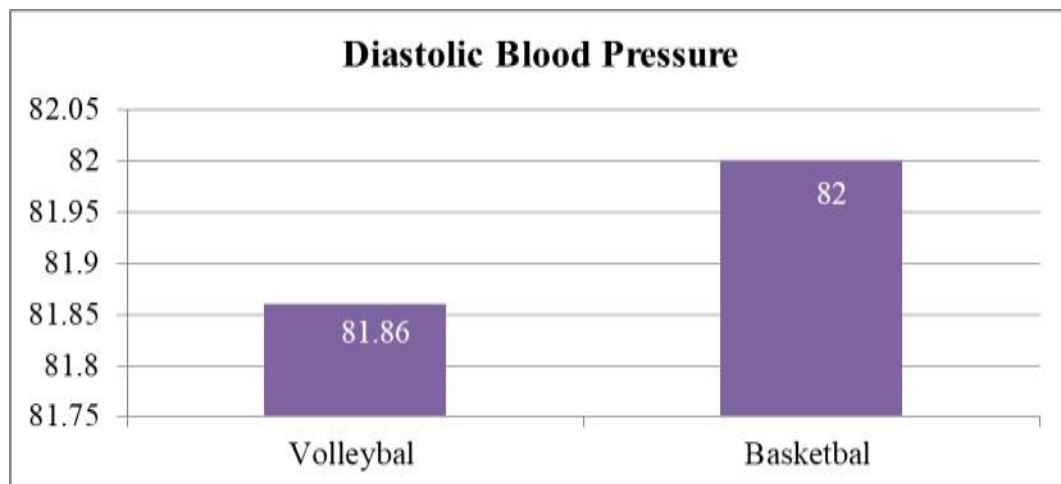


Figure 4: Significant mean difference of diastolic B.P. between volleyball and basketball players.

From the finding of above table, the mean value of volleyball players is 18.86 and the mean value of basketball players is 82.00. After analysis the data t ratio is 0.74 at 0.05 level of significance. Hence no significant difference was found between the volleyball and basketball players of Manipur.

4. DISCUSSION:

It has been observed from the result of the study that the physiological parameter between volleyball and basketball players of Manipur was no significant difference, it is due to the nature of the game and the movement of the body are almost same. Hence there was no significance difference between volleyball and basketball players.

5. CONCLUSIONS:

Recognizing the limitation and the basis of statistical finding the finding of the study revealed that, statistically there was no significant difference in Physiological parameters between volleyball and basketball players. Hence the hypothesis was rejected.

6. ACKNOWLEDGEMENT:

The authors would like to express the grateful thanks to all the players of Manipur teams, coaches and others for their kind participation and co-operation for the fulfilment of this research works.

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**EFFECTS OF PSYCHO-REGULATIVE PROGRAMME,
AUTOGENIC TRAINING AND YOGA TRAINING ON ANXIETY,
AND SELF CONFIDENCE OF INTERCOLLEGIATE LEVEL
KABADDI PLAYERS**

¹PS Sudhakar, ²Dr. P.Gouri Sankar, ³Dr. P.P.S. Paul Kumar

¹Research scholars, University College of Physical Education & Sports Sciences, ANU.

²Lecturer in Physical Education, RVR & JC. Engg. College, Chowdavaram.

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies
Director of Physical Education & Associate Professor, University College of Physical
Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

The purpose of the study, random group design was employed. The randomly selected sixty kabaddi players were divided into three groups, consisting of twenty kabaddi players in each group. Group one were placed in experimental group I which practiced psycho regulative programme of yogasanas and group two, in experimental group II, which practiced psycho regulative programme autogenic training for twelve weeks. The third group was as control group, which did not participate in any of the psycho regulative programmes. Prior to the experimental treatments, all the subjects were tested of anxiety and self confidence which formed pre test scores. After the experimental treatment, the subjects were once again tested on their anxiety and self confidence. The difference between the pre and post test scores was the effect of psycho regulative programmes, yoga practices and autogenic training. The differences in means were tested statistically using ANCOVA. Where significant F value was obtained, the results were further subjected to statistical treatment, post hoc analysis, using Scheffe's post hoc test. In all cases, 0.05 level

Key Words: anxiety and self confidence

1. INTRODUCTION:

Physical education field services a lot for an individual to be healthy person. Man needs to participate in physical education for active growth and development and also maintain in good health. In recent years, athletic performances have been transformed skill techniques and training regimes have been vastly improved. Performance standards and records are being constantly improved. The advancement of scientific researches in the field of physical education and sports given a boon to athlete, trainees and coaches. The physical education scientific have been trying to develop a new methods of training and techniques to attain a higher level performance in sports and games. Physical education experts are perfectly right who they say that physical fitness is the first essential of healthful living and unquestionably the mental hygienists are right too when they say that the mind functions best in a healthy living, physical fit body.

1.1. STATEMENTS OF THE PROBLEM: The purpose of the study was to investigate and compare the effects of psycho-regulative programme autogenic training and yoga training, on anxiety and self confidence of intercollegiate level kabaddi players.

1.2. HYPOTHESES: On the basis of conclusion drawn through critical and allied literatures related to the study the investigator has framed the following hypotheses.

- It was hypothesized that there would be a significant difference in the selected anxiety and self confidence of kabaddi players due to influence of twelve week of autogenic training compared to control group.

- It was hypothesized that there would be a significant difference in the anxiety and self confidence and to finally improve the performance levels of college level kabaddi players due to influence of twelve week of Yoga training compared to control group.
- It was hypothesized that there would be a significant difference between autogenic training and yoga training on anxiety and self confidence.

1.3. DELIMITATIONS:

- The study was delimited to 60 male kabaddi players participated at inter collegiate level tournaments from different colleges of Andhra Pradesh. in the age ranging from 19- 25 years.
- The study was delimited to twelve week training of autogenic technique and yoga training on anxiety and self confidence only.
- The study was further delimited to the assessment of anxiety and self confidence variables using standard tests.

1.4. LIMITATIONS

- The reliability of data collected was dependent largely upon the interest and cooperation extended by the subject. This has been recognized as one of the limitations of the study.
- The researcher adopted no motivational technique and this may also be considered as a limitation.
- The economic back grounds of the subjects were considered in this study, which is taken as limitation.
- The personality differences among the subjects were not considered for this study which was also one of the limitations of the study.

2. METHODOLOGY: In this selection of subjects, selection of variable, selection of questionnaires, experimental design, reliability of data, intervention training techniques administration of questionnaires, collection data and statistical technique used have been explained.

Selection of Subjects: Sixty male kabaddi players studying in different colleges in Andhra Pradesh, who represented their colleges in inter-collegiate level competitions in Kabaddi were randomly selected for this study. The subjects were in the age group ranging from 19 to 25 years. All the subjects were well versed in their skills and performance of the game hockey.

Selection of Variables: The research scholar reviewed the available scientific literature to related psycho regulative programmes, autogenic training and yoga training on selected anxiety and self confidence variables from various journals and websites. Based on the recommendations of the studies reviewed, the following variables were selected.

Dependent Variables Selected: 1. Anxiety 2. Self Confidence

Independent Variables: 1. Autogenic training for twelve weeks
 2. Yoga training for twelve weeks

Experimental Design: For the purpose of the study, random group design was employed. The randomly selected sixty kabaddi players were divided into three groups, consisting of twenty kabaddi players in each group. Group one were placed in experimental group I which practiced psycho regulative programme of yogasanas and group two, in experimental group II, which practiced psycho regulative programme autogenic training for twelve weeks. The third group was as control group, which did not participate in any of the psycho regulative programmes. Prior to the experimental treatments, all the subjects were tested of anxiety and self confidence which formed pre test scores. After the experimental treatment, the subjects were once again tested on their anxiety and self confidence. The difference between the pre and post test scores was the effect of psycho regulative programmes, yoga practices and autogenic training. The differences in means were tested statistically using ANCOVA. Where significant F value was obtained, the results were further subjected to statistical treatment, post hoc analysis, using Scheffe's post hoc test. In all cases 0.05 level.

Criterion Measures: The following criterion measures were adopted to measure the test.

1. To find out the effect of psycho regulative programmes on anxiety, Sports Competitive Anxiety Index (SCAI) authored by C.D. Spielberger (1976) was administered.
2. To find out the effect of psycho regulative programmes on Self Confidence, the questionnaire authored by Hardy & Nelson Self Confidence questionnaire.

Autogenic Training: Johannes Schultz (1932) autogenic training was adopted for the study. The subjects were taught and given practical session for the duration of 15-20 minutes, thrice a week for the period of six weeks. Autogenic training is composed of three component parts. The first and most important component is the six initial steps designed to suggest to the mind a feeling of warmth in the body and heaviness in the limbs. These six self-statement steps are as follows:

- Heaviness in the arms and legs (beginning with dominant arm or leg).
- Warmth in the arms and legs (again beginning with dominant arm or leg).
- Warmth in the chest and perception of reduced heart rate.
- Calm and relaxed breathing.
- Warmth in the solar plexus area.
- Sensation of coolness on the forehead.

Yoga Training: Asanas can be performed from different positions namely standing, sitting and lying and involve of movements such as bending forward, backward and side-ways and twisting. The daily programme should include poses done from different positions so as to involve the whole body. The training program was scheduled for one session in the morning and another session in the evening for 5 days (Monday to Friday) a week and the same was continued for 8 weeks.

5 Minutes – warming up and stretching, 50 Minutes – Asanas, 5 Minutes – Relaxation

Anxiety: Anxiety was measured through the anxiety questionnaire. The anxiety questionnaire was designed to measure the degree of anxiety experience prior to the competition. It was developed by Spielberger.(1979). Spielbergers Trait Anxiety questionnaire was given to all subjects. Twenty items were adopted from Spielbergers Trait Anxiety questionnaire for this investigation. The complete questionnaire is scores as follows:

Table I: Scoring Pattern of Anxiety Questionnaire

S.No	Response	Score of Positive statements	Score of Negative statements
1	Not at all	1	4
2	Some what	2	3
3	Moderately	3	2
4	Very much	4	1

Positive Statements	1,2,5,8,10,11,15,16,19,20
Negative Statements	3,4,6,7,9,12,13,14,17,18

Self Confidence: Standard Hardy and Nelson (1992) questionnaire for self confidence was used to scale the self confidence level of sedentary school boys. The test consists of four questions with six levels of responses. The levels of changes from strongly disagree to strongly agree. The respondents were made to encircle the appropriate number which suited their attitude. The scale was revalidated by administering the questionnaire on all the three groups of students consisting of sixty students from Ramakrishna Mission Higher Secondary School, Chennai.

Scoring: This scoring range of this questionnaire was 4 to 24. The higher score indicate the high level of self confidence.

3. RESULTS AND DISCUSSIONS:

Results on Anxiety: The statistical analysis comparing the initial and final means of Anxiety due to 12 weeks psycho regulative programmes, namely, Yogic practices and Autogenic training among college kabaddi players is presented in Table II.

Table 2: Ancova Results On Effect of Yogic Practices and Autogenic Training Compared With Controls on Anxiety among College Kabaddi Players

	Yogic Practices	Autogenic Training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	72.65	70.7	69.3	Between	113.23	2	56.62	2.69
				Within	1198.95	57	21.03	
Post Test Mean	64.9	65.9	68.7	Between	155.20	2	77.60	4.51*
				Within	979.80	57	17.19	
Adjusted Post Test Mean	65.89	64.95	68.66	Between	137.23	2	68.62	3.93*
				Within	978.86	56	17.48	
Mean Diff	-7.75	-4.80	-0.60					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table II, the obtained pre test means on Anxiety on Yogic practices group was 72.65, Autogenic training group was 70.7 was and control group was 69.3. The obtained pre test F value was 2.69 and

the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 3.

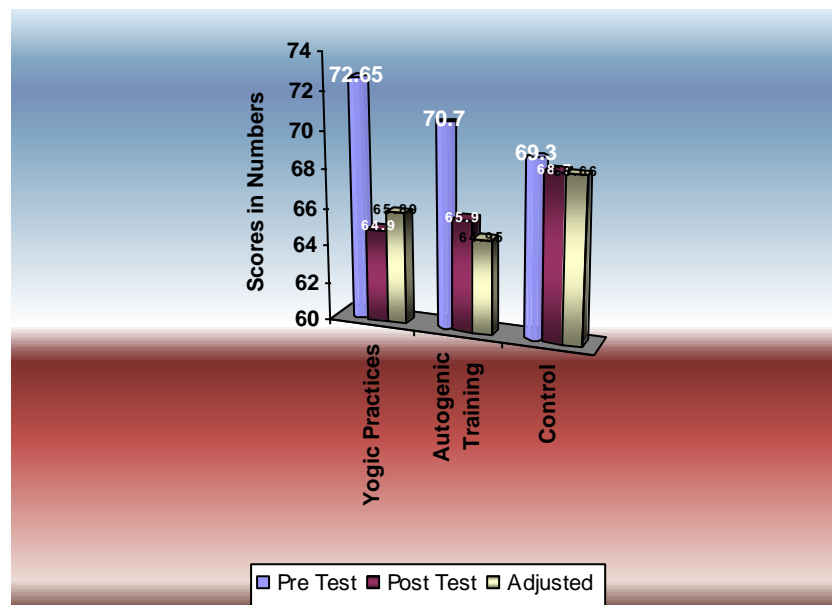
Table 3. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Anxiety

MEANS				Required C I
Yogic practices Group	Autogenic training Group	Control Group	Mean Difference	
65.89	64.95		0.95	3.32
65.89		68.66	-2.76	3.32
	64.95	68.66	-3.71*	3.32

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was no significant differences existed between Yogic practices group and control group (MD: -2.76). There was significant difference between Autogenic training group and control group (MD: -3.71). There was no significant difference between treatment groups, namely, Yogic practices group and Autogenic training group. (MD: 0.95). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

Figure I - Bar Diagram Showing Pre Test, Post Test and Ordered Adjusted



Means on Anxiety:

Discussions on Findings on Anxiety: In order to find out the comparative effect of psycho regulative programmes, namely, Yogic practices and Autogenic training on Anxiety the obtained pre and post test means were subjected to ANCOVA and post hoc analysis through Scheffe's confidence interval test. The effect of Yogic practices and Autogenic training on Anxiety is presented in Table VI. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 3.93 was greater than the required table F value to be significant at 0.05 level. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table VII proved that there was no significant difference between Yogic practices group and control group (MD: -2.76) and Autogenic training group and control group (MD: -3.71). Comparing between the treatments groups, it was found that there was no significant difference between Yogic practices and Autogenic training group among college kabaddi players. Thus, it was found that Autogenic training was significantly better than control group in reducing Anxiety of the college kabaddi players.

Results on Self Confidence: The statistical analysis comparing the initial and final means of Self confidence due to 12 weeks psycho regulative programmes, namely, Yogic practices and Autogenic training among college kabaddi players is presented in Table 4.

Table 4. - Ancova Results on Effect of Yogic Practices and Autogenic Training Compared With Controls on Self Confidence among College Kabaddi Players

	Yogic Practices	Autogenic Training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	16.6	16.5	15.8	Between	7.60	2	3.80	1.10
				Within	197.00	57	3.46	
Post Test Mean	20.05	18.95	16	Between	175.43	2	87.72	43.14*
				Within	115.90	57	2.03	
Adjusted Post Test Mean	18.87	19.94	16.19	Between	144.02	2	72.01	45.73*
				Within	88.18	56	1.57	
Mean Diff	3.45	2.45	0.20					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table 4, the obtained pre test means on Self confidence on Yogic practices group was 16.6, Autogenic training group was 16.5 was and control group was 15.8. The obtained pre test F value was 1.10 and the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Self confidence on Yogic practices group was 20.05, Autogenic training group was 18.95 was and control group was 16. The obtained post test F value was 43.14 and the required table F value was 3.16, which proved that there was significant difference among post test scores of the subjects. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 45.73 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 5.

Table 5- Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Self confidence

MEANS				Required C I
Yogic practices Group	Autogenic training Group	Control Group	Mean Difference	
18.87	19.94		-1.03&	1.00
18.87		16.19	2.69*	1.00
	19.94	16.19	3.71*	1.00

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Yogic practices group and control group (MD: 2.69). There was significant difference between Autogenic training group and control group (MD: 3.71). There was significant difference between treatment groups, namely, Yogic practices group and Autogenic training group. (MD: -1.03). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure 2.

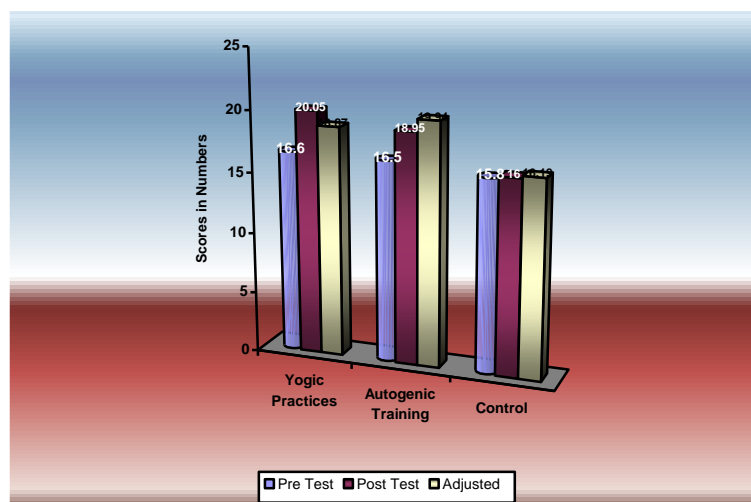


Figure 2 - Bar Diagram Showing Pre Test, Post Test and Ordered Adjusted Means on Self Confidence

Discussions on Findings on Self Confidence: In order to find out the comparative effect of psycho regulative programmes, namely, Yogic practices and Autogenic training on Self confidence they obtained pre and post test means were subjected to ANCOVA and post hoc analysis through Scheffe's confidence interval test. The effect of Yogic practices and Autogenic training on Self confidence is presented in Table IV. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 45.73 was greater than the required table F value to be significant at 0.05 level. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table V proved that there was significant difference between Yogic practices group and control group (MD: 2.69) and Autogenic training group and control group (MD: 3.71). Comparing between the treatments groups, it was found that there was significant difference between Yogic practices and Autogenic training group among college kabaddi players. Thus, it was found that Autogenic training was significantly better than Yogic practices and control group in improving Self confidence of the college kabaddi players.

5. CONCLUSIONS: Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that 12 weeks psycho regulative programme, autogenic training significantly altered anxiety of kabaddi players, compared to control group. It was also found that there was no significant difference between yogic practices and autogenic training in altering anxiety level of kabaddi players.
- It was concluded that 12 weeks psycho regulative programme, yogic practices and autogenic training significantly altered self confidence of kabaddi players, compared to control group. It was also found that autogenic training was better than yogic practices in altering self confidence of kabaddi players.

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EFFECT OF STRIDE FREQUENCY AND AGILITY TRAINING ON DETERMINANTS OF ATHLETIC PERFORMANCE IN YOUNG ADULTS

¹Ranga Venkata Rama Rao, ²Dr. P.P.S. Paul Kumar

¹Research Scholar, University College of Physical Education & Sports Sciences, ANU.

²Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of
Studies, Director of Physical Education & Associate Professor, University College of
Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract

The purpose of the study was used to find out the effect of neuromotor facilitatory training and core training on determinants of athletic performance in young adults. To achieve the purpose of the study, the investigator randomly selected active young adults between age group of 18 to 25 years, who were studying in different colleges in Andhra Pradesh. For this purpose, pre- test post-test random group design was followed in this research. Subjects, college students were randomly selected based on inclusion and exclusion criteria were divided into three groups, namely, experimental group I, experimental group II and control group consisting of 20 subjects in each group. Experimental group I underwent 8 weeks neuromotor facilitatory training, experimental group II underwent core training for eight weeks and the control group was kept strictly under control and not involved in any special activities. Prior to experimental treatment, all the subjects were measured of selected variables, namely, determinants of athletic performance, stride length, stride frequency, balance (static, dynamic), agility (T test) and speed (50 m. run). Scores on completion of experimental treatment on 2nd, 4th, 6th and 8th weeks were collected After the experimental treatment for a period of eight weeks the subjects were measured on the criterion variables, which formed the final scores. The difference between the initial and final means was considered as the effects of neuromotor facilitatory training and core training on determinants of athletic performance. The obtained data were subjected to statistical analysis using ANCOVA to compare the initial and final scores

Key Words: *Neuromotor facilitatory training and core training*

1. INTRODUCTION:

Over the course of the past twenty years an increasing amount of attention has been devoted to the field of athletics. Whether it be at a collegiate or professional level, organizations have been faced with public pressure to be successful. As a result, athletic directors and general managers have been faced with the question of how to improve their teams' success. One obvious way of doing this is to select qualified personnel for the tasks at hand. The method by which athletes are selected for a team can have a significant impact on that team's success. In the past, decisions have been made based largely on judgments of an individual's physical characteristics with little attention given to the psychological factors that contribute to athletic success. Coaches are experts in identifying the physical characteristics needed for success in their field; however, they lack the skills necessary to assess the psychological factors that have been proven to have a significant impact on athletic performance.

1.1. NEED OF THE STUDY: The relationship between muscle imbalance and extremity injury has been documented. Measures to prevent the same have been largely centered around proprioceptive and balance control training. Physical Therapy intervention following injuries to lower extremity primarily addresses deficiencies in strength and balance subsequent to trauma. Several studies appraise the significance of proprioception training following injury. It has been reported that proprioception can still be affected 1 year after injury following a rehabilitation program. (Leanderson J, Eriksson E, Nilsson C, Wykman A., 1996) Objective data on dynamic movement evaluation requires expensive equipment and hence have not found its

deserved status in neuromotor evaluation for sports population. Neurological assessment has restricted mostly to conductivity, neuromuscular physical assessment, agility, strength, power and flexibility. Evidence for the effects of short and long term applications to unstable environments is inconclusive and warrants more substantial research.

1.2. OBJECTIVES OF STUDY:

- To estimate the effects of neuromotor facilitatory training on the determinants of athletic performance, such as stride frequency and agility
- To estimate the effects of core training on the determinants of athletic performance, such as, stride frequency and agility,
- To compare the effects of neuromotor facilitatory training and core training on athletic performance determinants such as stride frequency, agility and speed.

1.3. STATEMENT OF PROBLEM: The purpose of the study as to find out the effect of stride frequency and agility training on determinants of athletic performance in young adults.

1.4. HYPOTHESES

- It was hypothesized that neuromotor facilitatory training would significantly influence the determinants of athletic performance, such as stride frequency and agility compared to control group.
- It was hypothesized that core training would significantly influence the determinants of athletic performance, such as stride frequency and agility compared to control group.
- It was hypothesized that compared to treatment groups, there would not be any significant difference on the determinants of athletic performance, such as stride frequency and agility

1.5. SIGNIFICANCE OF STUDY: Although the results of several studies seem to indicate that improved proprioceptive function might reduce the risk of injury during sporting activity, investigations like the present study would be significant in the following ways:

- The study would be significant in linking link between improved proprioception and athletic performance and could pave way stride frequency techniques to be applied in athletic training.
- The study would be significant in linking link between improved agility training and athletic performance and could pave way for adopting core training to be applied in athletic training.
- Further with the present study design that determined the variable most influenced by this form of training among the athletic performance indicators, sporting events that require improvement of this specific attribute in the player may adopt the same as part of training.

1.6. DELIMITATION: The study was delimited in the following aspects

- 60 college students were selected as subjects randomly from different colleges in Andhra Pradesh.
- The selected subjects were in the age group of 18 to 25 years.
- The students reported a history of a musculoskeletal pathology, or any serious disability or ongoing medical conditions were excluded from the study.
- The selected subjects were grouped into three, namely, neuromotor facilitatory training, core training and control groups.
- The following variables were selected for this study

1.7. Dependent Variables: 1. Stride Frequency 2. Agility

1.8. Independent Variables: 1. Neuromotor Facilitatory Training for 8 weeks
2. Core Training for 8 weeks

1.9. LIMITATION: This study was limited in the following aspects.

- Socio-economic and cultural status of the subjects were not taken into consideration.
- Factors like nutrients, heredity, environment, life style habits and the students programme outside the college were not taken into consideration.
- The height and weight of the subjects were not taken into consideration.
- Previous training of the subjects of any kind prior to six months of experimental treatment was not taken into consideration.
- The climatic conditions at the time of testing the subject would have influenced the results.
- Daily routine of the subjects were not controlled.
- The amount of sleep the subject had prior to testing was not taken into consideration.
- The subjects emotional state, medication underwent prior to six months of experimental period, caffeine intake were not considered for this study.

2. METHODOLOGY: The purpose of the study was to find out the effect of neuromotor facilitatory training and core training on determinants of athletic performance in young adults. In this chapter, selection of subjects, selection of variables, research design, tester reliability, and instrument reliability, orientation of the subject, training methods, test administration, and statistical techniques are discussed.

Selection of Subjects: Definitive recommendations as to whether stride frequency training and agility training are beneficial in young and middle-aged adults cannot be made owing to a paucity of data, although there may be benefit, especially if participating in physical activities requiring agility, balance, and other motor skills. More data are needed in all age groups to elucidate the specific health-related changes resulting from such training and to determine the effectiveness of various exercise types and doses (i.e., frequency, duration, and intensity) and training programmes. In this study, the investigator was interested to find out the effects of neuromotor facilitatory training and core training on determinants of athletic performance in young adults. To achieve the purpose of the study, the investigator randomly selected active young adults between age group of 18 to 25 years, who were studying in different colleges in Andhra Pradesh.

Selection of Variables: For any sport, the optimal method to improve balance, proprioception, and core stability is to practice the skill itself on the same surface on which the skill will be performed during competition. The available studies showed that the frequency and duration of neuromotor exercise training to accrue health and fitness benefits are uncertain because there is variability in the quality of available studies, the types, duration, and frequency of neuromotor exercise used; there is inconsistent length of the training programmes, and no standardized outcome measures have been used. Further confounding the interpretation of the results, many studies have combined resistance, cardiorespiratory, and/or flexibility training with neuromotor exercise. There were lacks of researches to find out the effect of neuromotor facilitatory training and core training on determinants of athletic performance among young adults. Based on the available researches and knowledge gained, the investigator selected the following variables for the purpose of this study.

Dependent Variables: 1. Stride frequency 2. Agility

Independent Variables: 1. Neuromotor Facilitatory Training for 8 weeks
2. Placebo control training for 8 weeks

Experimental Design: Experimental design was used to find out the effect of neuromotor facilitatory training and core training on determinants of athletic performance in young adults. For this purpose, pre- test post-test random group design was followed in this research. Subjects, college students were randomly selected based on inclusion and exclusion criteria were divided into three groups, namely, experimental group I, experimental group II and control group consisting of 20 subjects in each group. Experimental group I underwent 8 weeks neuromotor facilitatory training, experimental group II underwent core training for eight weeks and the control group was kept strictly under control and not involved in any special activities. Prior to experimental treatment, all the subjects were measured of selected variables, namely, determinants of athletic performance, stride length, stride frequency, balance (static, dynamic), agility (T test) and speed (50 m. run). Scores on completion of experimental treatment on 2nd, 4th, 6th and 8th weeks were collected. After the experimental treatment for a period of eight weeks the subjects were measured on the criterion variables, which formed the final scores. The difference between the initial and final means was considered as the effects of neuromotor facilitatory training and core training on determinants of athletic performance. The obtained data were subjected to statistical analysis using ANCOVA to compare the initial and final scores

Criterion Measures: By reviewing literature, and in consultation with professional experts, the researcher selected tests to assess the variables selected for this study, which is presented in Table I.

Table I - Showing the Variables, Tests and Units of Measures for the Study

S.No	Variable	Test	Unit of Measurements
1.	Stride frequency	Seagrave, L., (1996) Test	Number of Strides in 1 second
2.	Agility	T Test	Seconds

Reliability of Data: The reliability of data was ensured by establishing the instrument reliability, reliability of tests, tester's competency and subject reliability

Reliability and Competence of Tester: The researcher being blinded from the tests; proprioceptive error estimation was tested by a post graduate student (MPed) who underwent prior training under supervision of the researcher. The other performance tests were conducted by a qualified Physical Education professional (MPed), experienced in athletic training. During the pilot study phase the investigator administered the tests through the testers used for this study among ten subjects. The test and retest scores were correlated and found the reliability of the data collected using the instruments, tests, testers and subjects. The intraclass correlation coefficient obtained for test-retest data are presented in Table 2.

Table 2. Intra Class Correlation Coefficient of Test – Retest Scores

S.No	Variable	Test	Obained 'r'
1.	Stride frequency	Seagrave, L., (1996) Test	0.81*
2.	Agility	T Test	0.84*

* Significant at 0.01 level.

Reliability of Subjects: The intraclass correlation value of the above test and retest also indicated subject reliability as the same subjects were used under similar conditions by the same tester. The co-efficient of reliability were significant at 0.01 level, for the above test under investigation.

Test Administration: After obtaining approval for the study and ethical clearance, the invitation to participate in the study was circulated through proper channel in the educational institutions that approved enrollment of volunteers. The purpose of study was explained to the subjects who fulfilled the inclusion criteria, and written informed consent was obtained. Experimental groups as well as control group determined by randomized allocation were evaluated using a neuromotor assessment battery consisting of the following tests:

Stride Frequency:

Purpose: To measure the stride frequency of the subject

Equipments: Stop watch, clapper, Saw Dust

Procedure: While the subjects were allowed to run fast about 50 metres to measure speed, the measurement of the stride frequency was taken in the test zone of 30 metres (between 20th to 50th metres). The time elapsed for five right/left foot contacts of the subjects after the initial supporting phase in the test zone. Thus, the time taken for ten strides was recorded. Dividing the number of strides (10) taken by the time recorded given the number of strides ran in one-second (Seagrave, L., 1996).

$Sf = t / 10$, Where Sf = Stride Frequency, t = time taken for 10 strides

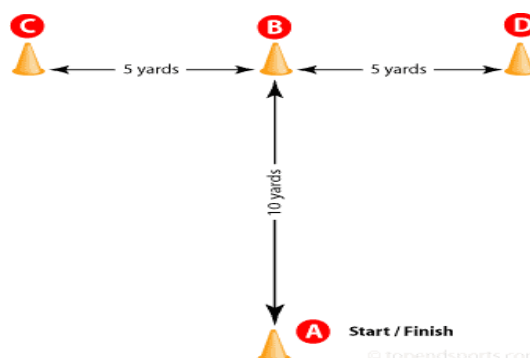
Agility – Change of Direction (T – test)

Purpose: To measure the ability of the subjects in agility – change of direction.

Equipments: Chunnam for markings, Cones, Measuring tape and stop watch

Procedure: Four cones were set out as illustrated in the diagram above. The subject starts at cone A. On the command of the timer, the subject sprints to cone B and touches the base of the cone with their right hand. They then turn left and shuffle sideways to cone C, and also touch its base, this time with their left hand. Then shuffling sideways to the right to cone D and touching the base with the right hand. They then shuffle back to cone B, touch it with the left hand, and run backwards to cone A. The stopwatch is stopped as they pass cone A.

The type of surface that is used was consistent to ensure good test-retest reliability. It was ensured that the subjects faced forwards when shuffling and did not cross the feet over one another. For safety, a spotter was positioned a few meters behind cone A to catch players in case they fell while running backward through the finish.



Scoring: The trial was not counted if the subject crossed one foot in front of the other while shuffling, failed to touch the base of the cones, or failed to face forward throughout the test. The best time of three successful trials were taken to the nearest 0.1 seconds.

Collection of Data: Data on the tests administered as per procedure described above, were collected from the subjects at initial assessment and at the end of 8th week of the experimental treatment. The collected data were tabulated and put to statistical analysis.

Statistical Procedure: Statistical analyses were performed using SPSS (Version 11). All data were visually and statistically inspected for normality of distribution. Analysis of covariance (ANCOVA) calculated to compare the pre and post intervention data to estimate statistical significance of the difference within group and between groups, keeping the level of significance at 5%. Further, pair wise comparison was done through Scheffe's post hoc analysis, where significant results were found due to experimental treatments.

3. RESULTS AND DISCUSSIONS: This chapter deals with the analysis of data collected from the samples under study. The purpose of the study was to find out the effect of neuromotor facilitatory training and core training on determinants of athletic performance in young adults. Subjects (N=60) were randomly allocated into three groups, namely, experimental group I, experimental group II and control group. Those in the interventional groups were oriented to the exercise program that needed to be followed along the course of study. Method of training, duration and the testing procedures were explained in detail. The investigator selected the following variables for the purpose of this study.

1. Stride frequency
2. Agility – T Test

Experimental design was used to find out the effect of stride frequency training and agility training on determinants of athletic performance in young adults. For this purpose, pre- test post-test random group design was followed in this research. Subjects, college students were randomly selected based on inclusion and exclusion criteria were divided into three groups, namely, experimental group I, experimental group II and control group consisting of 20 subjects in each group. Experimental group I underwent 8 weeks neuromotor facilitatory training, experimental group II underwent core training for eight weeks and the control group was kept strictly under control and not involved in any special activities. Prior to experimental treatment, all the subjects were measured of selected variables, namely, determinants of athletic performance, stride frequency, agility (T test) Scores on completion of experimental treatment on 2nd, 4th, 6th and 8th weeks were collected After the experimental treatment for a period of eight weeks the subjects were measured on the criterion variables, which formed the final scores. The difference between the initial and final means was considered as the effects of neuromotor facilitatory training and core training on determinants of athletic performance.

Level of Significance: The subjects were compared on the effect of neuromotor facilitatory training and core training on determinants of athletic performance of young adults. The analysis of variance (ANOVA) was used to find out the significant difference if any, among the groups on selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

4. COMPUTATION OF ANALYSIS OF VARIANCE AND POST HOC TEST

Results on Stride Frequency: The statistical analysis comparing the initial and final means of Stride Frequency due to Neuromotor facilitatory training and Core training on determinant of athletic performance, such as, Stride Frequency, in young adults is presented in Table III.

Table 3. Computation of Analysis of Covariance of Stride Frequency

	Neuromotor Facilitatory Training	Core Training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	3.65	3.62	3.63	Between	0.01	2	0.00	0.59
				Within	0.48	57	0.01	
Post Test Mean	3.68	3.64	3.61	Between	0.04	2	0.02	3.48*
				Within	0.34	57	0.01	
Adjusted Post Test Mean	3.66	3.65	3.62	Between	0.02	2	0.01	13.43*
				Within	0.05	56	0.00	
Mean Diff	0.03	0.02	-0.02					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table 3, the obtained pre test means on Stride Frequency on Neuromotor facilitatory training group was 3.65, Core training group was 3.62 was and control group was 3.63. The obtained pre test F value was 0.59 and the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Stride Frequency on Neuromotor facilitatory training group was 3.68, Core training group was 3.64 was and control group was 3.61. The obtained post test F value was 3.48 and the required table F value was 3.16, which proved that there was significant difference among post test scores of the subjects. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 13.43 was greater than the required value of 3.16 and hence it was accepted that there was significant

differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 4.

Table 4. Scheffe's Confidence Interval Test Scores on Stride Frequency

MEANS				Required C I
Neuromotor facilitatory training Group	Core training Group	Control Group	Mean Difference	
3.66	3.65		0.01	0.02
3.66		3.62	0.05*	0.02
	3.65	3.62	0.03*	0.02

* Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Neuromotor facilitatory training group and control group (MD: 0.05). There was significant difference between Core training group and control group (MD: 0.03). There was no significant difference between treatment groups, namely, Neuromotor facilitatory training group and Core training group. (MD: 0.01). The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure I.

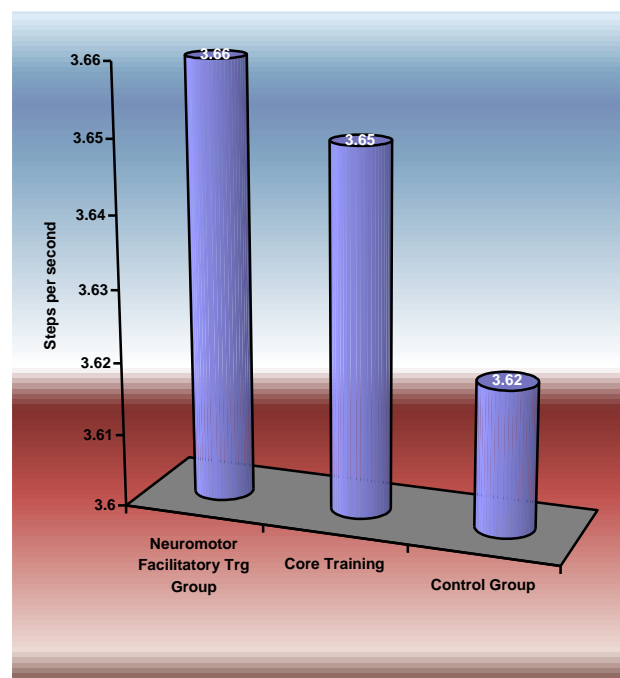


Figure I - Bar Diagram on Ordered Adjusted Means on Stride Frequency

Discussions on Findings: The effect of Neuromotor facilitatory training and Core training on Stride Frequency is presented in Table III. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 13.43 was greater than the required table F value to be significant at 0.05 level. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table IV proved that there was significant difference between Neuromotor facilitatory training group and control group (MD: 0.05) and Core training group and control group (MD: 0.03). Comparing between the treatment groups, it was found that there was no significant difference between Neuromotor facilitatory training and Core training group on determinant of athletic performance, such as, Stride Frequency, among young adults. Thus, it was found that neuromotor facilitatory training and core training contribute for the improvement of athletic performance of young adults.

Results on Agility: The statistical analysis comparing the initial and final means of Agility due to Neuromotor facilitatory training and Core training on determinant of athletic performance, such as, Agility, in young adults is presented in Table 5.

Table 5.-Computation of Analysis of Covariance of Agility

	Neuromotor Facilitatory Training	Core Training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	12.62	12.79	12.65	Between	0.32	2	0.16	0.16
				Within	55.99	57	0.98	
Post Test Mean	11.17	12.14	12.66	Between	22.84	2	11.42	13.71*
				Within	47.48	57	0.83	
Adjusted Post Test Mean	11.22	12.07	12.68	Between	21.50	2	10.75	35.21*
				Within	17.09	56	0.31	
Mean Diff	-1.45	-0.65	0.00					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 56 (df) =3.16. *Significant

As shown in Table 5, the obtained pre test means on Agility on Neuromotor facilitatory training group was 12.62, Core training group was 12.79 was and control group was 12.65. The obtained pre test F value was 0.16 and the required table F value was 3.16, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Agility on Neuromotor facilitatory training group was 11.17, Core training group was 12.14 was and control group was 12.66. The obtained post test F value was 13.71 and the required table F value was 3.16, which proved that there was significant difference among post test scores of the subjects. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 35.21 was greater than the required value of 3.16 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 6.

Table 6. Scheffe's Confidence Interval Test Scores on Agility

MEANS				Required C I
Neuromotor facilitatory training Group	Core training Group	Control Group	Mean Difference	
11.22	12.07		-0.85*	0.44
11.22		12.68	-1.46*	0.44
	12.07	12.68	-0.62*	0.44

* Significant

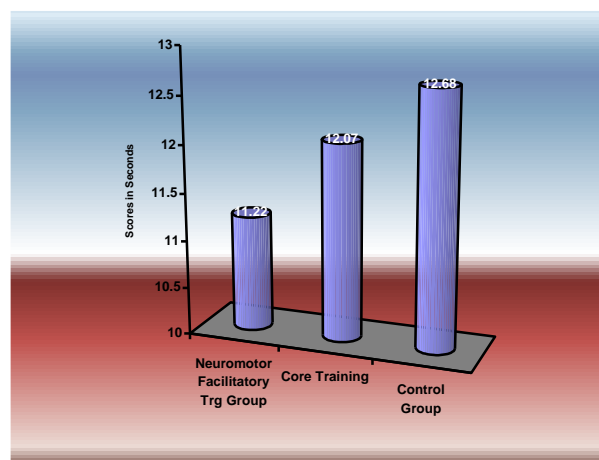


Figure 2. Bar Diagram on Ordered Adjusted Means on Agility

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between Neuromotor facilitatory training group and control group (MD: -1.46). There was significant difference between Core training group and control group (MD: -0.62). There was significant difference between treatment groups, namely, Neuromotor facilitatory training group and Core training group (MD:-0.85).

The ordered adjusted means were presented through bar diagram for better understanding of the results of this study in Figure 2.

Discussions on Findings: The effect of Neuromotor facilitatory training and Core training on Agility is presented in Table V. The analysis of covariance proved that there was significant difference between the experimental group and control group as the obtained F value 35.21 was greater than the required table F value to be significant at 0.05 level. Since significant F value was obtained, the results were further subjected to post hoc analysis and the results presented in Table VI proved that there was significant difference between Neuromotor facilitatory training group and control group (MD: -1.46) and Core training group and control group (MD: -0.62). Comparing between the treatment groups, it was found that there was significant difference between Neuromotor facilitatory training and Core training group on determinant of athletic performance, such as, Agility, among young adults. Thus, it was found that neuromotor facilitatory training and core training contributes for the improvement of athletic performance of young adults. And neuromotor facilitatory training was significantly better than core training.

5. FINDINGS: The results and discussions presented in the previous chapter proved that neuromotor facilitation training and core training contributed for athletic performance determinants, speed, stride length, stride frequency, EC static balance, EC dynamic balance and agility compared to control group.

6. CONCLUSIONS: Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that neuromotor facilitation training and core training significantly altered athletic determinant, stride frequency of the subjects. It was also found that comparing between treatment groups, there was no significant difference.
- It was concluded that neuromotor facilitation training and core training significantly altered athletic determinant, agility of the subjects. It was also found that comparing between treatment groups, neuromotor facilitatory training was significantly better than core training.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
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THE STUDY WAS TO COMPARE SELECTED ARM LENGTH AND UPPER BODY STRENGTH PROFILES OF VOLLEYBALL PLAYERS IN RELATION TO THEIR POSITIONS OF PLAY

¹Paturi Srinivas, ²Dr. P.P.S. Paul Kumar

¹Research Scholar, University College of Physical Education Sports Sciences, ANU.

²Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of
Studies Director of Physical Education & Associate Professor, University College of
Physical Education & Sports Sciences, Acharya Nagarjuna University

Abstract:

The purpose of the study was to compare selected arm length and upper body strength of volleyball players of different positions. A repeated measure research design was used in this study. Randomly selected 100 volleyball players consisting of 20 attackers, 20 setters, 20 blockers, 20 liberos and 20 universals were selected for this study from different schools in Andhra Pradesh. The age group of the subjects ranged from 15 to 17 years. The subjects were selected on random basis. The players were selected from different schools in Andhra Pradesh who participated at inter school tournaments. The subjects were measured of their anthropometric profiles, arm length using standard tests. Physical fitness of the subjects, upper body strength through push-ups test. The collected data were subjected to statistical treatment using ANOVA among different positions of players in Volleyball. In all cases 0.05 level was fixed to test significance of the study.

Key Words: Arm length and Upper body strength.

1. INTRODUCTION:

Physical education field services a lot for an individual to be healthy person. Man needs to participate in physical education for active growth and development and also maintain in good health. In recent years, athletic performances have been transformed skill techniques and training regimes have been vastly improved. Performance standards and records are being constantly improved. The advancement of scientific researches in the field of physical education and sports given a boon to athlete, trainees and coaches. The physical education scientific have been trying to develop a new methods of training and techniques to attain a higher level performance in sports and games.

1.1. HISTORY OF VOLLEYBALL: The game of volleyball, originally called "mintonette", was invented in 1895 by William G. Morgan, after the invention of basketball by only 4 years. Morgan, a graduate of the Springfield College of the YMCA, designed the game to be a combination of basketball, baseball, tennis and handball. The first volleyball net, borrowed from tennis, was only 6'6" high (though you need to remember that the average American was shorter in the 19th century). Volleyball is a modern game. This game was invented by William G. Morgan, Physical Director of Holyoke YMCA, and USA in the year 1895. The circumstances that led to the origin of Volleyball is interesting. Morgan was seeking a suitable recreational game for some middle aged men who regularly visited his gymnasium. There was two staff for gymnastics and similar activities.

1.2. NEED OF THE STUDY: Volleyball is a very dynamic sport characterized by various sprints, jumps (blocking and spiking) and high-intensity court movements that occur repeatedly during competition. Successful performance of these movement structures depends greatly on anthropometric and physical performance variables. (Thissen-Milder M, Mayhew JL.(1991) Differences in physical abilities and anthropometric variables between athletes of different games have been investigated in previous studies. In volleyball players are specialized for their specific position. Thus, research on anthropometric and physical performance variables in volleyball of particular positions need to be undertaken. As the game of volleyball involves different skills and exhibiting each skill the player take positions at different places. To execute the skills effectively and efficiently, the players require adequate anthropometric and physical fitness levels which

could have direct influence on their playing ability depending upon their play positions. In this study, the investigator took five positions in volleyball, attacker, setter, blocker, libero, and universal.

1.3. OBJECTIVES OF THE STUDY: The aim of the study was to make an analysis on selected arm length and upper body strength profiles of volleyball players in relation to their position of play. For this purpose the study would collect data on selected arm length and upper body strength of school level volleyball players.

- The study further classifies the volleyball players based on different positions in which they play in the game situations.
- The study would further find out differences if any existed on selected criterion variables among volleyball players of different positions.
- To suggest what are the preferred levels of arm length and upper body strength variables in relation to different positions of play

1.4. STATEMENT OF PROBLEM: The purpose of the study was to compare selected arm length and upper body strength profiles of volleyball players in relation to their positions of play.

1.5. HYPOTHESIS:

- It was hypothesized that there may be no significant difference on selected arm length among volleyball players of different positions.
- It was hypothesized that there may be no significant difference on selected upper body strength among volleyball players of different positions.

1.6. SIGNIFICANCE OF THE STUDY

- This study gives an additional knowledge to the area of research
- The result of the study would be useful for coaches to compare with their players' arm length and upper body strength profiles with regard to different positions of play.
- The findings of this study would be helpful to coaches to find out differences on selected arm length and upper body strength profiles of players of different positions in volleyball players.
- This study will help the teacher of physical education and coaches in selecting the volleyball players for competition in relation to the positions of play.

1.7. DELIMITATION: The study was delimited in the following factors

- The study was delimited to men volleyball players who have participated at inter school competitions.
- Randomly selected 50 volleyball players of different positions, namely, 10 attackers, 10 setters, 10 blockers, 10 liberos and 10 universals were selected for this study.
- The study was confined to those in the age group 15 to 17 years.

Anthropometric Profiles: Arm Length

Physical Fitness profiles: Upper body strength

Performances of the subjects were measured subjectively by three experts in the field.

1.8. LIMITATION

- No efforts were made to motivate the subjects who might have affected the result of this study.
- Only standard tests were used to measure selected arm length and upper body strength of the volleyball players.

1.9. DEFINITION OF THE TERMS

Arm Length: It is the distance from the glenoid fossa of the shoulder joint to the tip of the middle finger (Johnson and Nelson, 1982)

Upper Body Strength: Upper body strength can be defined as the maximal rate at which a person can exert his strength in performing pushups and was measured by push ups test (Cureton, 1974).

2. METHODOLOGY: In this chapter the procedure for selection of subjects, selection of variables, orientation of subjects, collection of data and the statistical technique employed for analyzing the data have been explained in detail.

3. SELECTION OF SUBJECTS: The purpose of the study was to compare selected arm length and upper body strength of volleyball players of different positions. To achieve the purpose of the study, 100 volleyball players, consisting of 20 attackers, 20 setters, 20 blockers, 20 liberos and 20 universals. The players were selected from different schools in Andhra Pradesh who participated at inter school tournaments. The age group of the subjects ranged from 15 to 17 years. The subjects were selected on random basis.

Selection of Variables: The study aimed at finding out relationship between selected psychological characteristics and performance among different playing positions of volleyball players. Based on the experience gained through various related literature the following variables were selected for this study.

Anthropometric Profiles: Arm Length

Physical Fitness Profiles: Upper body strength

4. RESEARCH DESIGN: A repeated measure research design was used in this study. Randomly selected 100 volleyball players consisting of 20 attackers, 20 setters, 20 blockers, 20 liberos and 20 universals were selected for this study from different schools in Andhra Pradesh. The players were selected from different schools in Andhra Pradesh who participated at inter school tournaments. The subjects were measured of their anthropometric profiles, arm length using standard tests. Physical fitness of the subjects, upper body strength through push-ups test. The collected data were subjected to statistical treatment using ANOVA among different positions of players in Volleyball. In all cases 0.05 level was fixed to test significance of the study.

4.1. Criterion Measures: By glancing the literature and in consultation with professional experts the following measures were applied to collected data on selected criterion and independent variables.

- Flexible tape was used to measure anthropometric variables, arm length
- Upper Body strength was measured through push up test.

4.2. Pilot Study: The investigator conducted a pilot study with ten players who were not subjects of the research study to determine the methods of testing, evaluating the competency of the investigator testing, recording the timings and scores and field equipments used in the present investigation.

4.3. Instrument Reliability: Six electronic stop watches (Casio, Japan), non stretchable steel tapes, studio meter were used in this study. The instruments used were from standard companies and their calibrations were accepted as reliable at par with international standards. The measurements were collected twice and correlated for reliability. The intra class correlation coefficient obtained by test, retest method is presented in Table I.

Table 1. The Reliability Coefficient of the Subjects in Anthropometric and Physical fitness Profiles by Test and Retest Method

S.No	Test Items	Coefficient of Correlation
	Physical Fitness Variables	
1	Upper Body Strength	0.88*
	Anthropometric Variables	
1	Arm Length	0.98*

Table value $r = (0.01) (2,7) = 0.735$

* Significant at 0.01 level

4.5. Test Administration: Arm Length

Objective: To measure Arm Length

Apparatus used: Flexible Steel Tape, Rod, Pencil and Paper.

Test Description: Reposition the end of the measuring tape to a spot about 5 inches from one end of the rod. The subject was asked to grasp the rod and to hold in his arm at about 45 degrees from the midline of the body. The elbow must be extended fully during this measurement. The arm length was the distance from the rod to the acromion process. The acromion process is the bone like protuberance at the edge of the shoulder.

Care was taken the measurement was taken from the top of the rod.

Scoring: After taking several measurements, record on the score sheet under corrected arm length of the subject was recorded.

Upper Body Strength (Pushups)

Purpose: To measure the shoulder strength of the subjects.

Apparatus used: Gymnastic Mats

Procedure: The subject being tested took prone lying position on the ground with the hands under the shoulders and fingers stretched, legs straight and parallel with comfortably apart and the toes tucked under the feet. On the command 'go' the subject performed pushups with the arms and extended it completely. The legs and the back were kept straight throughout the test. Then the subject lowered his body using the arm until it came to 90 degree angle and upper arms were parallel to the ground. The action was repeated as much time as possible.

Scoring: Total number of correct pushups was recorded as the score of the test.

Statistical Analysis: The objective of the study was to compare selected arm length and upper body strength of volleyball players in relation to different positions. Collected data on selected criterion variables were subjected to statistical treatment through Analysis of Variance (ANOVA). If the obtained F value was significant, paired mean comparisons would be made between groups through Scheffe's confidence interval test.

5. RESULTS AND DISCUSSIONS: This chapter deals with the analysis of data collected from the samples under study. The purpose of the study was to compare selected arm length and upper body strength of volleyball players of different positions. To achieve the purpose of the study, 100 volleyball players, consisting

of 20 attackers, 20 setters, 20 blockers, 20 liberos and 20 universals. The players were selected from different schools in Andhra Pradesh who participated at inter school tournaments. The age group of the subjects ranged from 15 to 17 years. The subjects were selected on random basis. The following variables were selected for this study.

Anthropometric Profiles: Arm Length

Physical Fitness Profiles: Upper body strength

A repeated measure research design was used in this study. Randomly selected 100 volleyball players consisting of 20 attackers, 20 setters, 20 blockers, 20 liberos and 20 universals were selected for this study from different schools in Andhra Pradesh. The players were selected from different schools in Andhra Pradesh who participated at inter school tournaments. The subjects were measured of their arm length using standard tests. Upper body strength through pushups test. Flexible tape was used to measure arm length. Upper Body strength was measured through push up test. The investigator conducted a pilot study with ten players who were not subjects of the research study to determine the methods of testing, evaluating the competency of the investigator testing, recording the timings and scores and field equipments used in the present investigation. The collected data were subjected to statistical treatment using ANOVA among different positions of players in Volleyball. In all cases 0.05 level was fixed to test significance of the study.

5.1. Computation of Analysis of Variance and Post Hoc Test Results on Arm Length

Analysis of Descriptive Statistics: Descriptive statistics mean, standard deviation, minimum and maximum of volleyball players of different positions' anthropometric variable Arm Length is presented in Table I.

Table I - Descriptive Statistics Showing Mean and Standard Deviation, Minimum and Maximum Scores on Arm Length

	Volleyball Players of Different positions				
	Attackers	Setters	Blockers	Leberos	Universals
Mean	78.65	73.35	76.15	75.75	73.45
Std Dev	3.60	5.68	2.68	4.35	5.70
Minimum	73.00	61.00	70.00	69.00	63.00
Maximum	87.00	83.00	82.00	84.00	83.00

The results on the status of anthropometric variable on Arm Length among volleyball players of different positions presented in Table I proved that obtained mean for attackers was 78.65 with standard deviation of ± 3.60 . The minimum score was 73.00 and the maximum score was 87.00. The anthropometric status of settlers as presented in Table I mean was 73.35 with standard deviation ± 5.68 . The minimum score was 61.00 and maximum score was 83.00. Blockers' anthropometric status on variable Arm Length is shown in Table VIII. The results proved that obtained mean was 76.15 with standard deviation ± 2.68 . The minimum score was 70.00 and the maximum score was 82.00. The status analysis on anthropometric variable Arm Length among liberos proved the obtained mean was 75.75 with standard deviation ± 4.35 . The minimum score was 69.00 and the maximum was 84.00. Universals' anthropometric status on variable Arm Length shows that the obtained mean value of 73.45 with standard deviation ± 5.70 . The minimum score was 63.00 and the maximum was 83.00. The obtained mean values among volleyball players of different positions on anthropometric variable Arm Length is presented through bar diagram for better understanding of the results.

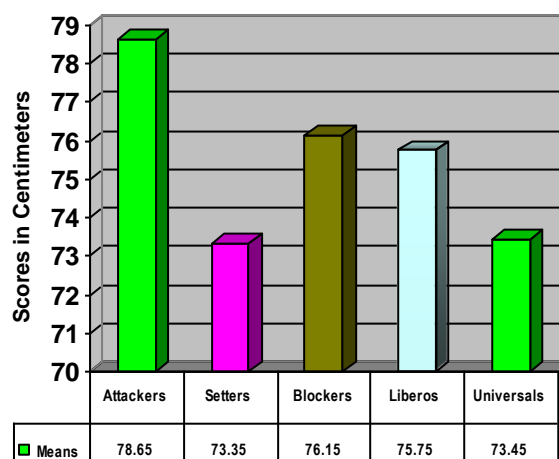


Figure I - Bar Diagram Showing Mean Values of Volleyball Players of Different Positions on Arm Length

Since significant differences were obtained the data were further subjected to post hoc analysis using Scheffe's confidence interval and the results are presented in Table II.

Table 2. Multiple Comparison of Paired Means of different categories of Volleyball players on Arm Length

Attackers	Setters	Blockers	Liberos	Universals	MEAN DIFF	C.I
78.65	73.35				5.30*	4.73
78.65		76.15			2.50	4.73
78.65			75.75		2.90	4.73
78.65				73.45	5.20*	4.73
	73.35	76.15			-2.80	4.73
	73.35		75.75		-2.40	4.73
	73.35			73.45	-0.10	4.73
		76.15	75.75		0.40	4.73
		76.15		73.45	2.70	4.73
			75.75	73.45	2.30	4.73

* Significant at 0.05 level.

The results presented in Table II showed that the paired mean comparisons of the following were significant as the obtained mean differences were greater than the required confidence interval value of 4.73

Attackers Vs Setters (MD: 5.30)

Attackers Vs Universals (MD: 5.20)

The following paired mean comparisons were not significant as the obtained mean differences were less than the obtained confidence interval value of 4.73.

Attackers Vs Blockers (MD: 2.50)

Attackers Vs Liberos (MD: 2.90)

Setters Vs Blockers (MD: -2.80)

Setters Vs Liberos (MD: -2.40)

Setters Vs Universals (MD: -0.10)

Blockers Vs Liberos (MD: 0.40)

Blockers Vs Universals (MD: 2.70)

Liberos Vs Universals (MD: 2.30)

5.2. RESULTS ON UPPER BODY STRENGTH:

Analysis of Descriptive Statistics: Descriptive statistics mean, standard deviation, minimum and maximum of volleyball players of different positions' anthropometric variable Upper Body Strength is presented in Table III.

Table 3. Descriptive Statistics Showing Mean And Standard Deviation, Minimum And Maximum Scores On Upper Body Strength

	Volleyball Players of Different positions				
	Attackers	Setters	Blockers	Liberos	Universals
Mean	26.35	32.40	27.60	30.50	32.50
Std Dev	5.74	2.95	5.15	3.58	3.03
Minimum	20.00	28.00	20.00	21.00	28.00
Maximum	35.00	39.00	35.00	35.00	39.00

The results on the status of anthropometric variable on Upper Body Strength among volleyball players of different positions presented in Table III proved that obtained mean for attackers was 26.35 with standard deviation of ± 5.74 . The minimum score was 20.00 and the maximum score was 35.00. The anthropometric status of settlers as presented in Table 3 mean was 32.40 with standard deviation ± 2.95 . The minimum score was 28.00 and maximum score was 39.00. Blockers' anthropometric status on variable Upper Body Strength is shown in Table 3. The results proved that obtained mean was 27.60 with standard deviation ± 5.15 . The

minimum score was 20.00 and the maximum score was 35.00. The status analysis on anthropometric variable Upper Body Strength among liberos proved the obtained mean was 30.50 with standard deviation ± 3.58 . The minimum score was 21.00 and the maximum was 35.00. Universals' anthropometric status on variable Upper Body Strength shows that the obtained mean value of 32.50 with standard deviation ± 3.03 . The minimum score was 28.00 and the maximum was 39.00. The obtained mean values among volleyball players of different positions on anthropometric variable Upper Body Strength is presented through bar diagram for better understanding of the results.

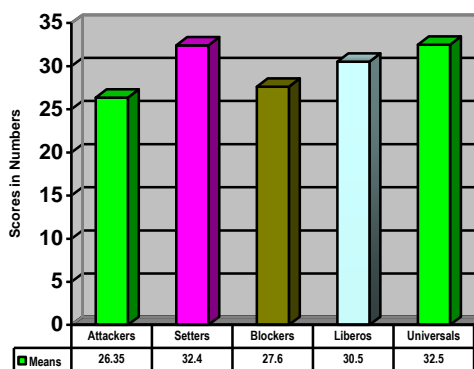


Figure 2. Bar Diagram Showing Mean Values of Volleyball Players of Different Positions on Upper Body Strength

Since significant differences were obtained the data were further subjected to post hoc analysis using Scheffe's confidence interval and the results are presented in Table IV.

Table 4. Multiple Comparison of Paired Means of different categories of Volleyball players on Upper Body Strength

Attackers	Setters	Blockers	Liberos	Universals	MEAN DIFF	C.I
26.35	32.40				-6.05*	4.41
26.35		27.60			-1.25	4.41
26.35			30.50		-4.15	4.41
26.35				32.50	-6.15	4.41
	32.40	27.60			4.80*	4.41
	32.40		30.50		1.90	4.41
	32.40			32.50	-0.10	4.41
		27.60	30.50		-2.90	4.41
		27.60		32.50	-4.90*	4.41
			30.50	32.50	-2.00	4.41

* Significant at 0.05 level.

The results presented in Table IV showed that the paired mean comparisons of the following were significant as the obtained mean differences were greater than the required confidence interval value of 4.41

Attackers Vs Setters (MD: -6.05) - Attackers Vs Universals (MD: -6.15)

Setters Vs Blockers (MD: 4.80) - Blockers Vs Universals (MD: -4.90)

The following paired mean comparisons were not significant as the obtained mean differences were less than the obtained confidence interval value of 4.41.

Attackers Vs Blockers (MD: -1.25) Attackers Vs Liberos (MD: -4.15)

Setters Vs Liberos (MD : 1.90) Setters Vs Universals (MD : -0.10)

Blockers Vs Leberos (MD: -2.90) Leberos Vs Universals (MD:-2.00)

Level of Significance: The subjects were compared among volleyball players of different positions, namely, attackers, setters, blockers, liberos and universals on selected anthropometric and physical fitness variables of volleyball players. The analysis of variance (ANOVA) was used to find out the significant difference if any, among the groups on selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

FINDINGS: Based on the results and discussion made in the previous chapter, it was found that selected anthropometric profiles, height, weight, arm length, leg length differed among volleyball players of different positions. Likewise, selected physical fitness variables, speed, agility and upper body strength were differed

among volleyball players of different positions. However there was no significant difference on leg strength of the volleyball players.

6. CONCLUSIONS: Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that there existed differences on anthropometric variable such as arm length among volleyball players of different positions and there was significant difference between attackers and setters; and attackers and universals. The arm length of attackers was found to be lengthy followed by blockers and players of other positions. However, there was an insignificant difference between blockers and players of other positions. .
- Based on the comparisons on physical fitness profile such as, upper body strength among volleyball players of different positions, it was concluded that universals possessed more upper body weight followed by setters. And it was found that there were significant differences between universals and attackers; setters and attackers; setters and blockers; and blockers and universals and blockers. There were insignificant differences on remaining paired mean comparisons among volleyball players of different positions.

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**EFFECT OF SELECTED YOGIC EXERCISES ON SOCCER
PLAYING ABILITY**

¹Sarangthem Thoithoi Singh, ²Dr. Ksh. Birbal Singh

¹Research Scholar, ²Associate Professor

**Department of Physical Education, Health Education and Sports
D.M College of Science, Imphal, Manipur**

Abstract:

The purpose of the study was to investigate the effect of selected yogic exercises on soccer playing ability. In this study, the subjects for data collection were drawn from the Tiddim Road Athletic Union Football Club, Imphal, Manipur. The subjects were selected randomly from the group of scorer players attending regular yoga practitioner at the Tiddim Road Athletic Union Football Club, Imphal, Manipur. The age of the subjects ranged between 18-24 years. The researcher had selected the following variable for the present study: independent variables such as selected yogic exercises. The yogic exercises include asanas and pranayama the data were collected from before and after (6) six weeks i.e. 42 days of yoga training programme. The participants were tested on the soccer playing ability with the data was analysed by applying a paired t- test statistical technique. The level of significance was set at 0.05. The finding of the present study has significant effect on selected yogic exercises on soccer playing ability.

Key Words: Yoga, Asanas, Pranayama, Soccer.

1. INTRODUCTION:

Games and sports have been part of human society since time immemorial. They are part and parcel of human life. They are needed in every person's life irrespective of age and sex. Much of young children are learning comes from participating in games and sports and this same participation enables adults to lead happier, healthier and more productive lives. Sports are an integral part of the society has an important and valuable effect on many spheres of social life. Similarly the whole social pattern of a society may be reflected in its sports. Sports, unlike the other activities, are not an end product. It is undertake essentially for its own sake. If we want to know why people play, the answer is that they primarily play for fun, enjoyment or satisfaction. The sport is a carrier, which encourages coaching for various games and sports along with rules and regulations governed by them and also it prepares the trainees to take active part in competitive sports. It grows out of man's struggle for survival in a hostile world. The term exercise is often applied to asana but asana should never be confused with an exercise. The work exercise gives us an idea of quick and force movement of the body or its parts and repeated action which usually lead to an exertion, tension and fatigue. Asanas on the other hand are practice slowly and steady which bring about physical and mental relaxation. Yogic exercise are becoming more popular now-a-day in the area of games and sports and also in the curriculum of Indian schools, colleges, and universities and in each and every communities of our societies. Yoga is the ancient science of India is a conscious process for gaining mastery over the mind and thereby grows faster from the animal level to become normal human beings and reach height of greatness. Super human levels and ultimately attain divinity or perfection itself. This consciousness of gaining mastery helps us to manifest the innate potentialities dormant in all of us and blossom into men with the fivefold personality development. Yoga is an exercise which gently tone and shape the body, improve posture, flexibility and contribute to feeling of well-being. It helps to keep the blood vessel elastic, reduce high blood pressure in some cases. Yoga exercise gently press on the body glands and organs, resulting in positive effects for the digestive, endocrine and reproductive systems. Yogic exercise are becoming more popular now-a-day in the area of games and sports and also in the curriculum of India schools, colleges, and universities and every communities of our societies. Yoga is the ancient science of India is a conscious process for gaining mastery over the mind and thereby grows faster from the animal level

to become normal human beings and reach height of greatness. Super human levels and ultimately attain divinity or perfection itself.

1.1 Statement of the Problem: The statement of problem was “Effect of Selected Yogic Exercises on Soccer Playing Ability”.

1.2 Purpose of the study: The purpose of the study was effect of selected yogic exercises on soccer playing ability.

1.3 Hypothesis of the Study: It was hypothesized that there might be significant effect of selected yogic exercises on soccer playing ability.

2. METHODOLOGY

2.1 Selection of subject: The study under investigation was intended to identify the factors influencing the playing ability of soccer players from selected variables through the experimental procedure of 6 (six) weeks i.e. 42 days of yogic training programme. To achieve the purpose of the study, the researcher had been selected a twenty (20) male soccer players from the *Tiddim Road Athletic Union Football Club*, Imphal, Manipur was selected randomly as the subject for this study. The age of the subjects ranged between 18-24 years. Their minimum status of participation was State League Competitions and its equivalent. All the subjects were belonging to different social-economic conditions.

2.2 Selection of Test: McDonald Soccer Skill Test was administered to determine skill ability of Soccer players.

2.3 Selection of Variables: Independent variables of this research study were used the selected yogic exercises study and training was administration based on weekly training programme for yogic exercise as given below:

Table 1. Weekly Training Programme for Yogic Exercises

DAYS	SL No.	TIME	REPI TATION	YOGIC EXERCISES
Monday	1	10 min	-	WARMING UP
		25 min	-	ASANAS Padmasana, Vajrasana, Paschimottasana, Vakrasana, Sarvangasana, Halasana, Dhanurasana, Matsyasana, Shalabhasana, Bhujangasana, Trikonasana, Shantiasana
		15 min	-	PRANAYAMA Nadi Sudhi, Nadi Sothana, Ujjayi, Bharamari, Siitali
		10 min	-	Meditation-mantra/object/ Breathing
Tuesday	2	10 min	-	WARMING UP
		25 min	-	ASANAS Padmasana, Vajrasana, Paschimottasana, Vakrasana, Sarvangasana, Halasana, Dhanurasana, Matsyasana, Shalabhasana, Bhujangasana, Trikonasana, Shantiasana
		15 min	-	PRANAYAMA Nadi Sudhi, Nadi Sothana, Ujjayi, Bharamari, Siitali
		10 min	-	Meditation-mantra/object/ Breathing
Wednes day	3	10 min	-	WARMING UP
		25 min	-	ASANAS Padmasana, Vajrasana, Paschimottasana, Vakrasana, Sarvangasana, Halasana, Dhanurasana, Matsyasana, Shalabhasana, Bhujangasana, Trikonasana, Shantiasana
		15 min	-	PRANAYAMA Nadi Sudhi, Nadi Sothana, Ujjayi, Bharamari, Siitali
		10 min	-	Meditation-mantra/object/ Breathing
Thursda	4	10 min	-	WARMING UP

y		25 min	-	ASANAS Padmasana, Vajrasana, Paschimottasana, Vakrasana, Sarvangasana, Halasana, Dhanurasana, Matsyasana, Shalabhasana, Bhujangasana, Trikonasana, Shantiasana
		15 min	-	PRANAYAMA Nadi Sudhi, Nadi Sothana, Ujjayi, Bharamari, Siitali
		10 min	-	Meditation-mantra/object/ Breathing
Friday	5	10 min	-	WARMING UP
		25 min	-	ASANAS Padmasana, Vajrasana, Paschimottasana, Vakrasana, Sarvangasana, Halasana, Dhanurasana, Matsyasana, Shalabhasana, Bhujangasana, Trikonasana, Shantiasana
		15 min	-	PRANAYAMA Nadi Sudhi, Nadi Sothana, Ujjayi, Bharamari, Siitali
		10 min	-	Meditation-mantra/object/ Breathing
Saturday	6	Rest	Rest	Rest
Sunday	7	Rest	Rest	Rest

2.4 Criterion Measure: McDonald Soccer Skill Test- Soccer Skill Test was selected to test the Skill Ability of Soccer Players.

The criterion measures chosen for testing the hypothesis in this study have been numerical scores, which is obtained from the test.

1. To determine the ability of soccer players, McDonald Soccer Skill Test was administered.
2. Soccer Skill Test for measuring control kicking skill of soccer players was recorded in maximum number of kicks in 30 seconds by keeping the ball in his control while using any type of kick and ball control method.

2.5 Statistical analysis: The data obtained were analyzed for the statistical significance using a paired t-test by using Statistical Package for the Social Science (SPSS) Version 20 and $p < 0.05$ was considered the level of significance. Mean difference between the pre-test and post-test in relation to effect of selected yogic exercises on soccer playing ability.

3. RESULT AND DISCUSSION:

The descriptive analysis of pre-test and post-test of experimental group for Control Kicking Skill Test is presented in Table No.2

TABLE 2. PRE-TEST AND POST-TEST MEANS OF CONTROL KICKING SKILL TEST FOR EXPERIMENTAL GROUP

Pre-test and Post-test of Control Kicking Skill Test for experimental group	N	Mean	Σ	SE _M	df	t-value
Pair Pre-test of Control Kicking Skill Test for Experimental Group	20	76.25	8.74	1.95	19	7.42*
Pair Post-test of Control Kicking Skill Test for Experimental Group	20	86.85	4.56	1.02		

*Significant at .05 level

$$t_{.05}(19) = 1.73$$

From the finding of the above table, the mean (M) and standard deviation (SD) of the Control Kicking Skill Test for pre-test and post-test of experimental group were 76.25 ± 8.74 and 86.85 ± 4.56 respectively (N=20). In addition, the standard errors of pre-test and post-test were also found 1.95 and 1.02 respectively. Hence there was found significance difference as the value obtained was 7.42*, whereas the tabulated value was 1.73 at 0.05 level of significance. The graphical representation of pre-test and post-test mean comparison for control kicking skill test of experimental group is shown at figure-1

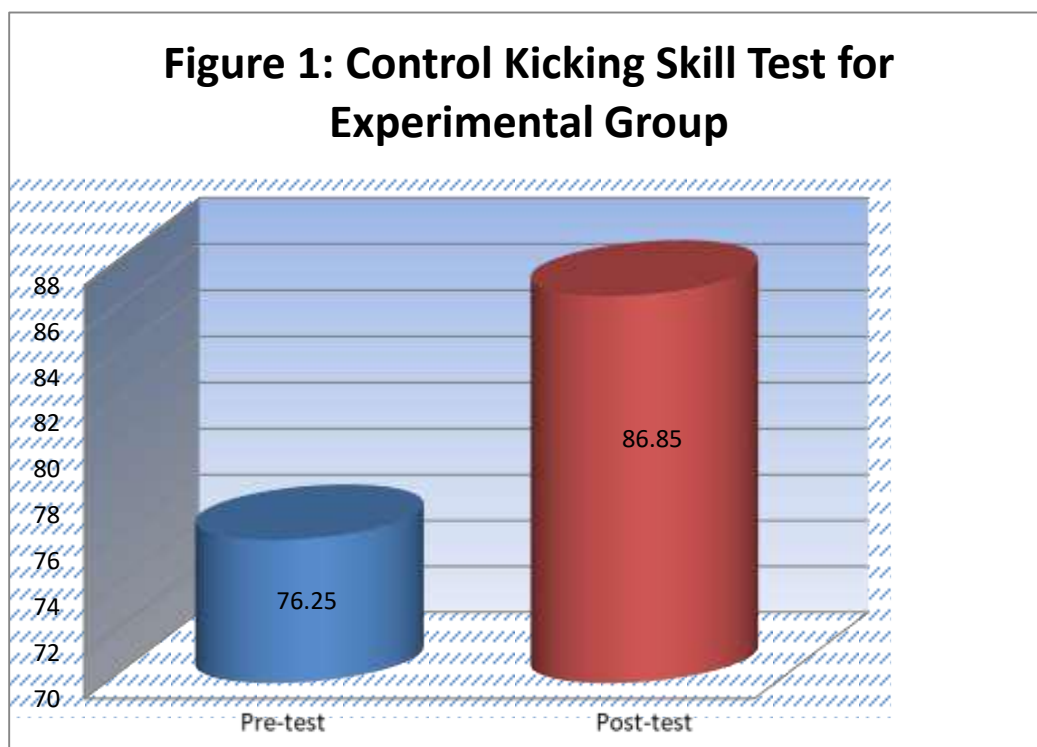


Figure 1. Pre-test and Post-test Mean Comparison of Control Kicking skill Test

TABLE 3. PRE-TEST AND POST-TEST MEANS OF CONTROL KICKING SKILL TEST FOR CONTROL GROUP

Pre-test and Post-test of Control Kicking Skill Test for Control Group	N	Mean	Σ	SE _M	df	t-value
Pair Pre-test of Control Kicking Skill Test for Control Group	20	78.35	8.65	1.93	19	.570
Pair Post-test of Control Kicking Skill Test for Control Group	20	79.45	9.51	2.12		

*Significant at .05 level

$t_{.05}(19) = 1.73$

From the finding of the above table, the mean (M) and standard deviation (SD) of the Control Kicking Skill Test for pre-test and post-test of control group were 78.35 ± 8.65 and 79.45 ± 9.51 respectively (N=20). In addition, the standard errors of pre-test and post-test were also found 1.93 and 2.12 respectively.

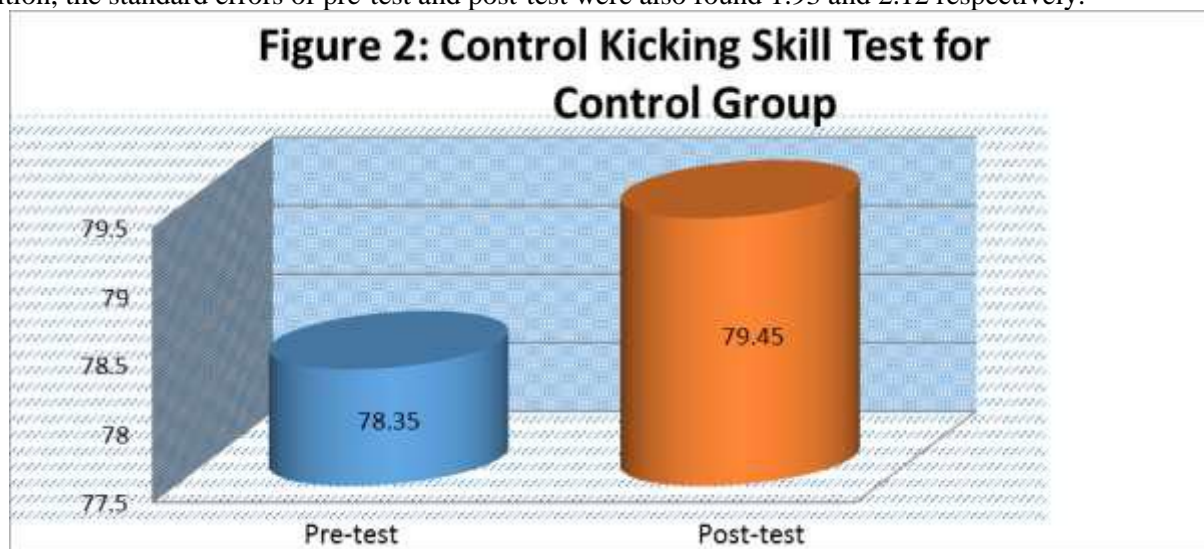


Figure 2. Pre-test and Post-test Mean Comparison of Control Kicking skill Test

Hence there was found no significance difference as the value obtained was .570, whereas the tabulated value was 1.73 at 0.05 level of significance. The graphical representation of pre-test and post-test mean comparison for control kicking skill test of control group is shown at figure-2

4. DISCUSSION OF FINDINGS:

There was a significant improvement of soccer playing ability on performance of selected subjects of the experimental group might be due to nature of training for 6 (six) weeks and a quick physical adaptation, which required for the development of the selected weekly training programme. This was also assumed that the researcher had a strict control on the implementation of training programme as per the stipulated training schedule. Moreover, it might be consider that the (6) six weeks yogic training programme is quite appropriate for improvement of soccer playing ability at all.

5. CONCLUSION;

It was concluded that there was a significant difference in pre-test and post-test in experimental group whereas there was no significance difference in pre-test and post-test in control group.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

**EDUCATIONAL PSYCHOLOGY: ENHANCING THE
PERFORMANCE OF TEACHING AND LEARNING**

DR. ARCHANA M. FALKE

DIRECTOR, DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS

YESHWANT MAHAVIDYALAY SELOO DIST. WARDHA

Email - Archanafalke75@gmail.com

Abstract:

Educational psychology is the part of brain research worried about the logical investigation of human learning. The investigation of learning forms, from both intellectual and conduct points of view, permits analysts to comprehend singular contrasts in insight, psychological turn of events, influence, inspiration, self-guideline, and self-idea, just as their job in learning. The field of educational psychology science depends vigorously on quantitative techniques, including testing and estimation, to upgrade instructive exercises identified with instructional plan, homeroom the executives, and evaluation, which serve to encourage learning forms in different instructive settings over the life expectancy.

1. INTRODUCTION:

Educational psychology contrasts from the other sociologies — human sciences, financial matters, political theory, and social science — in that brain science looks to clarify the psychological procedures and conduct of people. While science and neuroscience study the organic or neural procedures and how they identify with the psychological impacts they emotionally produce, brain research is fundamentally worried about the communication of mental procedures and conduct on a foundational level. The subfield of neuropsychology contemplates the real neural procedures while natural brain research considers the organic bases of conduct and mental states. Brain science is a scholastic and applied field including the investigation of conduct, psyche and thought and the subliminal neurological bases of conduct. Brain research likewise alludes to the use of such information to different circles of human movement, including issues of people's day by day lives and the treatment of psychological sickness. It is to a great extent worried about people, in spite of the fact that the conduct and mental procedures of creatures can likewise be a piece of brain science research, either as a subject in its own right (for example creature comprehension and ethology), or to some degree all the more dubiously, as a method of increasing a knowledge into human brain research by methods for examination (counting relative brain science). Brain research is regularly characterized as the study of conduct and mental procedures. Educational psychology can to a limited extent be comprehended through its relationship with different controls. It is educated fundamentally by brain science, bearing a relationship to that discipline undifferentiated from the connection among medication and science. It is additionally educated by neuroscience. Educational psychology science thusly illuminates a wide range regarding specialties inside instructive examinations, including instructional structure, instructive innovation, educational program advancement, hierarchical learning, custom curriculum, study hall the executives, and understudy inspiration. Educational psychology research the two attracts from and adds to intellectual science and the learning sciences. In colleges, branches of educational psychology research are generally housed inside resources of training, conceivably representing the absence of portrayal of educational psychology science content in starting brain science textbooks. The field of educational psychology science includes the investigation of memory, reasonable procedures, and individual contrasts (by means of psychological brain research) in conceptualizing new methodologies for learning forms in people. Educational psychology science has been tons of operant molding, functionalism, structuralism, constructivism, humanistic brain research, Gestalt brain science, and data preparing

2. Educational Psychology:

The present instructive framework is profoundly mind boggling. There is no single learning approach that works for everybody. That is the reason therapists working in the field of instruction are centered around recognizing and contemplating learning techniques to more readily see how individuals assimilate and hold new data. Instructive therapists apply speculations of human advancement to comprehend singular learning and advise the instructional procedure. While cooperation with educators and understudies in school settings is a significant piece of their work, it isn't the main aspect of the activity. Learning is a long lasting undertaking. Individuals don't just learn at school, they learn at work, in social circumstances and in any event, doing basic assignments like family unit tasks or getting things done. Therapists working in this subfield inspect how individuals learn in an assortment of settings to recognize approaches and procedures to make learning increasingly viable.

3. Educational psychology as a Positive Science:

Educational psychology is a positive science, yet not a standardizing (prescriptive) science. Positive science considers the realities of human conduct as they 'are' instead of as they 'should be'. It is regulating science, for example, morals or rationale which says "how one ought to carry on." But brain research as a positive science consistently contemplates the real practices of the people as they truly happen in various circumstances. As it were, brain research never says how one individual ought to carry on, rather it is constantly keen on how one truly carries on in down to earth life circumstances. Such practices might be positive or negative, alluring or not, still, at that point brain science needs to consider them in their characteristic settings.

4. Significance of educational psychology science:

Learning and learning forms are mind boggling forms, where the instructor needs persistent and nonstop improvement of their instructive aptitudes and instructing strategies to suit general and explicit instructive objectives, to accomplish these objectives and to guarantee that the instructive procedure is effective in performing them. The educational psychology science profits by the encounters of clinicians and their encounters in the field of training and training, so as to create one of a kind hypotheses of learning and techniques, and to introduce the fundamental standards and laws for the use of these speculations, and show the significance and job of educational psychology research through the arrangement of trial of mental estimation and instructive and instructive, and considering singular contrasts between the understudy gatherings

4.1. Student

Instructive Psychology examines different variables which have impacts upon understudies, which may incorporate home condition, social groupings, peer gatherings, his/her enthusiastic notions, and mental cleanliness and so on. Different techniques are utilized so as to get the ideal information about the student so as to think about him/her mindset and conduct and its indications.

4.2. The Learning Process:

Here instructive brain research examines that how data and information be moved and what sorts of techniques ought to be utilized for that reason.

4.3. Learning Situation:

Instructive Psychology examines the elements which are situational in nature that how condition like of homeroom be overseen and how control be kept up. Other than it, it considers different Audio Video Aids and its job in encouraging the showing learning process.

4.4. Educational plan Development:

Instructive brain science helps educational program engineers that what sort of educational program ought to be made and what sorts of substance be given to instructors to move to the people to come.

4.5. Assessment Techniques:

Instructive brain science helps instructors that what sorts of assessment strategies ought to be utilized to test the student that to what in particular expand data and idea have been moved.

4.6. Significance of Educational Psychology for Teachers

Educator resembles a rationalist who manages his understudy. He is mindful to know about development and advancement of the understudies. It is instructive brain science which empowers the educator to utilize different procedures. The significance of instructive brain science and educators has the accompanying focuses:

- Educational Psychology encourages instructor to realize that how learning happens.
- It empowers an educator that how learning procedure ought to be started, how to inspire, how to retain or learn.

- It encourages instructors to control the understudies right way so as to canalized understudy's capacities right way.
- It educates an instructor, about the idea of the students and his possibilities.
- It encourages an instructor to build up an understudy character on the grounds that the entire instructive procedure is for understudy's character advancement.
- It causes an educator to modify his philosophies of figuring out how to the nature/request of the student.
- It empowers an instructor to know the issues of individual contrasts and treat each understudy on his/her legitimacy.
- It helps an instructor that how to take care of the learning issues of an understudy.
- It helps an educator that how to assess an understudies that whether the motivation behind instructing and learning has been accomplished.

5. CONCLUSION:

Instructive Psychology Promotes Teaching and Learning. Clinicians working in the field of instruction concentrate how individuals learn and hold information. They apply mental science to improve the learning procedure and advance instructive accomplishment for all understudies. An educator goes about as a logician and a manual for the understudies. He should know the development and advancement of the kid and his necessities at various levels. Instructive brain research causes the educator to contemplate the capacity, interests, knowledge, needs and embrace various methods of educating for successful correspondence. The utility of instructive brain science for the educators has been stressed in both hypothesis and practices of educating and learning.

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DEVELOPMENT OF RULES AND REGULATIONS IN ARTISTIC GYMNASTICS IN INDIA

¹Naveen Kumar Sharma, ²Dr. Dalwinder Singh

¹Ph.D. Research Scholar, ²Professor,

^{1,2}Department of Physical Education, Panjab University, Chandigarh.

Abstract:

The purpose of study is to highlight the development of rules and regulations in artistic Gymnastics in India. Data / information were derived from primary and secondary sources. The information was analysed qualitatively which was facilitated with internal and external criticism. It was observed that Panjab University was the first university who had started competition in gymnastics since 1896. In 1924, Panjab University established permanent committee called Panjab University Sports Tournament Committee (PUSTC) and framed some rules to conduct the competition in gymnastics. The first actual rules and regulations of gymnastics under the name “Code of Points” was formulated by International Gymnastics Federation (FIG) in the year 1949. This was followed by Gymnastics Federation of India (GFI). In the beginning, GFI adopted only rules of men section later then GFI organised women championship also and followed rules of International Gymnastics Federation (FIG) in women section too.

Key Words: Rules, Regulations, Artistic Gymnastics

1. INTRODUCTION:

Gymnastics is a sport of the future, which, nonetheless, enjoys a long heritage and preserves an ancient tradition of demonstrating exactly what a person is capable of. Gymnastics involves the performance of exercises, on or with an apparatus, or a partner, requiring physical strength, flexibility, coordination, power, agility, grace, balance and control. Gymnastics is one of the oldest Olympic sports and one of the world's most popular sports. Moreover, it is one of the most inclusive sports where male or female, young or old, able-bodied or disabled can take part. Gymnastics has a vital role in the development of mankind. Egyptian aristocracy was entertained by acrobats about seven thousand years ago. The Chinese were engaged in gymnastic exercises as early as 2000 B.C. The term “Gymnastics” is derived from the Greek word “Gymnos” which means naked art. In ancient Greece, male athletes performed exercise without clothing in school of gymnastics and it was called the Palestra. The activities included wrestling, running, jumping, throwing, weight lifting, boxing and swimming all were classified as gymnastics. (Hackensmith, 1966). Johann Bernhard Basedow had opened the first school to give a gymnastic program to all people. Christian Carl Andre recognized as the founder of modern gymnastics. He was first to introduce free hand exercise to the pupil in indoor hall. Johann Friedrich Gut Muts (1759-1839) was considered as the real founder of modern physical education and the grandfather of German gymnastics. Prominent families had urged Gut Muts as the tutors to instruct their children in gymnastics (Van et al., 1959). In the nineteenth century, Friedrich Ludwig Jahn (1778-1852) followed the footsteps of Guts Muths predecessor. He was known as the father of German gymnastics. Jahn helped the German to get liberated from the clutches of French rulers. He introduced some apparatus horizontal bar, balancing beam, vertical rope, ladder, pole vault to train the boys and young men. Later he introduced more apparatus like vaulting bucks, crude parallel bars. After war of liberation for Prussia in 17 March, 1813, he published the book, “Die Deutsch Turnkunst” (German Gymnastics). This book became the turner's guide throughout Germany (Hackensmith, 1966). Gymnastics came to India through British regiments. The Indian military establishment always had a close relationship to the British army since the East India Company. Gymnastics training in the Indian armies began soon after the establishment of the gymnastics staff in Britain. This training was transferred to India through several means, the exchange of ideas between officer serving in British and Indian regiments. The transfer of gymnastics staff-trained regimental instructors in India with their units (Warden, 1937).

After the establishment of the Panjab University in the year 1882 at Lahore, Gymnastics was introduced as part of the Panjab University sports tournament in the year 1896. A challenge trophy was presented by the Nawab Muhammad Bahawal Khan Abbasi of Bahawalpur (princely state) and this trophy was continuously won by the Government College of Lahore, from 1896 to 1905. This championship was played under the rules which were prevailing at that time. Since 1924 S.D. College, Lahore continuously won this trophy till the partition of India. (Kapur, 1964). To promote, encourage and popularize competitive gymnastics in India, Gymnastics Federation of India (GFI) organised Senior, Junior and Sub-junior artistic gymnastics championships. In the year 1952, GFI organised first national championship for men section only in artistic gymnastics. Women national championship included in the year 1962. Thereafter, national championship conducted for junior boys and girls in the session 1965-66 with senior group at Bombay. First time Sub-Junior Boys & Girls National Championship was organised in 1986 at Karnal. Gymnastics is one of the most attractive and popular Olympic sports. This game is being played in India for the last many decades. Therefore, keeping in view the popularity of the game, it becomes necessary to trace out the development of rules and regulations of artistic gymnastics in India.

2. METHODOLOGY:

A survey type of study was designed to collect the required information and material.

Collection of Data

Material / information for this investigation were derived from primary and secondary sources.

Primary Sources

- Official Records: - To get first-hand information the investigator visited various offices, N.I.S Patiala, Indian Olympic Association, Gymnastics Federation of India to get the annual reports.
- Published Material: - Published material, Government reports, magazines and souvenirs will be studied and valuable information will be collected.

Secondary Sources

The material / information will also be collected from secondary sources which are as follows: -

- Newspapers
- Sports Magazines
- Books
- Internet Sources
- Survey

3. ANALYSIS AND INTERPRETATION OF DATA:

The rules and regulations of gymnastics were not clearly mentioned in India before independence. It was observed that only Panjab University was the first university which had started competition in gymnastics. Gymnastics was introduced as part of the Panjab University sports tournament in the year 1896. University established permanent committee called Panjab University Sports Tournament Committee (PUSTC) in 1924 that framed rules and regulations for the smooth functioning and conducting of its competitions. In a revised rule book of **Panjab University Sports Tournament Committee (PUSTC) -1936** gymnastics rules were as under:

- The Gymnastics competition shall be held about the 10th of January each year. Entries must reach the secretary at least three days before the date fixed for the competition.
- The competition shall consist of one set exercise and one voluntary on the Horizontal Bar, One set exercise and one voluntary on the Parallel Bars, and one voluntary on the Vaulting Horse.
- Two Judges shall be appointed by the Executive Committee, and they shall award marks to each competitor for each exercise performed by him.
- Each college shall be allowed to send in competitors up to the number of four.
- The Bahawalpur-Government College Cup, presented by His Highness the Nawab of Bahawalpur, and after having become the property of the Government College, re-presented by that college, shall be the Gymnastic Challenge Cup of the Competitions, and shall be held, until the result of the next competition is declared, by the college scoring the highest aggregate number of marks.

The first judging regulations in gymnastics appeared in year 1949 which were formulated by International Gymnastics Federation (FIG) and this was followed by Gymnastics Federation of India (GFI). In the beginning, GFI adopted only rules of men section later then GFI organised women championship also and followed rules of International Gymnastics Federation (FIG) in women section too. GFI printed compulsory

gymnastics exercises figures in men section, which was exhibited in Rome Olympic Games (1960) distributed to their affiliated units (Figure) and directed to follow the figures. And instructed to be displayed in all the national games and championships of India till any revised figure is sent by the Olympic authorities. Major rules were as under:

- The men's competition was comprised of 12 exercises, composed of one compulsory exercise and one voluntary exercise on the following apparatus: - Horizontal fixed Bar, Parallel Bars, Rings, Pommel Horse, Long Horse (Vault) Free-Standing Exercise.
- The Women Competition was comprised of 8 exercises, performed individually, namely one compulsory and one voluntary freestanding exercise (accompanied by music) as well as on the three-following apparatus: - Parallel Bars at different heights, Balancing on beam, Long Horse (Vault).
- The compulsory exercises were evaluated from 0 to 10 points.
- The competition was classified into three section: - Team Competition, Individual Competition and Individual apparatus Competition.
- In team competition classification was decided by adding the 5 best scores obtained in each of the 12 exercises of the competition in men section 8 exercises in women section.
- In Individual Competition 12 exercises in men and 8 exercises in women classification was decided by adding the scores obtained in all individual exercises.
- In the Individual apparatus competition – classification of the finalist competitions was decided by adding the aggregate scores obtained in the compulsory exercise and voluntary exercise plus the score obtained in the final exercise of the 6 apparatus in men and 4 apparatus in women section.
- In team competition a maximum of 6 gymnasts and a minimum of 5 per team.
- The evaluation of voluntary exercises on the basis of three factors: Difficulty, Combination and Execution.
- In difficulty section exercises were divided in three parts A, B and C.
- The organization of judges was so formed that for each apparatus four judges were under the supervision of a superior judge.
- The final score calculated from the average of the two middle scores.

The technical committee of International Gymnastics Federation (FIG) created concrete guidelines for the evaluation of performance. These regulations were constantly supplemented and improved before every important competition of the FIG and before the Olympic Games. The four-year development cycle for judges began at the first intercontinental course of judges in 1964 in Zurich. In 1976 edition of International Gymnastics Federation (FIG) *code of points*, the new distribution of points divided into three categories: Difficulty, Combination and Execution with 3.4, 1.6 and 4.4 points equalling a base score of 9.4 thus leaving 0.2 points each for Risk, Originality and virtuosity. This system would be in all three competitions thus alleviating any form of mitigation. The presentation and definition of vaults has been considerably simplified and the base score of 9.8 points, 0.2 points for virtuosity even in compulsory program. For the progress of gymnastics and increase the number of qualified judges of gymnastics in India, Gymnastics Federation of India (GFI) organised first international judging course in the year 1981 and Vth Cycle International judging course organised in 1982 and 8 Judges qualified and got International FIG Brevet. In FIG, *code of point* of 1985-1988 major changes were occur in difficulty score which was decreased its value. The value given 3.00 for combination 2.50 and for execution 4.00 point and the base score evaluated from 9.50 bonus points was 0.50. In the exercise skill D part was introduced. In 1989 an edition FIG *code of points*, the distribution of points was changed for Difficulty 4.0, Combination 1.0, and Execution 4. 4. Base score remained the same 9.4 and bonus points for ROV (Risk, Originality and Virtuosity) 0.60 in evaluation of optional exercises. Ten elements were required in each apparatus except vaulting horse.

In an edition of 1997 FIG *Code of Points*, compulsory exercises were eliminated. The compulsory exercises that were developed and choreographed by the FIG Technical Committee. They were performed on the first day of the team competition. Every single elite gymnast in every FIG member nation performed the same exercises. The dance and tumbling skills of compulsory routines were commonly less difficult than those of the optional exercises. The optional exercises were the gymnasts' personal routines, developed with their coaches to adhere to the requirements of the Code of Points they performed in the team finals, the all-around and the event finals. Now new change was there and increased the level difficulty of exercises. E-part of exercises was introduced. An exercise would repeat only two times. And the base score was decreased from 9.4 to 9.0. A team consists of 6 gymnasts 5 would compete and 4 gymnasts scores would be counted in final score. The score was determined by subtracting any deduction for poor form, execution, steps, falls or other infractions from the start value (SV). A major change in FIG, *Code of Points* (2001) edition was that level of difficulty of exercises was increased. A new class of skill in table of element was Super-E added and its value

was 0.6. Gymnast earned bonus points by performing difficult elements alone or in combination. Now routine with all required elements was automatically given a base score of 8.8 in 2001. It was up-to the gymnast to increase the start value (SV) to 10.0 by performing difficult skills and combinations of different skill level. In 2005, FIG *Code of Points*, the entire gymnastics scoring system were completely overhauled. The change stemmed from the judging controversy at 2004 Olympics in Athens, which brought the reliability and objectivity of the scoring system into question. The main point of arguments was that Execution of skill had been sacrificed for difficulty level of skill in artistic gymnastics. Many gymnastics insiders, coaches, officials and gymnasts have protested the new Code, with Olympic gold medallists. Many opponents of the new scoring system felt that this new scoring system, in essence, choose the winners before the competition ever begins. The abolishment of 10 points system and now evaluation of exercise routine was done on 20 points. According to FIG *Code of Points* (2009), two panels of judges (D-Panel and E-panel) score every single routine, evaluating different aspects of the performance. The D-score and E-score were added together for the gymnast's final mark. The exercises were divided into A to G category and the value of exercises was from 0.1 to 0.7 points respectively. The D-score or Difficulty score evaluates the content of the exercise on three norms: The Difficulty Value (DV), Composition Requirements (CR) and Connection Value (CV).

- The Difficulty value (DV) of the eight highest value elements of the routine, including the dismount, are added together.
- Composition Requirements (CR) - Gymnasts must demonstrate skills from four required Element Groups on each apparatus. A gymnast may use skills to fulfill the DV and the CR simultaneously. For each CR presented, 0.5 points are awarded. A maximum score of 2.00 points may be earned here. From XII cycle (2009-2012) code of points, there were five different Element Groups for each apparatus, allowing a gymnast to earn up to 2.5 points.

Connection Value (CV)-Additional points are given for connections of two or more elements of specific value, with 0.1 or 0.2 points apiece up to a maximum of 0.4 in total for connection

Although the A judging panel does not take deductions, they may decide not to give gymnasts DV or CR points for elements that are performed with falls. A gymnast may also lose CV credit if there are extra steps or pauses between skills that are meant to be connected. The D-score is open-ended; in theory a gymnast could obtain unlimited points by performing connected skills although this was made harder in the 2009-2012 revision of the code when the number of elements that counted towards the D-score was lowered.

The Execution score or E-score evaluates the performance gymnast by the execution and artistry of the routine. The base score is 10.0. Judges do not add to this, but rather, take away points for errors in form, artistry, execution, technique and routine composition. There is a 1.0 mark deduction for falling off an apparatus. Errors are judged to be small, medium or large and respective 0.1, 0.3 and 0.5 deductions are applied.

This judging system applies to all Women Artistic Gymnastics (WAG) and Men Artistic Gymnastics (MAG) events except Table Vault. Vault scoring is somewhat different:

- Every vault has been assigned a specific points value in the *Code of Points*. The D-score is simply this value. Every gymnast performing the same vault will receive the same number of points.
- The E-score is the most important score on this apparatus. The judges on this panel work from the 10.0 base mark and deduct for form, technique, execution and landing.

4. CONCLUSION:

The rules and regulations of gymnastics were not clearly mentioned in India before independence. It was observed that Panjab University framed some rules to conduct the competition in gymnastics. In 1924 University established permanent committee called Panjab University Sports Tournament Committee (PUSTC) that framed rules and regulations for the smooth functioning and conduct of its competitions. The first actual rules and regulation of gymnastics under the name "Code of Points" was formulated by International Gymnastics Federation (FIG) in the year 1949. This was followed by Gymnastics Federation of India. In the beginning, GFI adopted only rules of men section and then later on GFI organised women championship also and followed rules of FIG in women section. GFI distributed printed compulsory gymnastics exercises exhibited in Rome Olympic Games to their affiliated units and directed to follow the figures. Judging rules were modified from time to time after every Olympic Games. Level of difficulty of skills increased to make the game or competition more interesting.

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**A COMPARATIVE STUDY OF EFFECTS OF FARTLEK AND
INTERVAL TRAINING ON BOXERS BODY MASS INDEX BMI
(RATIO OF HEIGHT & WEIGHT)**

¹Dr. Pravin Shiledar, ²Mr. Sampat Salunke

¹Head of Dept. Physical Education ²Research Student

¹J B S P M Mahila Mahavidyalaya, Georai Tq. Georai Dist. Beed (MS)

²At. Latur

Email: ²sampatsalunke@gmail.com

1. INTRODUCTION:

By experiment it is proved that the various types of training enhance the physical fitness, and physical fitness improves personality, Body Mass Index BMI is one of the effective personality characteristics. Previous research study shows Body Mass Index BMI (Ratio of Height & Weight) enhances the boxer's performance. Though it is not clear which types of training is most useful for the Boxer's Body Mass Index BMI. Hence researcher done work on a comparative study between the fartlek and interval training with respect to its impact on Boxers Body Mass Index BMI.

1.1. OBJECTIVES OF THE STUDY:

To evaluate effects of fartlek and interval training on Body Mass Index BMI of Boxers having age group 14 to 17 years. To compare effects of fartlek and interval training on Body Mass Index BMI of boxers having age group 14 to 17 years.

2. METHOD:

Researcher randomly selected 14 to 17 years 60 boys boxers having no previous history of fartlek and interval training from Latur city. These boxers are equally divided in three groups, namely fartlek training group, interval training group and controlled group. The selected training was implemented on fartlek and interval groups for six week and the third controlled group without any types of training. Before training all groups gone through pre-test of Body Mass Index BMI (Ratio of Height & Weight). After six week training all groups gone through post test of Body Mass Index BMI (Ratio of Height & Weight). The data was computed and analyzed by ANOVA. Significant level t is fixed to $t \geq 0.05$.

Statistical Analysis of Collected Data :

Table 1. Mean, standard deviation and t-value of body mass index BMI (ratio of height and weight) in the pre-test and post- test of the Fartlek training group.

Sr. No.	Test	Total Students	Mean	Standard Deviation	Mean difference	t-value
1	Pre-test	30	18.09	1.84	0.6383	0.170
2	Post-test	30	17.45	1.71		

Table No.1 shows $t = 0.170$ which is > 0.05 . t is positive and greater than 0.05. Fartlek training improves performance of 14 to 17 years boxers body mass index test. Also it shows there is significant difference between pre-test and post-test after the six week fartlek training. Hence fartlek training significantly improves performance of body mass index amongst 14 to 17 years age group.

Table 2. Mean, standard deviation and t-value of the body mass index BMI (ratio of height and weight) of the pre-test and post-test of the interval training group

Sr. No.	Test	Total Students	Mean	Standard Deviation	Mean difference	t-value
1	Pre-test	30	18.44	2.14	0.8793	0.103
2	Post-test	30	17.56	1.95		

Table No. 2 shows $t = 0.103$ which is < 0.05 . t is positive and greater than 0.05. Interval training improves performance of 14 to 17 years boxers body mass index test. Also it shows there is significant difference between pre-test and post-test after the six week interval training. Hence interval training significantly improves performance of body mass index amongst 14 to 17 years age group.

Table 3. Mean, standard deviation and t-value of this test are the body mass index BMI (ratio of height and weight) of pre-test and post-test students

Sr. No.	Test	Total Students	Mean	Standard Deviation	Mean difference	t-value
1	Pre-test	30	18.4390	2.29	0.0810	0.008
2	Post-test	30	18.3580	2.62		

Table No. 3 Shows $t = 0.008$ which is < 0.05 . t is positive but less than 0.05. There is no significant difference between pre-test and post-test of control group.

3. RESULTS OF THE STUDY:

- T-value of fartlek training group for body mass index is $t = 0.170$ which is > 0.05 . t is positive and greater than 0.05. Fartlek training improves performance of 14 to 17 years boxers body mass index test. Also it shows there is significant difference between pre-test and post-test after the six week fartlek training. Hence fartlek training significantly improves performance of body mass index amongst 14 to 17 years age group.
- T-value of interval training group for body mass index is $t = 0.103$ which is < 0.05 . t is positive and greater than 0.05. Interval training improves performance of 14 to 17 years boxers' body mass index test. Also it shows there is significant difference between pre-test and post-test after the six week interval training. Hence interval training significantly improves performance of body mass index amongst 14 to 17 years age group.
- T-value of control group for body mass index is $t = 0.008$ which is < 0.05 . t is positive but less than 0.05. There is no significant difference between pre-test and post-test of control group.

4. RECOMMENDATION:

Fartlek and interval training are most useful to improve Body Mass Index BMI (Ratio of Height & Weight) test performance amongst 14 to 17 years boy's boxers.

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AN INVESTIGATION ON PHYSIOLOGICAL ATTRIBUTES OF HOCKEY PLAYERS

¹ Laishram Bikram Singh, ² Dr. Sentu Mitra

¹ Research Scholar, ² Assistant Professor,

Department of Physical Education, Visva Bharati, Shantiniketan, India

Email - bikram.laish84@gmail.com

Abstract:

Purpose: The primary aim of the study was to examine the specific physiological feature of hockey players and compare their characteristics according to outfield playing positions.

Methods: For the purpose of the study, 56 male hockey players who have participated in the 8th Senior National Hockey Championship 2018 with age 23.5 ± 4.5 years were categorized as goalkeepers, fullbacks, halfback and forwards. The following physiological variables were measured in all groups: vital capacity, resting heart rate, BMI and VO_2 max. The necessary data on the selected physiological variables was collected through the administration of the standardized and specific test/tools to assess physiological variables among different positional field hockey players. For analysis of data, SPSS (version 23) software was used. One-way ANOVA with 0.05 levels of significance and Post hoc test was applied to find out the significant differences between the group means. **Results:** The results revealed significant difference were found in vital capacity ($F = 26.66$, $P = .000$) and VO_2 max ($F = 7.82$, $P = .000$) of physiological variables among different positional field hockey player but insignificant difference was found in the resting heart rate and body mass index among different positional hockey players.

Key Words: VO_2 max, Vital Capacity, Resting Heart Rate, BMI, Playing Position.

1. INTRODUCTION:

Physiology is the science of functioning of all the organs and systems of an organism. For the physiological system of the body to be fit, they must function well enough to support to specific activity that the individual is performing more over different activity make different demands upon the organism with respect to circulatory, respiratory, metabolic and neurologic process which are specific to the activity. Successful performance in field hockey is influenced by physiological and anthropometric characteristics such as body size and composition, functional parameters. High level of performance in sports and games might be dependent upon the physiological make up and it was recognized that physiological proficiency was needed for the high level performance. Physiological variables may be defined as those variables which are directly linked with various physiological systems such as heart rate, blood pressure, vital capacity, fat percentage, respiratory rate and haemoglobin. Men's hockey develops separately from women's hockey.

Hockey is the most thrilling and spectacular sports in the world. It is a symbol of the ruggedness and skill, dangerous to certain extent but very exciting from start to finish. The essence of this game lies in its artistic skill and aggressiveness. Hockey is played with 11 player's a-side (with a maximum of 5 extra players who can be substituted) on a rectangular, 91.40 meters long side-lines and 55 meters wide back-line. A hockey match is played throughout four quarters of equal duration of 15 minutes with an interval of 2 minutes between quarter 1 and 2 and between quarter 3 and 4 and a half-time interval of 5 minutes between quarter 2 and 3. Hockey is a team sport with certain specific positional play and field positions are very rigid in certain games, but according to the system of play adopted by a particular team may change. In field hockey, players are to bend forward to the ground for the maximum groundwork and to cover a wider range all around during the game. A player may specialize to play in a particular position. It is better if he develops skills necessary for other positions.

2. METHODOLOGY:

2.1. Overview and participants:

A total of fifty six (N = 56) elite hockey players, comprising of Goalkeepers (11), Fullbacks (15), Halfbacks (15) and Forwards (15) male hockey players from different affiliated member unit of Hockey India (HI) during 8th Senior National Hockey Championship 2018, Imphal from 7th - 21st January, 2018. All the players' age ranging between 18 - 28 years were selected as subjects for the study.

2.2. Selection of Variables:

At first the anthropometric measurements – age, height and weight were collected followed by the physiological measurements – resting heart rate, vital capacity, body mass index and maximal oxygen consumption (VO₂ max.) were collected.

Table 1: Selected physiological Variables and Measuring Tools/Test

S.No.	Physiological Variables	Tools/Test	Criterion
1.	Vital Capacity	Spirometer	Litre
2.	Resting Heart Rate	Digital Heart Rate Monitor	Beat. Min ⁻¹
3.	Body Mass Index	Stadiometer, Weighing Machine	Kg/Metre ²
4.	VO ₂ max	Queen College Step Test	ml. kg ⁻¹ . Min ⁻¹

3. STATISTICAL ANALYSIS:

Descriptive statistics were used to determine the characteristics of the players for the entire group as well as for each specific playing positions and are reported as mean and standard deviation of the mean (SD). One Way Analysis of Variance (ANOVA) was employed to compare the averages among Hockey players, playing at different positions (goalkeepers, fullback, halfbacks and forwards). Scheffe's Post Hoc test was applied to find out the significant differences between the group means. Significance was set at level of 0.05 and all the statistical procedures of data analysis were performed by applying the standard formulae on the computer software IBM SPSS (version 23).

4. RESULTS:

Table 2: Descriptive Statistics of Physiological Variables among Positional Hockey Players

Variables	Groups	N	Mean	Std. Deviation	Std. Error
Vital Capacity	Goalkeeper	11	3.62	0.22	.066
	Fullback	15	3.58	0.22	.058
	Halfback	15	4.40	0.36	.093
	Forward	15	4.23	0.36	.093
	Total	56	3.98	0.47	.063
Resting Heart Rate	Goalkeeper	11	62.00	4.82	1.45
	Fullback	15	61.87	4.82	1.25
	Halfback	15	58.93	3.33	0.86
	Forward	15	61.67	4.44	1.15
	Total	56	61.05	4.43	0.59
VO ₂ Max.	Goalkeeper	11	57.42	4.47	1.35
	Fullback	15	56.45	5.34	1.38
	Halfback	15	63.95	4.45	1.15
	Forward	15	62.16	5.18	1.34
	Total	56	60.18	5.75	0.77
BMI	Goalkeeper	11	22.81	0.53	.160
	Fullback	15	22.77	0.96	.246
	Halfback	15	22.09	1.17	.302
	Forward	15	22.29	1.13	.291
	Total	56	22.47	1.03	.137

Table 2 shows the descriptive statistics of vital capacity of goalkeeper is $3.62 \pm .22$; fullback is $3.58 \pm .22$, halfback $4.40 \pm .36$, forward $4.23 \pm .36$ and overall 3.98 ± 0.47 respectively.

- Whereas descriptive statistics of resting heart rate of goalkeeper is 62.00 ± 4.82 ; fullback is 61.87 ± 4.82 , halfback 58.93 ± 3.33 , forward 61.67 ± 4.44 and overall 61.05 ± 4.43 .

- Whereas descriptive statistics of VO₂ Max of goalkeeper is 57.42 ± 4.47 ; fullback is 56.45 ± 5.34 , halfback 63.95 ± 4.45 , forward 62.16 ± 5.18 and overall 60.18 ± 5.75 .
- Whereas descriptive statistics of body mass index (BMI) of goalkeeper is 22.81 ± 0.53 ; fullback is 22.77 ± 0.96 , halfback 22.09 ± 1.17 , forward 22.29 ± 1.03 and overall 22.47 ± 1.03 respectively.

Table 3: Analysis of Variance of Motor Fitness among different Positional Hockey Players

Variable		Sum of Squares	df	Mean Square	F-Value	Sig.
Vital Capacity	Between Groups	7.40	3	2.47	26.66	.000*
	Within Groups	4.80	52	0.09		
	Total	12.21	55			
Resting Heart Rate	Between Groups	92.84	3	30.95	1.63	.194
	Within Groups	988.00	52	19.00		
	Total	1080.84	55			
VO ₂ Max.	Between Groups	564.99	3	188.33	7.82	.000*
	Within Groups	1251.63	52	24.07		
	Total	1816.62	55			
BMI	Between Groups	5.277	3	1.76	1.74	1.70
	Within Groups	52.565	52	1.01		
	Total	57.842	55			

0.05 level of significance (**3, 52 = 2.79**)

Table 3 represents that significant differences were found in vital capacity ($F = 26.66$, $P = .000$) and VO₂ max ($F = 7.82$, $P = .000$) of physiological variables among different Positional Field Hockey Player as calculated value were found greater than the tabulated F value ($F = 2.79$) at .05 level of significance, while insignificant differences was found in the resting heart rate and body mass index (BMI) among different position of hockey player as calculated F value was found lower than the tabulated F value at .05 level of significance. Since the significant difference was found in two physiological variables namely vital capacity and VO₂ Max, further Scheffe's Post Hoc test was applied and shown in table 4 & 5.

Table 4: Post Hoc Test for Vital Capacity among Positional Hockey Players

Variable	(I) GRP	(J) GRP	Mean Difference (I-J)	Std. Error	Sig.
Vital Capacity	Goalkeeper	Fullback	.038	.121	.992
		Halfback	.782*	.121	.000
		Forward	.609*	.121	.000
	Fullback	Halfback	.820*	.111	.000
		Forward	.647*	.111	.000
	Halfback	Forward	.173	.111	.493

Table 4 shows that significant differences were found in vital capacity among goalkeepers & halfbacks, goalkeepers & forwards, fullback & halfback and fullback & forward hockey players at 0.05 level of significance. However, no significant differences were found between goalkeepers & fullback hockey players and halfback & forward hockey players. A means comparison of vital capacity of goalkeepers, fullbacks, halfbacks and forwards of men hockey is presented graphically in figure I.

Table 5: Post Hoc Test for VO₂ max among Positional Hockey Players

Variable	(I) GRP	(J) GRP	Mean Difference (I-J)	Std. Error	Sig.
VO ₂ max	Goalkeeper	Fullback	.967	1.947	.969
		Halfback	6.535*	1.947	.016
		Forward	4.745	1.947	.129
	Fullback	Halfback	7.502*	1.791	.002
		Forward	5.712*	1.791	.025
	Halfback	Forward	1.790	1.791	.802

Table 5 reveals that significant differences were found in VO_2 max among goalkeepers & halfback, fullback & halfback and fullback & forwards hockey players at 0.05 level of significance; whereas there is no significant difference was found between goalkeepers & fullback, goalkeepers & forwards and halfback & forwards. A means comparison of VO_2 max of goalkeepers, fullbacks, halfbacks and forwards of men hockey is presented graphically in figure 2.

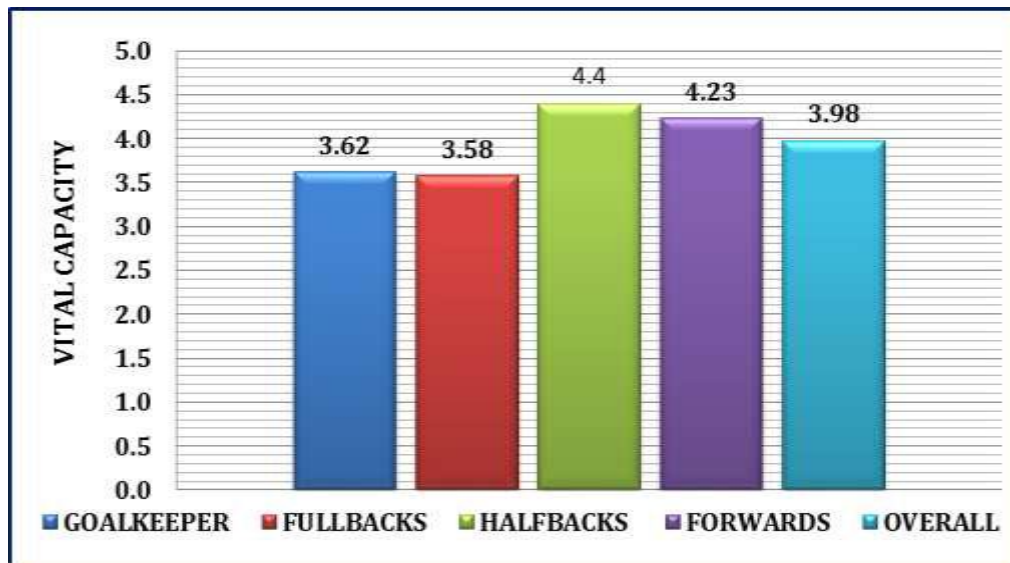


Figure 1: Mean Comparison of Vital Capacity among Positional Hockey Player

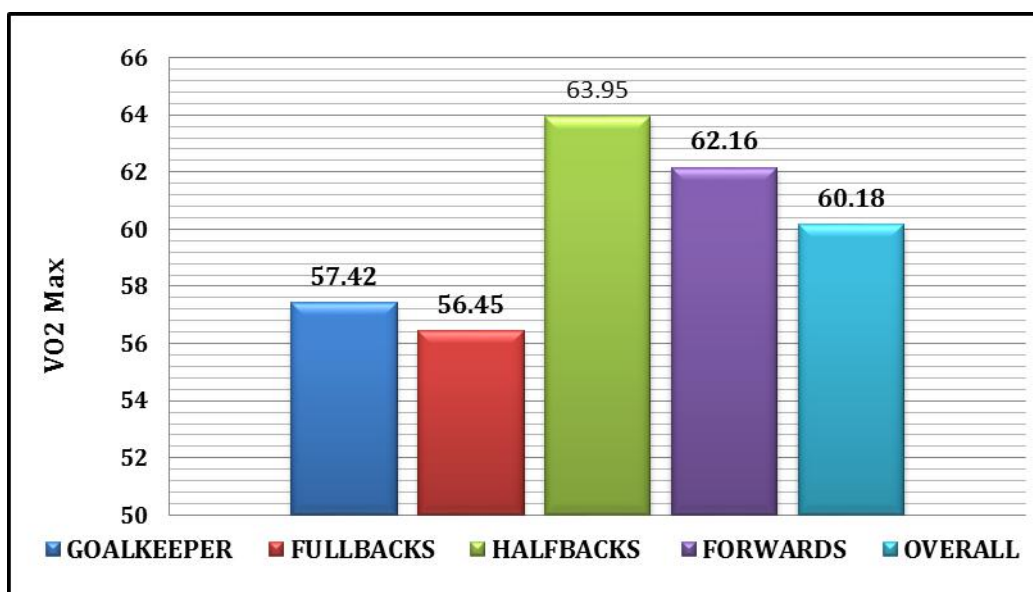


Figure 2: Mean Comparison of VO_2 max among Positional Hockey Player

5. DISCUSSION OF FINDING:

Field hockey is a team sport with heavy demands on the player's physiological abilities. In India, 'Hockey' is said to be 'National Game' among the populations. It is a very fast game majorly played on artificial turf in present time which made the game even faster. The game of hockey requires a very high level of physical, physiological and psychological fitness as well as some inborn potentialities. The purpose of the study was the comparison of physiological variables among positional hockey players. As far as Physiological variables are concerned, the results of the present study clearly indicate that significant differences were shown in vital capacity and VO_2 max among hockey player. In the present study, the vital capacity of halfback players were found to be significantly higher than the other positional players and have significant difference between Goalkeeper and Halfback, Goalkeeper and Forward, Fullback and Halfback and Fullback and Forward player. The halfback is considered to be the engine room of the team. Halfback players come in all shapes and sizes. The halfbacks are the back bone of the team. They are the "play maker" and responsible to rotate and

maintained the rhythm of the game as per the team requirements. In field hockey, halfback players always required high demands of fitness in respect to other field position. In the contrary with the present study, **Neogi, A. et al. (2018)** observed that insignificant difference between the hockey players playing in different positions but found similar values of vital capacity. The result of the study has higher mean value of vital capacity of inter-university players study conducted by **PS Chahar, (2013)**. The significant difference in vital capacity may be attributed to the fact that graded exercise resulted in the higher capacity of lungs. The higher capacity may be due to the increase of the lungs volume and increase in the ventilatory efficiency and higher strength of respiratory muscles after training. It indicated the vitality of the lungs of an individual. **Eastwood et al. (2001)** also reported that the trained marathon runners had significantly higher lung functions such as total lung capacity. However there is lack of critical literature related to the study of vital capacity on positional hockey player could not compare with the present study. The finding of the present study revealed that, there were statistically significant differences among different positional players in Maximal oxygen consumption (VO_2 max). In the present study attacking players demonstrated better in VO_2 max, than the defensive players. Among the positional player, halfback possess significantly higher VO_2 max followed by forwards, goalkeeper and fullbacks. In the finding of previous studies, **Bandyopadhyay, A, et al. (2019)** and **Ready and van der Merwe (1986)** found that forwards players exhibits higher level of Maximal oxygen consumption (VO_2 max) than other positional players. Literature addressing aerobic capacity of hockey players according playing position is extremely limited. Although the finding of the present study, average VO_2 max value 60.18 ml kg⁻¹ min⁻¹ were lower in compared with West Germany national players and English players (63.5 ml kg⁻¹ min⁻¹ and 62.2 ml kg⁻¹ min⁻¹ respectively; **Reilly and Borrie, 1992**), however, was higher than that of Spanish national hockey players (59.7 ml kg⁻¹ min⁻¹; **Reilly and Borrie, 1992**) and Canadian elite field hockey players (59.2 ml kg⁻¹ min⁻¹; **Montgomery, 2006**).

VO_2 max (maximal oxygen uptake) is the highest amount of oxygen that the body can utilize during exhaustive exercise whilst breathing air at sea level. VO_2 max is considered the gold standard and is the most important measure of aerobic ability. Smaros described players with higher VO_2 max perform the highest number of sprints and are involved more often in decisive plays during a game than those with lower values. So, in effect, players with higher VO_2 max can run at a higher intensity and greater distances before depletion of glycogen necessitates a reduction in intensity. Heart rate is the number of times the heart beats per minute. A slow resting heart rate is characteristic of the trained individual. Fox and Mathew (1982) express the view that training has an impact on heart rate even at rest. The result of the study revealed that, there was statistically insignificant difference among different positional players in resting heart rate. Among the positional player halfback possess slowest resting heart rate with 58.93 bpm and fastest with goalkeeper of 62.00 bpm. The results of the present study showed insignificant similarity in normal resting heart rate suggesting that there may be parallel demands in each playing position standard. The overall average resting heart rate is 60.05 bpm and is ideal resting heart rate for a hockey player. In the new concept of total hockey, all the players were treated and received same protocol of training means and methods which influence the overall developments in physiological efficiency of the hockey players. The finding of the study revealed that there is insignificant difference in BMI among positional hockey players and among different position goalkeeper was highest value and halfback were lowest. The results of the present study has corroborated with the previous study of **Sharma et al. (2012)**, goalkeepers showed a higher BMI contrast to other positions as fullback, halfback and forwards. Results of the study **Karkare A (2011)** who investigated to compare body composition (body mass index) of hockey players with respect to their playing position gave the similar conclusion that hockey players playing in different position found to differ on some body composition.

6. CONCLUSION:

Study concluded that significant differences were found in vital capacity ($F= 26.66$, $P=.000$) among goalkeepers & halfbacks, goalkeepers & forwards, fullback & halfback and fullback & forward hockey players at 0.05 level of significance. It is also found significant difference in VO_2 max ($F = 7.82$, $P = .000$) between goalkeepers & halfback, fullback & halfback and fullback & forwards hockey players at 0.05 level of significance. While insignificant differences were found in resting heart rate and body mass index among different position of hockey player.

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PERSONALITY DEVELOPMENT THROUGH YOGIC PRACTICES

DR. CHANDRAJIT B. JADHAV

DIRECTOR, DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS

Terna Arts Sci. and Comm. College Omanabad

Email - chandrajitjadhav@gmail.com

Abstract:

Personality is an important theme. In modern psychology, several approaches have been adopted to understand it. However, from Yogic point of view, personality can be understood from a different perspective. A holistic personality comprises physical, emotional, intellectual, social and spiritual dimensions. This article tries to discuss personality from Yogic point of view.

1. INTRODUCTION:

Development of personality is an important issue. Personality starts developing since birth, but it assumes great importance during adolescence, when reorganization of personality takes place. Personality is a very common term which is used in our day-to-day life. It tells us what type of person one is. We know that each person generally behaves consistently in most of the situations. The examples of this consistency can be seen in a person who remains friendly or a person who is generally kind or helpful in most situations. Such a consistent pattern of behaviour is termed as personality. It can be called as the sum total of behaviour that includes attitudes, emotions, thoughts, habits and traits. This pattern of behaviour is characteristic to an individual. There are various dimensions of personality. These dimensions are related to physical, emotional, intellectual, social and spiritual aspects of our behaviour. For a holistic personality development, yoga plays an important role.

For a holistic personality, the following dimensions are required to be integrated

- Physical dimension
- Intellectual/cognitive dimension
- Emotional dimension
- Social dimension
- Spiritual dimension

2. YOGA AND PHYSICAL DIMENSION OF PERSONALITY: Physical dimension is related to our body. It means that all organs and systems of our body should be properly developed and function. It implies a healthy body without any disease. Yogic practices like asana, pranayama, and bandha play a beneficial role in physical development of children. There is a series of asanas and pranayamas which help to improve the functioning of the body.

3. YOGA AND EMOTIONAL DIMENSION OF PERSONALITY: Yogic practices are effective for development of emotional dimension related to our feelings, attitudes and emotions. There are two kinds of emotions: positive and negative. our feelings and attitudes may be positive and negative. For emotional development, positive feelings, attitudes and emotions should be developed and negative ones should be controlled, as the negative attitudes and emotions work as a mental block for the development of personality. Yoga plays a critical role in development of positive emotions. It brings emotional stability. It helps to control negative emotions. Yogic practices such as yama, niyama, asana, pranayama, pratyahara and meditation help in emotional management. For example, the principle of non-violence will protect us from negative emotions and develop positive feelings of love and kindness. Similarly, other principles of yama and niyama will help to develop positive emotions and attitudes in our personal and social life and therefore help in the management of emotions.

4. YOGA AND INTELLECTUAL DIMENSION OF PERSONALITY: Intellectual development is related to the development of our mental abilities and processes such as critical thinking, memory, perception, decision making, imagination, creativity, etc. Development of this dimension is very important as it enables us to learn new things and acquire knowledge and skills. Yogic practices such as asana, pranayama, dharana, dhyana (meditation) help to develop concentration, memory and thereby help in intellectual development.

5. YOGA AND SOCIAL DIMENSION OF PERSONALITY: Primary socialization, probably the most important aspect of the personality development takes place during infancy, usually within the family. By responding to the approval and disapproval of parents and grandparents and imitating their examples, the child learns the language and many of the basic behavior patterns of her/his society. The process of socialization is not limited to childhood, but continues throughout life and teach the growing child and adolescent about the norms and rules of the society in which she/he lives. Some key elements of this process include respect for others, listening carefully to other persons, being interested in them, and voicing your thoughts and feelings politely, honestly and clearly so that you can be easily heard and understood. Personality Development through yoga, Principles of yama include these key elements and are very important as these helps us in the betterment of our relationships with our friends, parents, teachers and others.

6. YOGA AND SPIRITUAL DIMENSION OF PERSONALITY: This dimension is related to the development of values. It is also concerned with self-actualization which is related to recognizing one's potential and developing them to the maximum. Proper development of this dimension helps the person to realise one's true identity. For spiritual development, yama, niyama, pratyahara and dhyana (meditation) are helpful. Yama and niyama help to develop our moral values while pranayama, and meditation help us to realize our true self. Introspection is a very effective for the development of 'self. Yogic Practices for Personality Development which contribute to the development of various dimensions of personality.

7. SURYA NAMASKAR: Surya Namaskara (Sun Salutation) Surya means 'sun' and namaskara means 'salutation' or 'bowing down'. It consist of 12 postures. The regular practice of surya namaskara helps improve blood circulation throughout the body and maintain health, and thereby helps one to remain disease-free. Postures practised during surya namaskara act as a good link between warm-ups and asanas. Surya namaskara should preferably be done at the time of sunrise. It can be done any time on an empty stomach. However, morning is considered to be the best time for it. Adolescents should start doing surya namaskara daily to have healthy body and mind.

8. BENEFITS: It stimulates and balances all the systems of the body, including the endocrine, circulatory, respiratory and digestive systems. Its influence on the pineal gland and the hypothalamus helps to prevent pineal degeneration and calcification. This balances the transition period between childhood and adolescence in growing children.

9. ASTANGA YOGA: Ashtanga Yoga, which literally means "eight-limbed yoga", is a system outlined in the yoga sutras attributed to the ancient sage Patanjali. The yoga sutras are general guidelines for spiritual growth through right living, and are universal.

Benefits: Relieves stress, improves coordination, and helps with weight loss. Good for fit people looking to maintain strength and stamina, and those who want to get in touch with their spiritual side.

10. MEDITATION: Meditation is a practice involving control of the mental functions. It starts from the initial withdrawal of the senses from external objects and culminates with a complete oblivion of the external environment. Meditation is a great tranquilizer of the mind. One should prepare oneself for Meditation adequately through Asana and Pranayama, in the hierarchy of Yogic practices. Meditation occupies a higher position. The basic principle of Meditation is to develop internal awareness.

Benefits:

- It lowers oxygen consumption.
- It decreases respiratory rate.
- It increases blood flow and slows the heart rate.
- Increases exercise tolerance in heart patients.
- Leads to a deeper level of relaxation.
- Good for people with high blood pressure as it brings the B.P. to normal.
- Reduces anxiety attacks by lowering the levels of blood lactate.

- Decreases muscle tension (any pain due to tension) and headaches.
- Builds self-confidence.
- It increases serotonin production which influences mood and behaviour .Low levels of serotonin are associated with depression, obesity, insomnia and headaches
- Also reduces activity of viruses and emotional distress.

11. GIFTS OF YOGA:

Yoga provides a strong foundation for the development of basic life-skills in every human being thereby leading to a total personality development of individuals . No matter what style of yoga you choose to do, you will likely see improvements in following areas of your health.

- Increases your flexibility
- Increase in muscle tone and strength
- Improves your circulatory and cardio health
- Helps you sleep better
- Increases your energy levels
- Improves athletic performance
- Reduces injuries
- Detoxifies your organs
- Improves your posture
- Improves anxiety and depression
- Helps with chronic pain
- Releases endorphins that improve your mood
- Aids in weight loss
- Enhances productivity
- Slows the aging process
- Releases fear
- Increases the life energy
- Balances body and mind
- Increases positive attitude

12. CONCLUSION: Regular practice of yoga promotes strength, endurance, flexibility and facilitates characteristics of friendliness, compassion, and greater self-control, while cultivating a sense of calmness and well- being. Sustained practice also leads to important outcomes such as changes in life perspective, self-awareness and an improved sense of energy to live life fully and with genuine enjoyment.

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**THE MECHANISM OF MASSAGE AND ITS EFFECTS ON INJURY
PREVENTION, PHYSIOLOGY AND PSYCHOLOGY CONDITION
OF SPORTSMAN: A REVIEW STUDY**

¹Miss.Divya Sri P, ²Mr.Madhu G R

¹Master degree student, ²Assistant Professor,

^{1,2}Alva's college of Physical education, Moodbidri, Karnataka, 574227

Abstract:

This review study on sports massage deals with the performance enhancement of athletes, advantage of sports massage, descriptions of massage techniques and injuries and preventions. Sports massage is a popular treatment choice of athletes, coaches and physical therapists. Despite the purpose it is beneficial for avoid injury during the play, and also it helps in increasing range of motion and flexibility, reducing inflammation, reducing pain and relaxing body. And also, its role effecting on athlete's psychological readiness and enhancement of performance. Sports massage incorporates a combination of basic and advanced deep tissue massage techniques, stimulating the circulation of blood and lymph fluids. Sports massage can help maintain the body in generally better condition and prevent loss of mobility, cure damaged muscle tissue and extend the overall life of sporting career. This is achieved through improve tissue elasticity, increased blood flow to the tissues, increasing tissue permeability.

Keywords: Sports massage, performance enhancement, tissue, mobility etc.

1. INTRODUCTION:

Sports massage is the technique of kneading and manipulating soft tissue in order to help prevent sports injuries, treat injuries already incurred and improve performance. Sports massage is an effective way of preparing for events and caring for the athletes after the event. Effects can be psychological as well as physical. Pre-event massage is used to warm and loosen up the muscular system, and sharpen neuromuscular communication ready for action. It is also seen as a vital part of the routine psychological preparation. Massage is a popular adjunct to the warming down exercise routine and can in some cases, where a warm down is not possible, replace this altogether. It has the effect of loosening and releasing muscles and increasing localised vascular and lymphatic activity to speed the removal of by-products of athletic activity, e.g. hydrogen ions (sometimes known as 'lactic acid') and the waste products from increased cell metabolism. Sports Massage after a training session or after an event or a match can help to eliminate subsequent muscle soreness, particularly if administered 2 to 6 hours after the event. Psychologically it acts as a 'closure' to the event and gives the athlete valuable time to reflect. After event you may will feel physically and mentally relaxed. A few review articles on topics associated with sports massage have been published, mostly recent in 1999, with an emphasis on delayed onset of muscle soreness (DOMS). However, a critique of the manual therapy, research methods, and results from the primary research literature is often deficient, which results in potentially misleading conclusions from the data.

2. MASSAGE TECHNIQUES:

Massage therapists integrate a number of massage techniques to accomplish a desired effect in the subject. The techniques which is used for research are commonly referred to as Swedish massage which include various combination of effleurage, petrissage, vibration massage etc. these techniques vary in application regarding depth and speed depending on pre and post event treatment. Stroking which is also known as effleurage is one of the most used techniques in sports massage, strokes are delivered with the hand following the contour of the body and can vary in depth of pressure. Although effleurage and petrissage altered the variability of the blood velocity response, likely due to the compressive effect of massage strokes. More

recently findings by Hinds et al. also report that massage failed to change femoral artery blood flow, although skin blood flow did increase. Light pressure is used at the beginning of a session to prepare the client and soft tissues for deep massage. Percussion also known as tapotement involves light striking movement to the skin with the ulnar portion of the hands in a cupped position. Petrissage which also known as kneading is a technique where by muscle tissue is lifted away from underlying structures, gently kneaded and the released. Petrissage strokes assist in the removal of metabolic waste and improve circulation. Vibration is a pre event technique to stimulate the target muscle groups prior to competition.

3. INJURY PREVENTION:

Injury is one of the greatest concerns to the athlete. The loss of quality training time, inability to compete, and loss of self-worth are among the concerns of athletes experiencing an injury. Proper maintenance of muscle and connective tissues through nutrition, rest and stretching are encouraged in the literature. Preventing injury and tissue healing after injury are important components in the professional longevity. Adequate flexibility and range of motion are generally believed to be beneficial to injury prevention and optimal muscular performance. Soft tissue limitations such as adaptive shortening of muscles and improper body alignment, can result in over compensation by muscles in other regions which associated with injury. Massage therapy may increase range of motion and flexibility by affecting both muscular and connective tissues.

Range of motion at the hip with regard to hamstring tightness has been investigated with opposing results reported. Crosman et al. (1984) found that massage increases hip flexion by over 10 degrees, whereas Wiktorsson- Moller et al. (1983) found that contract- relax stretching exercises, but not massage, increased the range of motion at the hip. Few studies have actually addressed management of soft tissue injury in humans with the use of massage.

4. PSYCHOLOGICAL EFFECT OF MASSAGE:

Posturing by athletes to gain a competitive edge by over competitors in sports such as games and track and field events is commonly observed. Not all aspects rely on strength. In non-athletic populations, massage therapy has been reported to reduce psychological measures including anxiety, tension, stress, and increase mood and quality of life. These factors can be very important to the performance of an athlete pre, during and after the competition. A vigorous massage will have a sympathetic effect, increasing the production of adrenaline and endorphins in the athlete's body and stimulating their mental and physical states. A massage that engenders a parasympathetic response should release tension within the tissues and reduce blood pressure, cause the feel more relaxed and less stressed.

Sports massage can cause either sympathetic or parasympathetic effect on athlete's body systems, depending on how it's applied. Sports massage can stimulate blood flow to damaged muscles and tissues in the back. In case of injury, these muscles and tissues can cease to receive the necessary nutrients and oxygen delivered by blood flow, further exacerbating the injury. With this in mind, the increased blood flow delivered by massage can actually expedite the healing process in addition to revealing the pain. Here are some of the physiological effects of sports massage;

- Reduced production of sympathetic or stress hormones.
- Vasodilation to the blood and the lymphatic vessels, caused by the relaxation of smooth muscles.
- Reduced neutral contraction of muscles due to the relaxation of the skeletal muscles.
- Increase range of motion
- Decrease muscle tension
- Increase flexibility
- Better sleep
- Increase elimination of exercise waste products such as lactic acid
- Increase blood flow
- Pain reduction

5. CONCLUSION:

The tremendous but unscientific demand by professional and amateur athletes for massage and the willingness of national or Olympic organizations to sports massage for athletes suggest a greater effect than palliative care. Despite the fact that massage has been used as a treatment modality for centuries, a poor appreciation for its clinical effectiveness exists. Massage helps to reduce inflammation and increase range of motion and flexibility; this reduces the risk of injury. Many athletes experience injuries due to tense muscles. Therefore, since massage helps to relax the muscles in the body, massage helps prevent the injury. Sports

massage works on a simple principle, to manually increase blood flow to areas where it is needed or where it could be sluggish. Blood delivers oxygen and nutrients to the tissues and remove waste products away from it. This allows the body to heal itself in a safe and non-invasive manner. Sports massage will not only make the athlete healthier, but it may help to extend their running career and achieve maximum from it.

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ANALYTICAL STUDY ON THE EFFECT OF CIRCUIT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES OF HIGH SCHOOL KABADDI AND KHO KHO PLAYERS IN TELANGANA STATE

¹Kishan Ponna, ²Dr. P. Ravi Kumar

¹Research Scholar, ²Professor,

¹Kakatiya University & Physical Education Teacher at ZPSS Kadivendi, Jangoan Dist. T.S, India

²Dept. of Physical Education, NIT Warangal, T.S, India

Abstract: *The aim of sports training is to achieve maximum individual or team efficiency in a selected sports discipline limited by rules. The purpose of the study was to investigate the effect of Circuit training on selected Physical Fitness Variables among Kho Kho and Kabaddi Players of Zilla Praja Parishad boys high school students of Telangana State. Total 90 boys of Kho Kho and Kabaddi players were randomly selected as subjects from Zilla Praja Parishad Boys High School Students of Jangoan, Warangal Urban, Warangal Rural and Suryapet districts of Telangana State and their age ranged between 14 to 16 years. The study was formulated as pre and post-test random group design, in which N=90 boys of Kho Kho and Kabaddi players were divided into three equal groups as group 1 (n = 30, Kho Kho group - KKG), group 2 (n = 30, Kabaddi group - KBG) and group 3 (n = 30, Control group - CG). The experimental groups 1 & 2 underwent 12 weeks of Circuit training protocol and Control group did not went for any specific training. Pre and post test was administrated before and after training period on selected Physical fitness variables for the three groups respectively. All the statistical analysis was carried out with the help of the software package of social science (SPSS 20.0). It was found that with the effect of Circuit training there was a significant difference on selected Physical fitness variables among Kho Kho and Kabaddi groups. It was also found that there was no significant difference found in control group.*

Key Words: Sports training, Physical fitness, Circuit training.

1. INTRODUCTION:

Physical immobility is widely known as a threat factor for illnesses in adulthood. Health-promoting interventions, including enhanced physical activity and exercise programs showed promising results in different life stages. An increase of physical movement is also associated to an increase in physical fitness, and such increased level of fitness has an optimistic effect on health. Physical activity may act by increasing the purposeful ability of the cardiovascular system, increasing nervous plasticity and musculoskeletal effectiveness, which will have extensive helpful effects on the physical condition of individual.

1.1. STATEMENT OF THE PROBLEM:

The purpose of the study was to examine the result of circuit training on flexibility, agility and cardio respiratory endurance variables among kho kho and kabaddi players of zilla praja parishad boys high school students of Telangana State.

1.2. SIGNIFICANCE OF THE STUDY:

The study is significant in the following ways:

- i. To find out whether there was any significant difference with the effect of circuit training in experimental groups.

1.3. DELIMITATIONS:

The study was confined to the following aspects:

- High school boys kabbadi and kho - kho players were chosen as the subjects with in the age group of 14 to 16 years and flexibility, agility and cardio respiratory endurance were delimited to testing variables.
- The training period was limited to 12 weeks (5 days/week).

1.4. HYPOTHESIS:

The formulated hypotheses in the current study are:

- i. It was hypothesized that there would be no significant difference between Control group and experimental groups.

2. METHODOLOGY:

2.1. SELECTION OF SUBJECTS:

The researcher selected 90 kabbadi and kho - kho players randomly from Zilla Praja Parishad boys high schools of warangal urban, warangal rural, suryapet and jangaon districts in Telangana state, age ranged from 14 to 16 years. The selected subjects were divided into three equal groups such as Kabaddi group (KBG), Kho Kho group(KKG) and Control group(CG).

2.2. EXPERIMENTAL DESIGN:

The study was formulated as a true random group design, consisting of a pre-test and post-test. The 90 subjects were randomly assigned to three equal groups of thirty each of Kabaddi and Kho Kho players. The groups were assigned as KBG group, KKG group, and Control group respectively. Pre-test was conducted for all the 90 subjects on selected Physical fitness variables. Circuit training was administrated for 12 weeks and 5 days per week to the KBG and KKG. Pre and Post tests was conducted for all the three groups after twelve weeks training.

2.3. SELECTION OF TESTS:

- a. Flexibility – Bend and Reach (in Cms), b. Agility – Shuttle Run - 4 X 10m (in seconds) c. Cardio Respiratory Endurance – Cooper's 12m Run or Walk (in meters)

4. RESULTS AND ANALYSIS:

4.1. Testing variable: Bend and Reach:

TABLE – 1 COMPUTATION OF 't' VALUE OF BENT and REACH

S.No	GROUP	Mean		S.D		Obtained 't'	Req. 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	22.13	22.57	3.11	3.14	1.86	2.756
2	Kho Kho	22.73	28.80	3.32	3.34	10.40*	
3	Kabaddi	22.20	27.57	2.81	2.82	10.70*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-1 indicates that the pre test mean values of Control group (CG), Kho Kho group (KKG) and Kabaddi group (KBG) were 22.13, 22.73 and 22.20 respectively. Post test mean values of CG, KKG and KBG were 22.57, 28.80 and 27.57 respectively. It was found that there is a significant difference between the pre and post test means of KKG and KBG as the obtained 't' values 10.40 and 10.70 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 1.86 is less than the required 't' value. Hence the effect of circuit training is visible on flexibility among KKG and KBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on flexibility were shown in table- 2.

TABLE – 2 ANALYSIS OF CO-VARIANCE OF BENT and REACH

Test	MEANS			Sum of Square	DF	Mean Square	Obtained F-Ratio	Req.F -Ratio at 0.01
	Control Group	Kho-Kho Group	Kabaddi Group					
Pre test	22.13	22.73	22.20	B: 6.489	2	3.244	0.34	4.86
				W: 830.133	87	9.542		
Post test	22.57	28.80	27.57	B: 653.756	2	326.878	34.19*	
				W: 839.533	87	9.650		
Adjusted post test	22.71	28.55	27.67	B: 591.318	2	295.659	54.08*	
				W: 470.170	86	5.467		

* Significant at 0.01 level

B: Between the group

W: Within the group

Table – 2 indicates that pre, post and adjusted post test mean values of CG, KKG and KBG were 22.13, 22.73, 22.20 and 22.57, 28.80, 27.57 and 22.57, 28.80, 27.57 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.34 is less than the required F ratio value 4.86 at 0.01 level of significance for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is 34.19 for df (2,87) and 54.08 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86). As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of flexibility were shown in table -3.

TABLE - 3 SCHEFFE'S POST HOC TEST FOR BENT and REACH

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
22.71	28.55	-	5.84*	1.78
22.71	-	27.67	4.96*	
-	28.55	27.67	0.88	

* Significant at 0.01 level

Table – 3 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 5.84 and 4.96 are greater than the C.I value 1.78 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 0.88 is less than 1.78 at 0.01 level.

4.2. Testing variable: Agility (Shuttle run):

TABLE - 4 COMPUTATION OF 't' VALUE OF AGILITY

S.No	GROUP	Means		S.D		Obtained 't'	Required 't' (0.01 level)
		Pre	Post	Pre	Post		
1	Control	10.05	10.03	0.58	0.58	0.83	2.756
2	Kho Kho	9.89	9.08	0.72	0.71	9.72*	
3	Kabaddi	10.04	9.23	0.64	0.63	10.94*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-4 indicates that the pre test mean values of Control group (CG), Kho Kho group (KKG) and Kabaddi group (KBG) were 10.05, 9.89 and 10.04 respectively. Post test mean values of CG, KKG and KBG were 10.03, 9.08 and 9.23 respectively. It was found that there is a significant difference between the pre and post test means of KKG and KBG as the obtained 't' values 9.72 and 10.94 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 0.83 is less than the required 't' value. Hence the effect of Circuit training is visible on agility among KKG and KBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on agility were shown in table- 5.

TABLE - 5 ANALYSIS OF CO-VARIANCE OF AGILITY

Test	MEANS			Sum of Square	DF	Mean Square	Obtain ed F-Ratio	Requir ed F-Ratio at 0.01
	Control Group	Kho-Kho Group	Kabaddi Group					
Pre test	10.05	9.89	10.04	B: 0.453	2	0.226	0.54	4.86
				W: 36.363	87	0.418		
Post test	10.03	9.08	9.23	B: 15.504	2	7.752	18.72*	
				W: 36.039	87	0.414		
Adjusted post test	9.98	9.17	9.19	B: 12.770	2	6.385	51.91*	
				W: 10.545	86	0.123		

* Significant at 0.01 level

B: Between the group

W: Within the group

Table – 5 indicates that pre, post and adjusted post test mean values of CG, KKG and KBG were 10.05, 9.89 and 10.04 and 10.03, 9.08 and 9.23 and 9.98, 9.17 and 9.19 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.54 is less than the required F ratio value 4.86 at 0.01 level of significance for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is 18.72 for df (2,87) and 51.91 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86). As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of agility were shown in table -6.

TABLE - 6 SCHEFFE'S POST HOC TEST FOR AGILITY

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
9.98	9.17		0.81*	0.27
9.98		9.18	0.80*	
	9.17	9.18	0.01	

* Significant at 0.01 level

Table – 6 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 0.81 and 0.80 are greater than the C.I value 0.27 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 0.01 is less than 0.27 at 0.01 level.

4.3. Testing variable: Cooper's 12min Run/Walk:

TABLE – 7 COMPUTATION OF 't' VALUE OF COOPER'S 12Min RUN/WALK

S.No	GROUP	Mean		S.D		Obtained 't'	Req. 't'(0.01 level)
		Pre	Post	Pre	Post		
1	Control	2048.33	2049.00	114.80	113.76	0.16	2.756
2	Kho Kho	2069.33	2343.00	101.44	129.54	11.13*	
3	Kabaddi	2045.00	2361.00	121.31	159.90	10.10*	

* Significant at 0.01 level

Degrees of Freedom = 29

Table-7 indicates that the pre test mean values of Control group (CG), Kho Kho group (KKG) and Kabaddi group (KBG) were 2048.33, 2069.33 and 2045.00 respectively. Post test mean values of CG, KKG and KBG were 2049.00, 2343.00 and 2361.00 respectively. It was found that there is a significant difference between the pre and post test means of KKG and KBG as the obtained 't' values 15.20 and 14.77 are greater than the required 't' value 2.756 at 0.01 level of significance for df(29) and there is no significant difference in CG as the obtained 't' value 0.45 is less than the required 't' value. Hence the effect of Circuit training is visible on cardio respiratory endurance among KKG and KBG. As there is a significant difference, Analysis of Co-Variance (ANCOVA) is used to test the data of adjusted mean values of Control group, Handball group and Basketball group on cardio respiratory endurance were shown in table- 8.

TABLE - 7: ANALYSIS OF CO-VARIANCE OF COOPER'S 12Min RUN/WALK

Test	MEANS			Sum of Square	DF	Mean Square	Obtain ed F-Ratio	Required F-Ratio at 0.01
	Contr ol Group	Kho-Kho Group	Kabadd i Group					
Pre test	2048.33	2069.33	2045.00	B: 10442.222	2	5221.111	0.41	4.86
				W: 1107353.333	87	12728.199		

Post test	2049.00	2343.00	2361.00	B: 1381040.000	2	690520.000	37.47*
				W: 1603370.000	87	18429.540	
Adjusted post test	2053.71	2330.91	2268.38	B: 1264405.653	2	632202.827	60.76*
				W: 894860.120	86	10405.350	

* Significant at 0.01 level

B: Between the group

W: Within the group

Table-7 indicates that the pre, post and adjusted post test mean values of CG, KKG and KBG were 2048.33, 2069.33, 2045.00 and 2049.00, 2343.00, 2361.00 and 2053.71, 2330.91, 2268.38 respectively. It was found that there is no significant difference in the pre test mean values between the groups as the obtained F ratio is 0.41 is less than the required F ratio value 4.86 at 0.01 level of significance for the df (2,87) and it was found that there is a significant difference in the post test mean and adjusted post test mean values between the groups as the obtained F ratio is 37.47 for df (2,87) and 60.76 is greater than the required F ratio 4.86 at 0.01 level of significance for the df (2,86). As there is significant difference, scheffe's post hoc test is used for testing the significance between paired adjusted mean values of cardio respiratory endurance were shown in table -9.

TABLE - 8: SCHEFFE'S POST HOC TEST FOR COOPER'S 12Min RUN/WALK

Control Group	Kho-Kho Group	Kabaddi Group	Mean Diff.	C.I at 0.01 level
2053.71	2330.91		277.20*	77.90
2053.71		2268.38	214.67*	
	2330.91	2268.38	62.53	

* Significant at 0.01 level

Table – 9 indicates the difference of adjusted post test means between the CG-KKG and CG-KBG was found significant as the mean difference values 277.20 and 214.67 are greater than the C.I value 77.90 at 0.01 level, it was found that there is insignificant difference between KKG-KBG as the mean difference 62.53 is less than 77.90 at 0.01 level.

5. CONCLUSION:

With the circuit training effect, it was found that there is a significant difference between the control group and kho kho group and also found significant difference between control group and kabaddi group. As the both games depends mainly similar motor abilities. Therefore, there would not be any significant difference among Kho Kho group and Kabaddi group.

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**A COMPARATIVE STUDY ON MENTAL TOUGHNESS AMONG
FEMALE SOCCER PLAYERS OF DIFFERENT AGE GROUP**

¹Singh N. Suhindar, ²Mitra Dr. Sentu

¹PhD Scholar, ²Assistant Professor,

^{1,2}Department of Physical Education, Viswa Bharati Santiniketan

Email- ¹suhindar@gmail.com, ²suhindar@gmail.com

Abstract:

Athletes' success or failure is multifactorial. It depends on the combination of many factors including physical, tactical, technical and psychological factors. The psychological factor is usually the determinant that differentiates a winner and a loser in sports. Mental toughness is having the natural or developed psychological edge that enables to cope better than one's opponents with the many demands (competition, training, and lifestyle) that sport places on the performer. The purpose of the study was to compare mental toughness among female players. A numbers of one hundred twenty (120) National level women soccer players of which forty (40) of each level (age ranging 15-25y.) were selected from different clubs and academic of various places from North Eastern state of India, Mental toughness Questionnaire by Dr. Alan Goldberg (2012) was used to assess various aspects of overall mental toughness for the study. The present study reveals that the overall mental toughness in the Above-19 women soccer players was better than all other adults whereas overall mental toughness was poor in Under-17 group.

Key Words: Multifactorial, resilient, toughness, energization, enthusiastically.

1. INTRODUCTION:

Mental strength is a great factor which Helps in determining the victory or defeat of any competitor. “Mental Toughness” is the ability to communicate with himself or herself-especially when he or she is under pressure. Everyone has some degree of Mental-toughness. We all have a point at which we falter- when a situation begins to negatively affect our performance. This is the first indicator that mental toughness is being challenged. Anyone can train to improve his or her current level of mental toughness. The most common techniques include visualization, relaxation, energization, self-talk and goal setting. Team unity is generally assumed to be one of the foundation blocks upon which effective team performance is built. Team members refer enthusiastically to “feeling of family” the “Mutual affection and respect” and “the effectiveness of the team once it began to get” at some critical point in the reason. An outsider would like to conclude that the team has bonded together in a single minded successful pursuit of the championship. Athletes, coaches, and applied sports psychologists have consistently referred to mental toughness as one of the most important psychological characteristics related to outcomes and success in the elite sport. However, it is probably one of the least understood terms used in applied sport psychology (Jones, Hanton, & Connaughton, 2010).

2. METHODOLOGY:

2.1. Sample of respondents:

To obtain required data, the investigators had selected one hundred twenty (N=120) National level women soccer players purposively and then categorized in to 40 samples in each age category. The age of the subjects was categorized as U-17, U-19 and Above 19. The age ranged between 15 to 35 years old. After having been informed about the objective and procedure of the study, all respondents took part in this study with their own interest.

2.2. Tool:

The tool used in the present study was Mental toughness Questionnaire by Dr. Alan Goldberg to assess various aspects of overall mental toughness such as Reboundability, to deal with the ability to handle Pressure,

to deal with Concentration ability, to deal with level of Confidence and factors that affect confidence and to deal with Motivation of selected players.

2.3. Analysis of Data:

The One way analysis of variance (ANOVA) was applied to know about whether any significance difference is there in overall mental toughness among three different age categories of Women National level soccer players. In the testing of two tailed hypothesis, the level of significance was set at 0.05.

Table 1. Descriptive Statistics of Mental toughness among National level women Soccer players

	No. of Sample	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1.00	40	16.73	3.73	.59	10.00	25.00
2.00	40	17.00	3.56	.56	12.00	27.00
3.00	40	23.00	2.50	.40	14.00	27.00
Total	120	18.91	4.38	.40	10.00	27.00

ariance on Mental toughness among National level women Soccer players having different ages.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1006.02	2.00	503.01	45.98	0.00
Within Groups	1279.98	117.00	10.94		
Total	2285.99	119.00			

Table 3. Post hoc mean comparison on Mental toughness among National level women Soccer players having different ages.

Age group (I)	Mean (I)	Age group (J)	Mean (J)	Mean Difference (I-J)	Std. Error	Sig.
U-17	16.73	U-19	17.00	0.27	0.74	0.71
		A-19	23.00	6.27*	0.74	0.00
U-19	17.00	A-19	23.00	6.00*	0.74	0.00

*. The mean difference was significant at the 0.05 level.

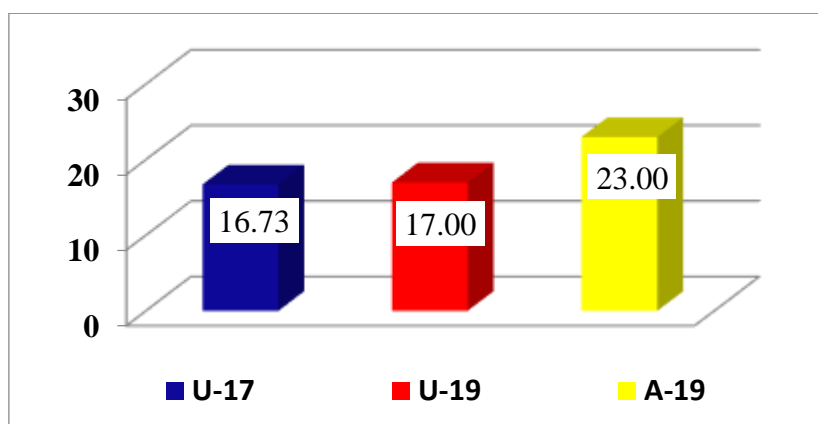


Figure 1. Graphical representation of mental toughness among National level Women Soccer players having different ages.

3. RESULTS:

Table 1 shows the descriptive statistics of the data on mean Mental toughness among National level women Soccer players. Table 2 revealed that the F-value was significant at 5% level as the p value attached with the calculated F-value is 0.00 which was less than 0.05. Hence, the null hypothesis of no difference in the overall Mental toughness among National level women Soccer players was rejected. Therefore, LSD post hoc test was used to compare the means in different pairs. From Table-3 it was seen that amongst all the pair wise comparisons only the difference between overall Mental toughness of the soccer players in Under-17 and Above-19, Under-19 and Above-19 was significant at 5% level because the p-value for those mean differences was less than 0.05. Based on statistical analysis and graphical representation evident from Table 1, Table 3 and Figure 1, it was inferred that the overall mental toughness in the Above-19 women soccer players was better than all other adults whereas overall mental toughness was poor in Under-17 group. The Under-19 players demonstrated the next highest mental toughness profile, scoring higher than Under-17 group.

4. CONCLUSION:

Such results would suggest that the mental toughness profile of Above-19 group would consist of a high sense of self belief and unshakable faith concerning one player's ability to achieve success, a greater believe that a player's life is changeable and to view this an opportunity rather than a threat or challenge in their sporty carrier. The findings of the present research study are similar to those of research study conducted by Marchant D.C. et al. The findings of their study concluded that mental toughness ratings were higher in more senior levels, and that mental toughness generally increased with age. Also, they suggested that mental toughness can be developed through appropriate training programs.

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A COMPARATIVE ANALYSIS OF FLEXIBILITY AND BODY MASS INDEX BETWEEN ATHLETES AND NON-ATHLETES

Keisham Monarita, Research Scholar, Panjab University Chandigarh

Dr. Th. Nandalal Singh, Department of Physical Education, Panjab University, Chandigarh

Dr. L. Santosh Singh, Department of Physical Education and Sports Science, Manipur University

Khumukcham Shivananda Singh

Abstract:

The purpose of the study was to find out the comparative analysis of flexibility and body mass index between athletes and non-athletes. The study has been conducted on 120 students (males and females) which were divided into four groups with 30 students in each group. The subjects were students of Panjab University, Chandigarh. The age of the subjects ranged between 20-25 years. The study was restricted to only two variables which were Flexibility and Body Mass Index. The data was collected through “Sit and Reach Test” for lower back and hamstring flexibility and for Body Mass Index “Height and Weight” was administered. For analysing the data, descriptive statistic for mean and standard deviation was used and to find out significant difference among the group independent ‘t’-test was used with the help of SPSS Software. The level significance chosen was 0.05. After the analysis, it was revealed that there were no significant differences found on flexibility and BMI between male athletes and non-athletes of Panjab University Campus. No significant difference was obtained on BMI between female athletes and non-athletes of Panjab University Campus. Significant difference was obtained on flexibility between female athletes & non-athletes of Panjab University campus. Female athletes of Panjab University Campus were performed significantly better on flexibility than their counterparts.

Key Words: Flexibility, Body Mass Index, Athletes, Non-Athletes

1. INTRODUCTION:

Flexibility, as a component of physical fitness, is the ability of an individual to move the body and its parts with greater range of motion or large amplitude as possible without undue strain to the articulations and muscle attachments. When we speak of flexibility, we inevitably hear of such term as flexion, where the angle of the body and its articulations are increase through movement; hyperextension, where the angle of a joint is extended beyond its normal range; double jointedness, a non-existent condition, but nevertheless a term used when referring to a person with unusual flexibility in certain positions; and finally, muscle boundness, an unfortunate term used to describe cases of inflexibility when an individual happens to have a well develop muscles. Flexibility is a motor ability which is not clearly a conditional or a coordinative ability. It depends partly on energy liberation process and partly on the coordinative process of CNS (Meinel and Schnabel 1987). Flexibility is measured by determining the range of movement possible at a joint. This has given rise to the notion that flexibility is joint specific. But in actual sports movements the range of movements is the product of range of movements possible at more than one joint. For the greater amplitude, therefore, some degree of co-ordination of different joint movements is a necessary prerequisite. In all sport movements, however, a maximum range of movement at all joints is not required. The normal amplitude required is less than the maximum possible. But a higher level of flexibility enables to achieve the require movement amplitude easily without much muscle tension, etc. (Singh, 1991). Body mass index (BMI) is an estimate of body fat based on height and weight. It doesn't measure body fat directly, but instead uses an equation to make an approximation. BMI can help determine whether a person is at an unhealthy or healthy weight. A high BMI can be a sign of too much fat on the body, while a low BMI can be a sign of too little fat on the body. The higher a person's BMI, the greater their chances of developing certain serious conditions, such as heart disease, high blood pressure,

and diabetes. A very low BMI can also cause health problems, including bone loss, decreased immune function and anaemia.

1.1. Objectives of the Study:

The objectives of the study were as follows:

- To find out the flexibility and BMI between male athletes and non-athletes.
- To compare the flexibility and BMI between female athletes and non-athletes.

2. MATERIALS AND METHODS:

The study has been conducted on 120 students (males and females) which were divided into four groups with 30 students in each group. The subjects were students of Panjab University, Chandigarh. The age of the subjects ranged between 20-25 years. The study was restricted to only two variables which were Flexibility and Body Mass Index. The data was collected through “Sit and Reach Test” for lower back and hamstring flexibility and for Body Mass Index “Height and Weight” was administered. For analysing the data, descriptive statistic for mean and standard deviation was used and to find out significant difference among the group independent ‘t’-test was used with the help of SPSS Software. The level of significance chosen was 0.05.

3. FINDINGS:

TABLE-1. COMPARISON OF SCORES ON FLEXIBILITY (SIT AND REACH TEST) BETWEEN MALE ATHLETES AND NON-ATHLETES

Variable	Group	N	Mean	SD	SEM	MD	SED	t-value
Flexibility	Athletes	30	32.95	7.84	1.2	1.13	1.90	0.60
	Non-Athletes	30	31.82	6.84	1.4			

*Significance at .05 level

‘t’_{0.05 (58)} = 1.67

A perusal of inside of table-1 pertaining to male athletes and non-athletes the variable Flexibility showed that the first group i.e., athlete group had secured the mean and SD values of 32.95 and 7.84 respectively. On the other hand, non-athlete group had secured mean and SD values of 31.82 and 6.84. The t-value was not found to be statistically significant as the value obtained was 0.60 whereas the tabulated value was 1.67 which 58 degree of freedom at 0.05 level of significant.

Mean scores of male athletes and non-athletes on flexibility are depicted graphically in figure-1.

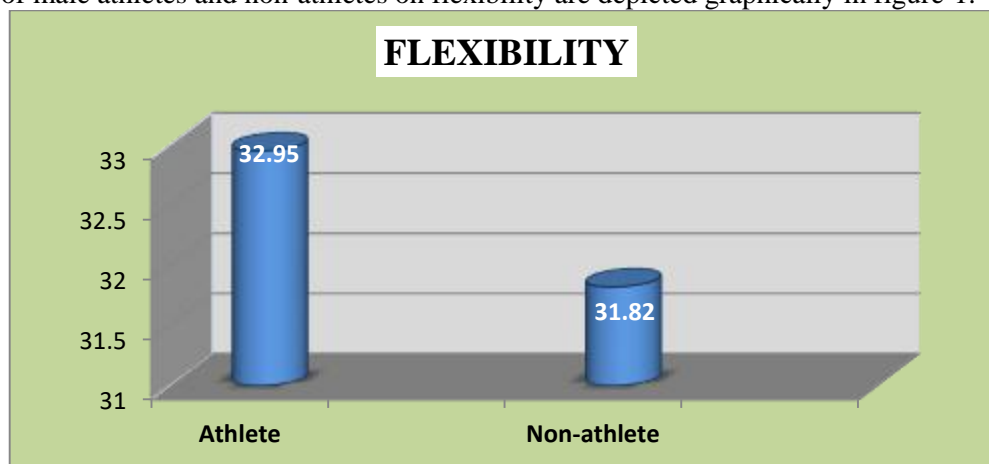


Figure 1. THE GRAPHICAL REPRESENTATION OF MEAN SCORES OF MALE ATHLETES AND NON-ATHLETES ON FLEXIBILITY

The comparison of Body Mass Index (BMI) between male athlete and non-athletes is presented in Table 2.

TABLE-2. COMPARISON OF SCORES ON BODY MASS INDEX (BMI) BETWEEN MALE ATHLETES AND NON-ATHLETES

Variable	Group	N	Mean	SD	SEM	MD	SED	t-value
BMI	Athletes	30	22.25	2.95	.91	1.62	1.06	1.52
	Non-Athletes	30	23.87	5.03	.53			

*Significance at .05 level

$$t'_{0.05} (58) = 1.67$$

A glance at the results depicted in table-2 would show that with regard to male athletes and non-athletes on the variable BMI, the athlete group had obtained the mean scores and SD values of 22.25 and 2.95 as compared to their values, non-athlete group had obtained the mean and SD value of 23.87 and 5.03 respectively. The t-value was not found to be statistically significant as the value obtained was 1.52 whereas; the tabulated value was 1.67 which 58 degrees of freedom at .05 level of significant. Mean scores of male athletes and non-athletes on BMI are depicted graphically in figure- 2.

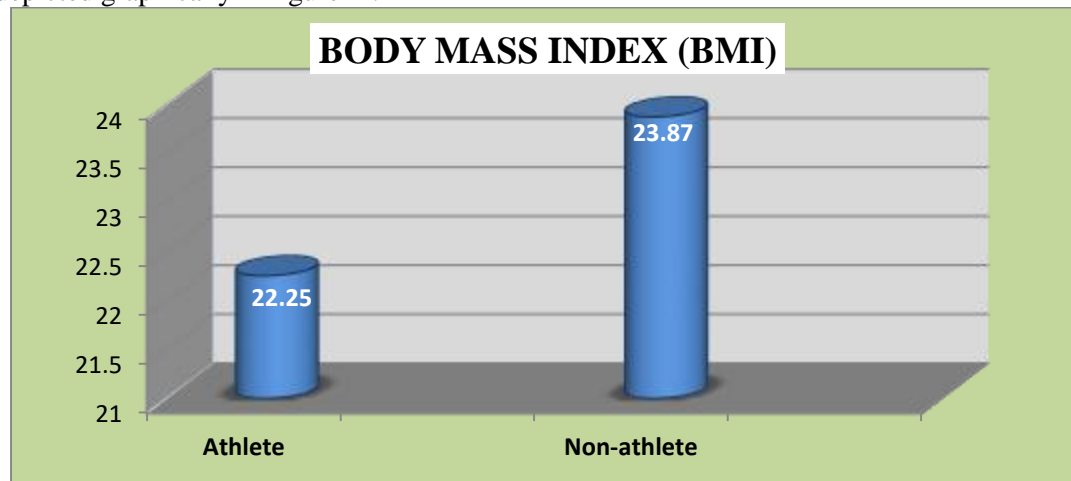


Figure 2. THE GRAPHICAL REPRESENTATION OF MEAN SCORES OF MALE ATHLETES AND NON-ATHLETES ON BODY MASS INDEX (BMI)

TABLE-3. COMPARISON OF SCORES ON FLEXIBILITY (SIT AND REACH TEST) BETWEEN FEMALE ATHLETES AND NON-ATHLETES

Variable	Group	N	Mean	SD	SEM	MD	SED	t-value
Flexibility	Athletes	30	37.23	6.17	1.40	3.95	1.80	2.19*
	Non-Athletes	30	33.28	7.68	1.12			

*Significance at .05 level

$$t'_{0.05} (58) = 1.67$$

A perusal of inside of table-3 pertaining to female athletes and non-athletes the variable Flexibility would show that the first group i.e., athlete group had secured the mean and SD values of 37.23 and 6.17 respectively. On the other hand, non-athlete group had secured mean and SD values of 33.28 and 7.68. The t-value was found to be statistically significant as the value obtained was 2.19 whereas the tabulated value was 1.67 which 58 degree of freedom at 0.05 level of significant. Mean scores of female athletes and non-athletes on flexibility are depicted graphically in figure-3.

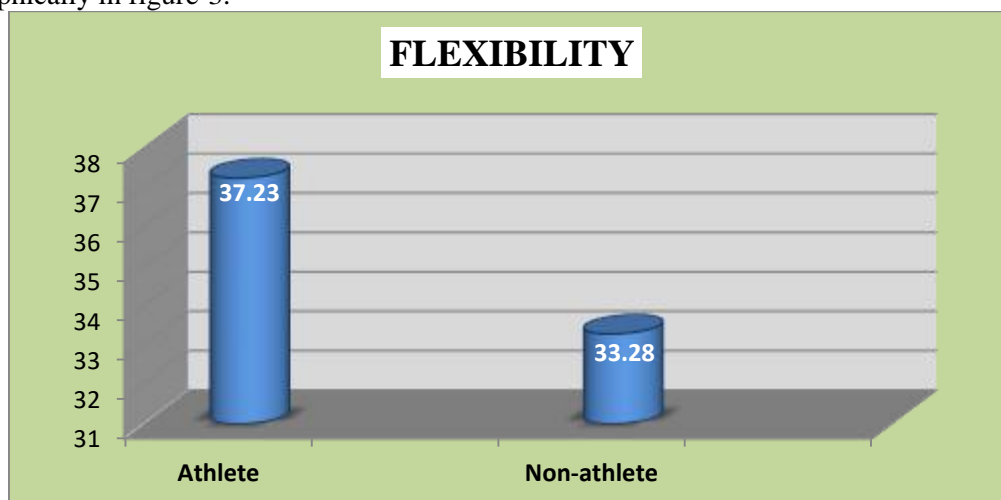


Figure 3. THE GRAPHICAL REPRESENTATION OF MEAN SCORES OF FEMALE ATHLETES AND NON-ATHLETES ON BODY MASS INDEX (BMI)

The comparison of Body Mass Index (BMI) between female athletes and non-athletes is presented in table-4.

TABLE-4. COMPARISON OF SCORES ON BODY MASS INDEX (BMI) BETWEEN FEMALE ATHLETES AND NON-ATHLETES

Variable	Group	N	Mean	SD	SEM	MD	SED	t-value
BMI	Athletes	30	21.08	2.72	.55	0.73	0.74	0.99
	Non-Athletes	30	20.34	3.02	.49			

*Significance at .05 level

$t'_{0.05}(58) = 1.67$

A glance at the results depicted in table-4 would show that with regard to female athletes and non-athletes on the variable BMI, the athlete group had obtained the mean scores and SD values of 21.08 and 2.72 as compared to their values, non-athlete group had obtained the mean and SD value of 20.34 and 3.02 respectively. The t-value was not found to be statistically significant the value obtained was 0.99 whereas; the tabulated value was 1.67 which 58 degrees of freedom at .05 level of significant. Mean scores of female athletes and non-athletes on BMI are depicted graphically in figure-4.

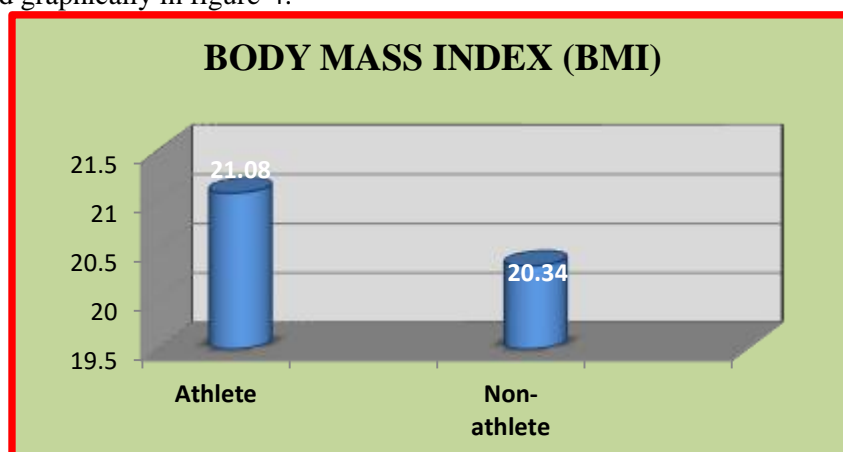


Figure 4. THE GRAPHICAL REPRESENTATION OF MEAN SCORE OF FEMALE ATHLETES AND NON-ATHLETES ON BODY MASS INDEX (BMI)

4. CONCLUSIONS:

In the light of the findings and limitations of the present study the following conclusions were drawn:

- No significant differences were found on flexibility and BMI between male athletes and non-athletes of Panjab University Campus. No significant difference was obtained on BMI between female athletes and non-athletes of Panjab University Campus.
- Significant difference was obtained on flexibility between female athletes & non-athletes of Panjab University campus. Female athletes of Panjab University Campus were performed significantly better on flexibility than their counterparts.

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COMPARATIVE ANALYSIS OF PEAK FLOW RATE AND BODY MASS INDEX BETWEEN WUSHU AND TAEKWONDO PLAYERS

Khumukcham Shivananda Singh

Dr. Th. Nandalal Singh, Department of Physical Education, Panjab University, Chandigarh

Dr. L. Santosh Singh, Department of Physical Education and Sports Science, Manipur University

Keisham Monarita, Research Scholar, Panjab University Chandigarh

Abstract:

The purpose of the study was to find out the comparative analysis of peak flow rate (PFR) and body mass index (BMI) between inter-college level Wushu and Taekwondo players. The study has been conducted on 25 Wushu male players and 25 Taekwondo male players studying at Panjab University, Chandigarh. The age of the subjects ranged between 20-25 years. The parameters selected for the purpose of the study were Peak Flow Rate and Body Mass Index. Peak Flow Meter was used to measure Peak Flow Rate and height and weight were measured for Body Mass Index. The collected data were statistically analysed by using independent 't'-test to find out the significance difference between the two groups. The level significance chosen was 0.05. Based on the analysis of statistical results, it was revealed that there were no significant differences found on Peak Flow Rate but there were significant differences obtained on BMI between inter-college level male Wushu players and Taekwondo players.

Key Words: Peak Flow Rate, Body Mass Index, Wushu and Taekwondo Players

1. INTRODUCTION:

Peak Expiratory Flow Rate (PEFR) is the maximum flow rate generated during a forced expiratory maneuver. It is therefore a test measuring the maximum mid-expiratory flow, commonly obtained during the tenth of second following a forced expiration from lung capacity (Cantani, 2008). The peak expiratory flow (PEF), also called peak expiratory flow rate (PEFR), is a person's maximum speed of expiration, as measured with a peak flow meter, a small, hand-held device used to monitor a person's ability to breathe out air. It measures the airflow through the bronchi and thus the degree of obstruction in the airways. Peak expiratory flow is typically measured in units of liters per minute (L/min). Body mass index (BMI) is an estimate of body fat based on height and weight. It doesn't measure body fat directly, but instead uses an equation to make an approximation. BMI can help determine whether a person is at an unhealthy or healthy weight. A high BMI can be a sign of too much fat on the body, while a low BMI can be a sign of too little fat on the body. The higher a person's BMI, the greater their chances of developing certain serious conditions, such as heart disease, high blood pressure, and diabetes. A very low BMI can also cause health problems, including bone loss, decreased immune function and anaemia.

1.1. OBJECTIVES OF THE STUDY:

The objectives of the study were as follows:

- To determine the Peak Flow Rate (PFR) between inter-college level male Wushu players and Taekwondo players.
- To determine the Body Mass Index (BMI) between inter-college level male Wushu players and Taekwondo players.

2. MATERIALS AND METHODS:

For the purpose of the study, fifty (Wushu=25, Taekwondo=25) inter-college level male players studying at Panjab University, Chandigarh were selected as subjects of the study. The age of the subjects ranged between 20-25 years. The parameters selected for the purpose of the study were Peak Flow Rate and Body Mass Index. Peak Flow Meter was used to measure Peak Flow Rate and height and weight were measured for

Body Mass Index. The collected data was statistically analysed by using independent 't'-test with the help of SPSS software to find out the significance difference between the two groups. The level of significance chosen was 0.05.

3. FINDINGS:

The comparison of Peak Flow Rate (PFR) between Wushu players and Taekwondo players is depicted in table 1.

TABLE 1. COMPARISON OF SCORES ON PEAK FLOW RATE BETWEEN WUSHU PLAYERS AND TAEKWONDO PLAYERS

Variable	Group	N	MEAN	SD	MD	SED	t- value
Peak Flow Rate (PFR)	Wushu	25	533.60	57.58	22.24	16.10	1.381
	Taekwondo	25	511.36	56.31			

*Significance at .05 level

't'.₀₅ (48) = 1.67

A perusal of inside of table 1 pertaining to Wushu players and Taekwondo players on the variable peak flow rate had secured the mean and standard deviation value 533.60, 511.36 and 57.58, 56.31 respectively. No significant difference was found as the 't'-value is 1.381 whereas the tabulated value is 1.67 on 48 degree of freedom at 0.05 level of significant. Mean score of inter-college level Wushu players and Taekwondo players on peak flow rate is depicted graphically in fig. 1.

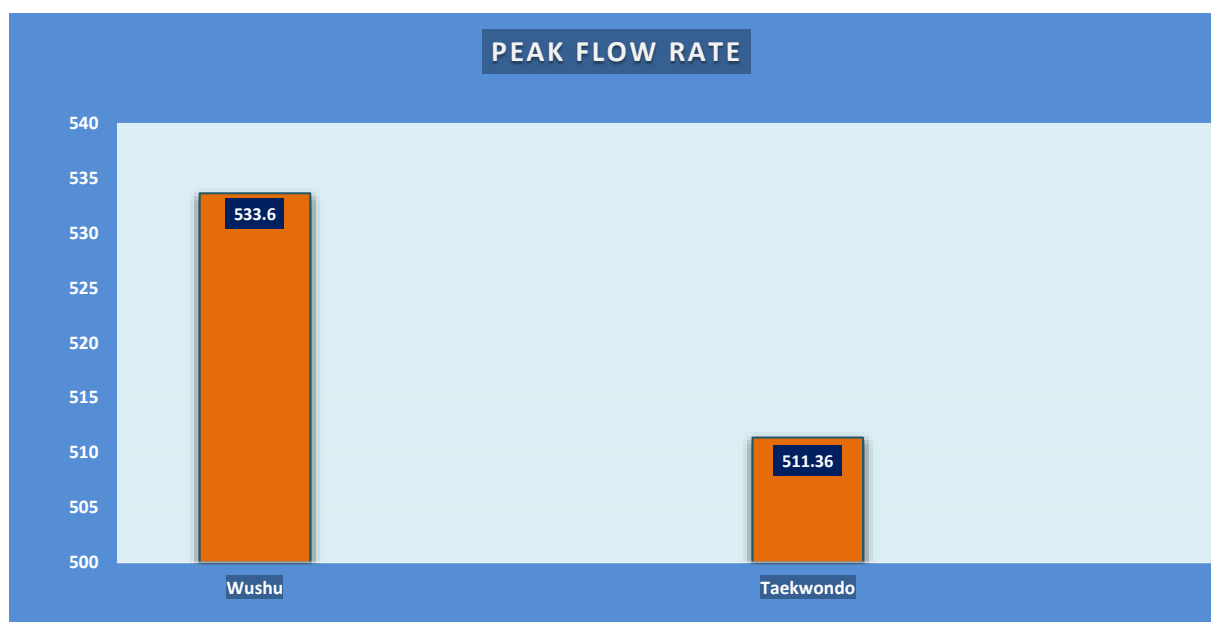


Figure-1: Mean Score of Wushu Players and Taekwondo Players on Peak Flow Rate (PFR)

**TABLE-2
COMPARISON OF SCORES ON BODY MASS INDEX (BMI) BETWEEN WUSHU AND TAEKWONDO PLAYERS**

Variables	Group	N	MEAN	SD	MD	SED	t- value
Body Mass Index (BMI)	Wushu	25	23.11	3.71	2.46	.872	2.820*
	Taekwondo	25	20.65	2.28			

*Significance at .05 level

't'.₀₅ (48) = 1.67

A glance at the result depicted in the table 2 showed that with regard to Wushu players mean score and standard deviation value of 23.11 and 3.71 as compared to the value, Taekwondo players had obtained the mean score and standard deviation value of 20.65 and 2.28 respectively. The mean deviation and standard error difference was obtained 2.46 and .872. The 't'-value was found statistically significant as the value obtained was 2.820 whereas the tabulated value was 1.67 on 48 degree of freedom at .05 level of significant. Mean score of Wushu players and Taekwondo players on variables Body Mass Index (BMI) is depicted graphically in fig.2.

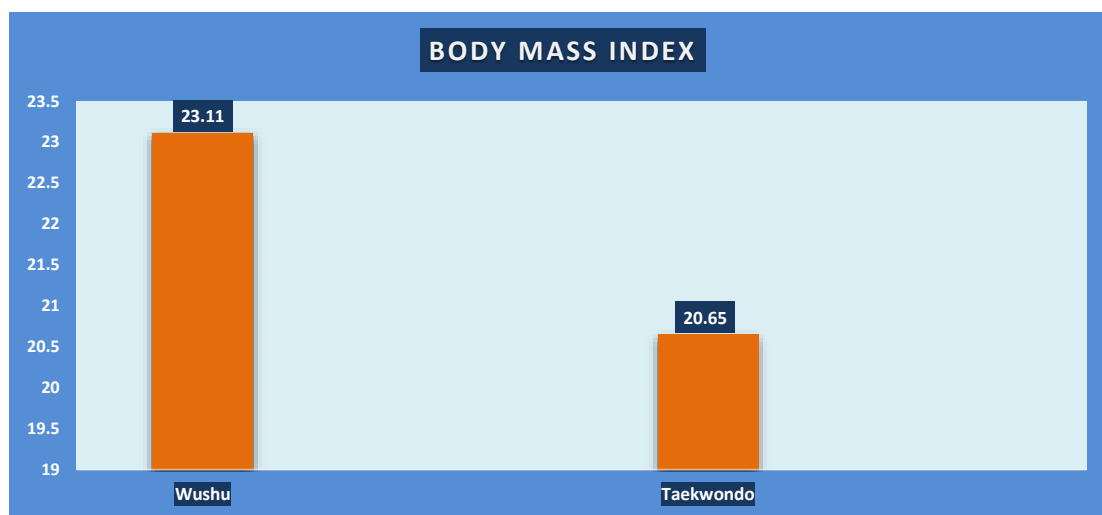


Figure-2: Mean Score of Wushu Players and Taekwondo Players on Body Mass Index (BMI)

4. CONCLUSIONS:

- No significant differences were found on Peak Flow Rate between inter-college level male Wushu players and Taekwondo players.
- Significant difference was obtained on BMI between inter-college level male Wushu players and Taekwondo players.

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A SURVEY ON ADOPTION OF PHYSICAL ACTIVITY AND ITS REFLECTION ON HEALTH BEFORE AND DURING PANDAMIC

Ashwini Patlolla,

Lecturer in Physical Education, Govt. College for Men, Kurnool,
Andhra Pradesh

Abstract:

Introduction:

Physical Activity plays an important role in the health status of an individual. Performing Physical activity daily is very important to maintain physical and mental health. Physical activity is not limited to specific gender or age group. If practiced on regular basis, it gives us good health benefits like improves bone, muscular, cardio respiratory fitness, controls the blood pressure and diabetes

Purpose: The purpose of this survey is to measure the adoption of Physical Activity and its reflection on health among men and women in the age group of 20 to 70 years across the globe. **Methods:** I have used an online survey questionnaire with 20 questions to capture the details of Physical Activity adoption and its reflection on health status of the sample before and during pandemic. The questionnaire is shared with people using digital channels such as WhatsApp, Mail, Facebook and Instagram

Key Words: Physical Activity, Pandemic, Digital Channel, Questionnaire

1. INTRODUCTION: Physical activity refers to performing any physical activity in set frequency. It helps in improving various aspects of health there by elevating quality of life. Performing Physical activity daily is very important to maintain physical and mental health. Physical activity is not limited to specific gender or age group. If practised on regular basis, it gives us good health benefits like improves bone, muscular, cardio respiratory fitness, controls the blood pressure and diabetes. For each age category, different Physical activities are framed with global standards like 5-17 yrs - 60min and 18-64 yrs - 150min of moderate intensity Physical activity and 75 min vigorous Physical activity per week. Across the globe, people are fighting with pandemic (Covid-19). Due to pandemic, most of the people have started understanding the importance of immunity and importance of Physical Activity.

1.1. PHYSICAL ACTIVITY: According to WHO physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits.

1.2. PURPOSE OF THE SURVEY: The purpose of this survey is to measure the adoption of Physical Activity among people across the globe before and during the pandemic and also its impact on their health.

1.3. SCOPE OF THE SURVEY: Conduct an online survey using a questionnaire covering questions pertaining to their Physical Activity and its impact on their health before and during pandemic.

1.4. SIGNIFICANCE OF THE SURVEY: By conducting this survey, we will have good understanding about adoption of various Physical Activities before and during pandemic (Covid-19) and its impact on their health

1.5. DELIMITATIONS: This survey is delimited to people across the world with maximum participation from India. For the present study 238 Men and women were considered in which 162 are men and 76 are women. Age group ranging from 20 to 70 years

1.6. LIMITATION:

- Their nutrition conditions were not considered
- This study does not cover people less than 20 years as well as people more than 70 years
- This study doesn't include people who don't use digital medium (Internet, WhatsApp etc)

2. REVEIW OF LETERATURE:

<p>1. A survey for assessing physical activity among older adults - DIPIETRO, L., C. J. CASPERSEN, A. M. OSTFELD, and E. R. NADEL (1993) Medicine & Science in Sports & Exercise</p>	<p>2. Survey on Physical Activity: Jenny Burgess- MA. Research Coordinator, Alberta Centre for Active Living Tanya R. Berry, PhD Research Associate, Alberta Centre for Active Living</p>
<p>Administered the Yale Physical Activity Survey (YPAS) to 222 healthy older volunteers (aged 60–86 yrs) to establish its 2-wk repeatability and relative validity. Among the 76 Ss in the repeatability sub study, correlation coefficients between the 2 administrations for the 8 YPAS summary indices ranged from 0.42 to 0.65. Among the 25 Ss in the validation sub study, weekly energy expenditure and daily hours spent sitting correlated with resting diastolic blood pressure, while the YPAS activity dimension summary index correlated positively with estimated VO₂max and inversely with percent body fat. The YPAS index of vigorous activity also correlated positively with estimated VO₂max, and the moving index correlated marginally with body mass index.</p>	<p>Depending on the response rate calculation used, between 28.9% and 42.5% of valid Households responded to the survey. The random sample of 1,207 is considered accurate Within +/-2.8, 19 times out of 20. The subsample of 400 is considered accurate within +/-5, 19 times out of 20. Although the results of the age and gender sample breakdowns adequately reflect the overall Alberta population, the subsamples do not necessarily represent the Alberta Population. We advise caution in generalizing the findings related to subsamples to the overall population.</p>

3. SURVEY METHODOLOGY:

I have prepared an online questionnaire using Google Forms which is shared with lot of people across the globe using social media such as WhatsApp, Facebook, Mail and Instagram. The questionnaire consists of 20 questions. I have analyzed the responses for various patterns to come up with the conclusion on adoption of Physical Activity as well as its impact on their health

SAMPLE: I have received 238 responses using Google Form as on 27th Jul 2020

TOOLS USED:

- Survey questionnaire with multiple options to select from
- Microsoft Excel for analysing the data

4. SURVEY QUESTIONNAIRE:

I have referred to GPAQ (Global Physical Activity Questionnaire) as well as International Physical Activity Questionnaire (IPAQ) and other online questionnaire before finalizing questions and pattern for this survey. The online mode is chosen to ease the response process in this pandemic.

The detailed survey questionnaire can be accessed at the below link: <https://forms.gle/y7eeG6wnUJf7a7Rp6>

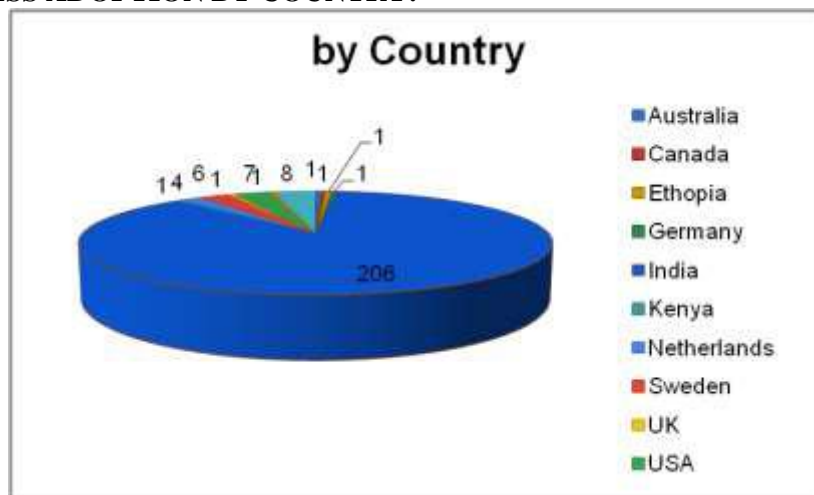
5. DATA COLLECTION PROCEDURE:

I have shared the survey link (Google Form) with my friends and colleagues across the globe using social media such as WhatsApp, Facebook, Mail and Instagram. I have also shared it with people in various other platforms to have diverse participants. Their responses are captured in the summary section of Google Form

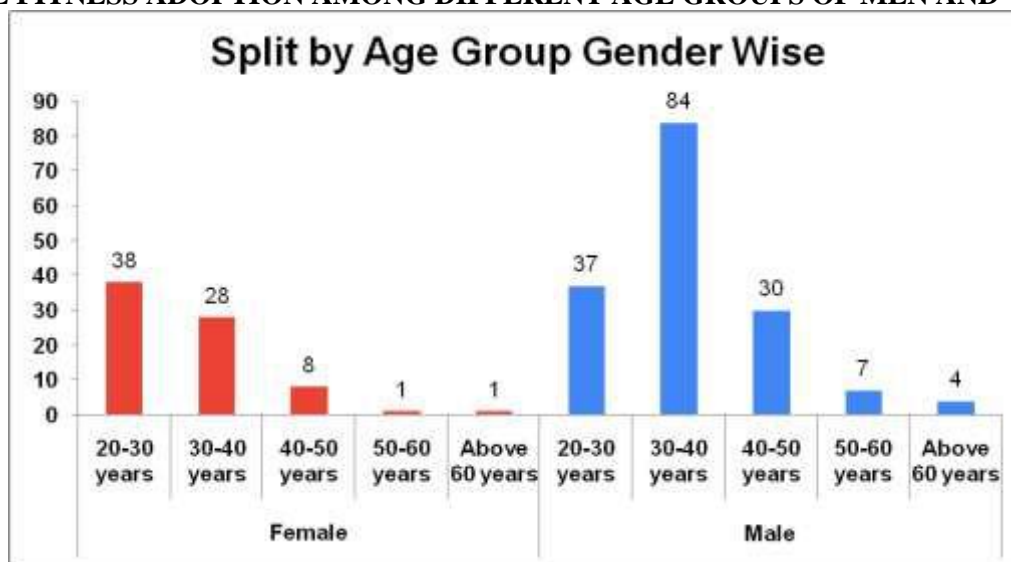
6. DATA ANALYSIS: I have received response from 238 people of which

- 162 Men have responded
- 76 Women have responded
- People in the age group of 20 to 70 years have responded to the survey

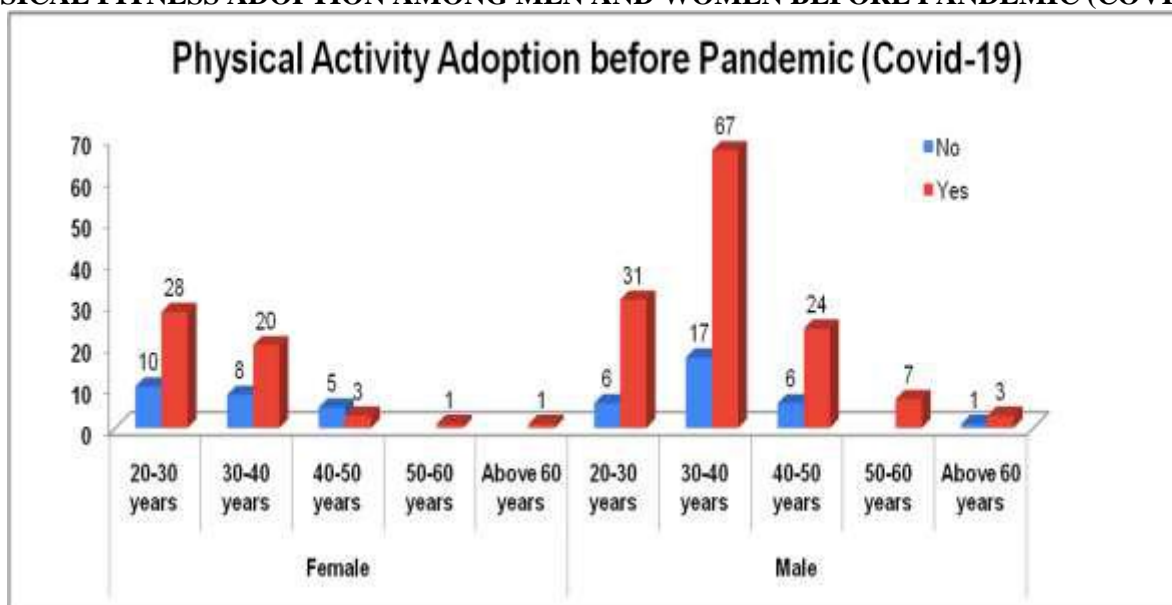
PHYSICAL FITNESS ADOPTION BY COUNTRY:



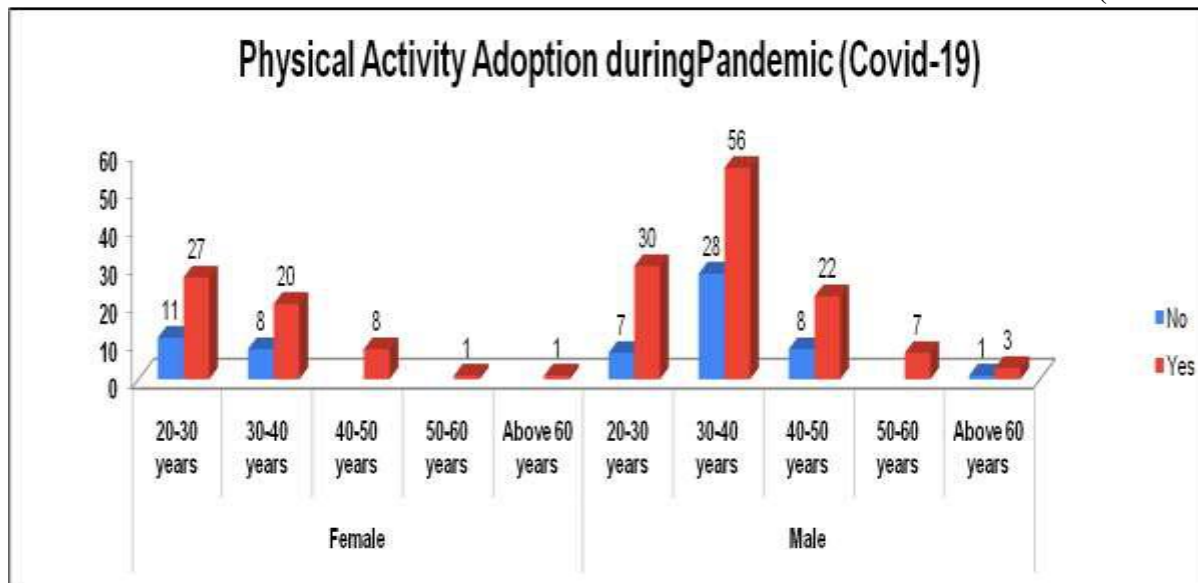
PHYSICAL FITNESS ADOPTION AMONG DIFFERENT AGE GROUPS OF MEN AND WOMEN



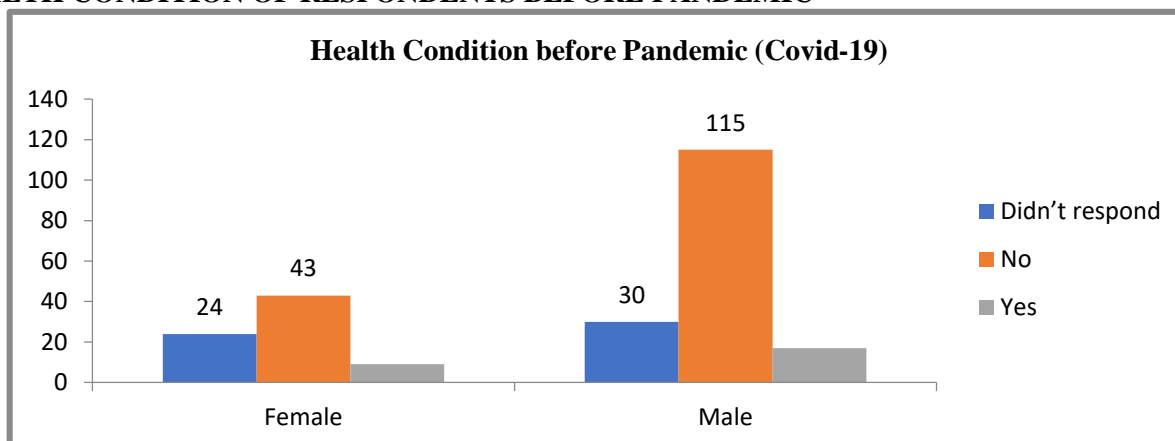
PHYSICAL FITNESS ADOPTION AMONG MEN AND WOMEN BEFORE PANDEMIC (COVID-19)



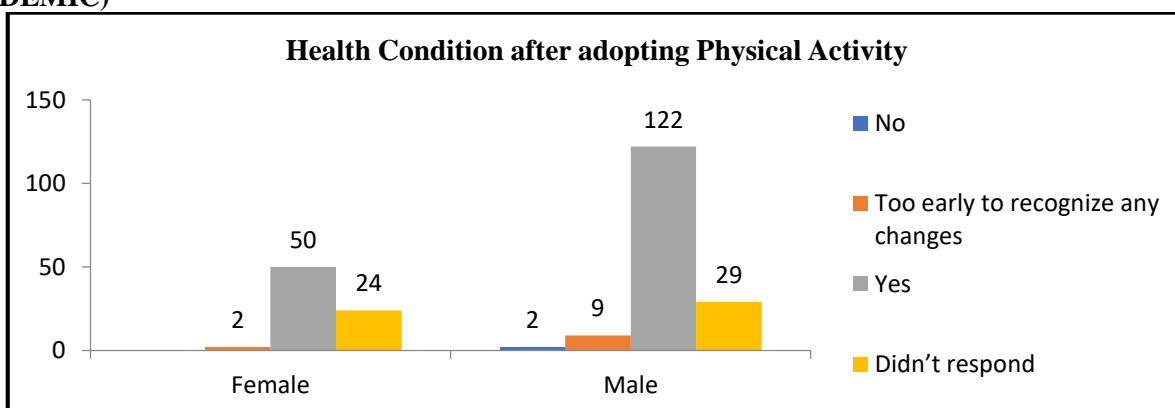
PHYSICAL FITNESS ADOPTION AMONG MEN AND WOMEN DURING PANDEMIC (COVID-19)



HEALTH CONDITION OF RESPONDENTS BEFORE PANDEMIC



HEALTH CONDITION OF RESPONDENTS AFTER ADOPTING PHYSICAL ACTIVITY (BEFORE PANDEMIC)



7. OBSERVATIONS:

- 238 Men & Women have responded to the survey
 1. 206 Men & Women are from India while others are from various parts of the world
 2. 76 Women have responded to the survey
 3. 162 Men have responded to the survey
- Before Pandemic,
 1. 185 people (53 Women and 132 Men) were participating in one or more Physical Activity
 2. 53 people (23 Women and 30 Men) were not participating in any Physical Activity

3. 107 people are participating in Physical Activity for more than 2 years
 4. 21 people are participating in Physical Activity for the last 1 to 2 years
 5. 57 people are participating in Physical Activity for the last 6 months to 1 year
 6. 26 People have reported that they have previous medical condition
 7. 172 people have responded that they have seen improvement in health due to Physical Activity while 11 responded that it's too early to say
- During Pandemic
 1. 175 people (57 Women and 118 Men) were participating in one or more Physical Activity
 2. 63 people (19 Women and 44 Men) were not participating in any Physical Activity
 3. 75 people have observed Increase in Stress or Increase in Anxiety
 4. 54 people have added weight
 5. 48 people have lost weight
 6. 69 people have observed no changes

8. SUMMARY: Of the received responses, I have observed that more than 75% of samples are practicing in one or the other Physical Activity to take care of their health and stay fit. More than 50% samples have been practising Physical Activity daily for more than 2 years. The number of people practising Yoga has increased during Pandemic. During pandemic, lot of people are practising Physical Activity either in their house or in their community. While for more than 75% of the samples, the trigger points is to stay fit for others it's due to health issues. Before and during pandemic, more than 90% of the people have observed improvement in their health due to Physical Activity.

9. CONCLUSION: Based on received responses, it is concluded that many people among the sample have been practising Physical Activity while 20-25% of people are not participating in any Physical Activity. It is also observed that lot of people have started practicing Yoga during lockdown. It is also concluded that the stress and anxiety levels have increased in 30-32% of samples. **“HEALTHY PEOPLE will have HEALTHY MINDS = HEALTHY COUNTRY”**. It is important that everyone adopts one or the other Physical Activity as it will help them in being fit and healthy. It is also concluded that more than 90% of the people are encouraging their family members to participate in Physical Activity. In current pandemic situation, it's all the more important to adopt Physical Activity. The importance of Physical Activity has improved significantly during the pandemic.

10. RECOMMENDATIONS: Further study can be conducted in large samples with broader and detailed questionnaire

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COMPARATIVE STUDY ON BODY COMPOSITION OF WOMEN FOOTBALL PLAYERS

Waribam James Singh¹, Research Scholar

Dr. L. Santosh Singh²

Department of Physical Education and Sports Science
Manipur University, Canchipur, Imphal, Manipur, India

Dr. Kangabam Romeo Meetei²

Dept. of Teacher Education, Manipur University.

1. INTRODUCTION:

Football is one of the popular sports in India. The game is played extensively in the country, with the maximum fan following in Goa, Kerala, West Bengal, Mizoram, Manipur and Sikkim. The sport enthusiasts in the sub continent keenly watch all the international league matches and the Football World Cup. The game holds a rich tradition in India. Physical demands towards the female football players must be of specific physiological character since female differs from male in many parameters. It is necessary for female players to possess a high level of aerobic endurance because of the football characteristics and demands. The length of high intensity running during a football game in elite female players (0.71-1.71 km) is significantly different from that of male players (1.9-2.4 km).

A football player's body composition is of particular importance for performance because of body components (bone, muscle and fat). It has been suggested that an increase in body mass or height is associated with increased playing time as well as greater rates of pay. Since performance is so strongly dependent on body morphology and composition, the ability to measure these changes in an athlete over time is essential to both coaches and players. In addition to performance, there is growing interest in body composition of football athletes because of its impact on health. Studies using body mass index (BMI) as a measure of obesity suggest that up to 56% of football players, including high school players, are obese. Although the inaccuracy of associating a high BMI with increasing risk of mortality has been reported, the link between football players and cardiovascular risk has been shown in numerous studies. Therefore, there is a need for monitoring body composition in football players from both a performance and health perspective.

The rising popularity of the women's game in India and around the world makes interested to conduct the present study.

1.1 Statement of the problem: From the above surface literature and background, the problem had been stated that *“Comparative Study on Body Composition of Women Football Players.”*

1.2 Purpose of the study: The main purpose of the study is to compare the body composition of women football players.

1.3 Hypothesis: It was hypothesized that there might be significant difference on body composition on women football players.

2. METHODOLOGY:

2.1 Source of Data: For the present study the data was collected from inter-varsity women football players of Manipur University and Pt Ravisankar Sukla University.

2.2 Selection of the Subject: For the purpose of the study, 20 women football players from Manipur University and 20 women football players from Pt. Ravisankar Sukla University were selected as the subject for this study. The subjects' age ranged between 18 to 28 years.

2.3 Criterion Measures

- Age: According to the information mention by the players in the individual data sheet provided to them.
- Height (cm): Standing height of the subject recorded to nearest half centimeter with the help of wall scale.
- Weight (Kg): Weight (Kg) was measured automatically when the subject stood on the weighing platform (sensors plate) of body composition analyzer.
- Body Composition: The measurement of body composition components are BMI, body fat percentage, BMR (Kcal), FM (Kg), FFM (Kg), TBW (Kg) was measured by using bioelectrical impedance methods (TANITA Body Composition Analyzer TBF-300A, made in Japan).

2.4 Collection of Data: Purpose of the data collection was explained to the subjects by the researcher. The data was collected on different sheets for each player. All the required measurements were made during the morning hours before having any physical exercise. Age was recorded according to the information filled up by the players on data sheet provided to them. Heights were determined by marking a wall scale, weight, and body composition variables were measured by using the scale within the TANITA body composition analyzer. All body composition measurements were made in a hydrated state.

3. STATISTICAL TREATMENT: To test the statistical significance of the difference, the obtained morphological characteristics and body composition variables test scores of the universities were analyzed by using SPSS statistical software package (SPSS Company, America, version 20). The collected data were systematically arranged and the descriptive statistical mean and standard deviation were adopted. For testing the significance difference between mean, independent t-test were employed. In all cases the level of significance was set at 0.05, which was considered adequate for the purpose of this study.

4. FINDINGS: The findings of the morphological characteristics (age, height and weight) and body composition variables (BMI, fat %, BMR, FM, FFM and TBW) are presented in the following tables.

Table – 1 Comparison on body composition variables (Age, Height, Weight, BMI, Fat%, BMR, FM, FFM and TBW) between Manipur University and PT Ravisankar Sukla University.

Variables	Groups	N	Mean	SD	t - value
Age (Year)	Manipur University	20	22.10	1.88	1.24
	PTRS University	20	21.30	2.15	
Height (cm)	Manipur University	20	154.35	4.51	1.86
	PTRS University	20	148.80	12.55	
Weight (Kg)	Manipur University	20	51.18	4.37	3.01*
	PTRS University	20	46.37	5.63	
BMI	Manipur University	20	21.32	1.72	0.16
	PTRS University	20	21.18	3.36	
FAT (%)	Manipur University	20	17.75	4.38	0.05
	PTRS University	20	17.85	5.77	
BMR (Kcal)	Manipur University	20	1338.60	57.22	3.10*
	PTRS University	20	1276.00	69.50	

FM (Kg)	Manipur University	20	9.04	2.64	0.53
	PTRS University	20	8.51	3.55	
FFM (Kg)	Manipur university	20	41.94	2.26	4.78*
	PTRS University	20	37.86	3.07	
TBW (Kg)	Manipur University	20	30.74	1.65	4.84*
	PTRS University	20	27.72	2.24	

*Significance at 0.05 level of confidence

The Table - 1 indicate the results of comparison on body composition variables (Age, Height, Weight, BMI, fat %, BMR, FM, FFM and TBW) between Manipur University and PT Ravisankar Sukla University inter-varsity women football players. The results were found significant on weight, BMR, FFM and TBW with the calculated value of $t = 3.01, 3.10, 4.78$ and 4.84 respectively which was greater than table value of 2.05 at the level of 0.05. The remaining variables like age, height, BMI, fat % and FM were found insignificant.

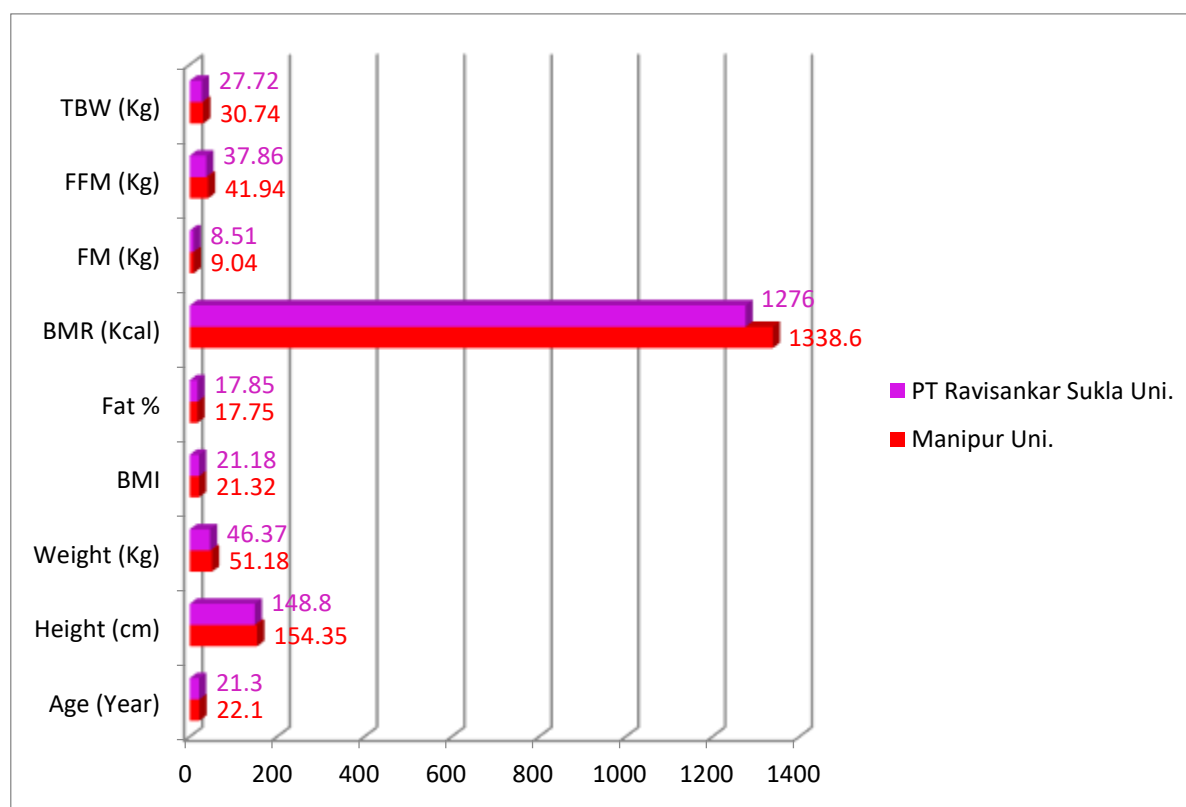


Figure 1. Significant mean difference on body composition variables between Manipur University and PT Ravisankar Sukla University inter-varsity women football players.

5. DISCUSSION OF THE FINDINGS: The comparison on body composition variables between women football players of the two universities participated in the inter-varsity tournaments was found significant on weight, BMR, FFM and TBW with the calculated value of $t = 3.01, 3.10, 4.78$ and 4.84 respectively which was greater than table value of 2.05 at the level of 0.05. significance difference as shown in the respective table with calculated values.

6. DISCUSSION OF HYPOTHESIS: In the beginning of the study, it was hypothesized that there will be significant difference of body composition among the inter-varsity women football players.

When we compared the body composition variables between the two universities i.e. Manipur University and PT Ravisankar Sukla University (weight, BMR, FFM and TBW), were found significant

difference at 0.05 level of confidence. Therefore, the developed hypothesis was accepted. On the results found from the present study the researcher would like to emphasis on body composition variables like age, height, weight, BMI, fat %, BMR, FM, FFM and TBW are of great contributing factors to enhance the performance.

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SPORTS NUTRITION

Mr. Ramcahanra Sandipan Powar

Sports Director, D.Y. Patil Education Society
(Institution Deemed to be University, Kolhapur, Maharashtra.)

1. INTRODUCTION:

Sports nutrition is the study and practice of nutrition and diet with regards to improving anyone's athletic performance. Nutrition is an important part of many sports training regiments, being, Popular in strength sports and endurance sports. Sports nutrition is the foundation of athletic success. Adequate physical activity is considered to maintain good health for humans, whereas every sports person needs a proper balanced diet and better nutrition index for good health, better performance and achieving goals. It is a well-designed nutrition plan that allows active adults and athletes to perform their best. It supplies the right food type, energy, nutrient and fluids to keep the body well hydrates and functioning at peak levels.

Every balance diet is contract of Net Protein Utilization (NPU)

Lipid Index Body Mass Index (BMI)

Fluid Balance etc. are strongly associated with type of dietary pattern intake of food supplements (Singh;1992)

Hence it is very necessary to increase the awareness about 'nutritional factors and functional foods' correlation with 'physical and metal performance' of sports persons. By keeping this in view the present study was taken into account to asserts the nutritional profile of sports persons in respect with their better Performance in sports and maintenance of good health.

For Professional Athletes

Performance enhancing supplements post- exercise carbohydrate and protein Essential amino acids (EAA) Branched – Chain amino acids.

For performance – enhancing

a) Water and sports drinks. b) Carbohydrates.

It also provides variety of drinks, powders and pills designed to improve athletic performance.

2. MATERIALS AND METHOD:

This is an exploratory study. In this study over views were taken into account in the field of nutrition and sports. The relevant data is collected by using secondary source of information i.e. research articles from research journals, papers presented in seminars, conferences, specific website etc. The data is collected and organized specifically under one roof.

3. RESULTS AND DISCUSSION:

Staying Healthy Sports Nutrition Athletics who want a winning edge need the right nutrition. This study contains some general sports nutrition guidelines. To achieve top performance, your diet should be based on variety of factors including your age, weight, physical condition and the type of exercise you are doing. Consult your doctor for individualized sports nutrition advice.

Individuals who have knowledge on importance of adequate and balanced diet and reflect this knowledge to their attitude and in real practices are considered to be more successfully in sports life. Mewads et.al. (2012) examined nutrition knowledge of 343 voluntary students from the sports departments of districts, state youth welfare, T.T. Nagar Stadium, Bhopal (M.P.). The study reported very low score of nutrition knowledge (11.15 to + 2.96).

At the most basic level, nutrition is important. For athletes because it provides a source of energy required to perform the activity. The food we eat impacts on our strength, training, performance and recovery. (Apr.20, 2015). Healthy eating good nutrition means eating a variety of foods. Energy managements. Eat 3 meals a day with the largest portion being vegetables or fruit but also ensure you add some learn protein –

Hydration	– Pre – exercise Eating
Recovery	– Eating on the Road

Weight management – Supplementation

There principles of sports nutrition –

The Principles of Sports Nutrition – Presented by Kathy Wilson, RD LHS Family and Consumer Science Teacher.

- a) Provide fuel for your muscles – Aim for a well-balanced diet.
- b) Focus on timing your protein intake in relation to workouts and meeting your total daily protein need.
- c) Stay hydrated.

While scientific evidence supports the efficacy of only limited nutritional supplements (NS) on sports performance. Sports nutrition plays a crucial role in optimizing the beneficial effects of physical activity.

Nutrition knowledge also related with food habits; improper food habits which reflects on poor performance (Radhika, 2012). The knowledge regarding hydration pattern among sports persons of Gandhi gram Rural Institute was also recorded very poor (Keishing et al. 2012). Poor hydration pattern shown average performance in physical fitness test carried by Bhavedharini Balagi and Supriya (2012), on athletes in Coimbatore city of Tamilnadu. Improper KAP regarding nutrition reflects on sports anemia and wrong food habits were also developing poor sports performance stated by most of the studies (Deepa; 2012 and Many; 2012).

Energy balance, neutralization of free radicals and balance of minerals with fluid are essential in most of the sports persons to their goal achievement (NNMB; 2010). Carbohydrates, releaser which allows muscles cells to contract (Margan and Subarínathan; 2012). The oxidative stress is increased in sports persons. Toxicity of free radicals contributes to protein and DNA injury, Inflammation, tissue damage and Cellular apoptosis. This can be decreased by neutralization of free radicals. Antioxidants have the capability of diet rich in antioxidants improved the oxidative stress in women athletes stated by chennakeshvan (2012). Whereas hydration index and fluid ratio of the sports persons can be improved by the supplementation of the fresh fruit juice with low fat and energy drink was reported in same study. It also helpful in the sports performance as well as muscle contraction, oxygen transport, oxidative phosphorylation, enzyme activation, immune function, bone health and acid base balance of the blood.

4. CONCLUSION:

Sports nutrition plays a crucial role in optimizing the beneficial effects of physical activity. Making better decisions with your nutrition and hydration can result in improved performance, recovery and injury prevention. Nutrition Professionals offer a range of services to support your health and sporting goals. This can range from a daily food diary, to a comprehensive food and nutrition plan for training and competition. This typed of food that you should nutrition include, vegetables, whole grains fruit, sources of lean protein and low fats dairy produce, health fats. In a nut shell, it is concluded that, nutrition plays a vital role in sports person's life. The increasing awareness about nutrition among sports persons including coaches is very essential for physical and mental performance and maintaining proper nutritional and health status.

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STUDY OF SELF-PERCEPTION OF WELLNESS OF UNDER-GRADUATE PHYSICAL EDUCATION STUDENTS

¹Dr. Ameet Prabhu, ²Dr. Ujwala Raje
¹Associate Professors, ²Assistant Professors
 CACPE, Pune – 37

Abstract:

The study was planned to identify the self-perception of wellness of under-graduate students of C. Agashe College of Physical Education, Pune. The study titled, ‘Study of Self-Perception of Wellness of Under-Graduate Physical Education Students’ was performed on 88 students of First Year B.P.Ed. For the current study the Wellness Self-Perception Questionnaire was employed. From the questionnaire sub-factors of wellness, i.e. emotional, intellectual, physical, social and spiritual wellness was tested. From the available scores the comprehensive wellness score was also calculated. The descriptive analysis and chi-square was calculated and analysis was done. The results show that the students have better wellness in all the dimensions.

Key Words: Wellness, Self-Perception, Under-Graduate Students

1. INTRODUCTION:

Health is one of the most frequent terms used by general public and is also one of the major issues faced by everyone. It is a concept well-spoken of but very few really understand the actual concept and meaning of Health and Wellbeing. Increasing the span of healthy life is a Principal Health Goal.



Figure 1: A model of optimal health including wellness

Wellbeing as stated is a good or satisfactory condition of existence or a state characterized by health, happiness, and prosperity. Whereas disease is an abnormal condition of an organism that impairs bodily functions, associated with specific symptoms and signs. As defined by WHO – ‘Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’. This definition has been of a controversy and needs some modification. According to few Health experts Health is - physical, mental, social and spiritual aspects as perceived by the person, or persons concerned, individually and, or collectively. Some also feel that capacity to live harmoniously (consciously and, or unconsciously) within and outside the individual, the family and, or the community, and to cope with various internal and external stimuli (adaptation), maintenance of interrelationships and, or the capacity to purposefully (consciously) not accept or adapt to some selected stimuli so as to bring about a change in a manner deemed necessary by the

individual, a family and, or a community can be termed as health. When others perceive one, or a family, or a community to be unwell, and when any of those find no reason to get influenced, it need be considered positive health for the people concerned. The perceptions, values, beliefs and aspirations of the individuals, families and, or the communities, and the level of value they give to various aspects of life and living is important. If all the above is true then “...health (or ill-health) is an ever evolving state of mind, body and relationships perceived by an individual, a family, a group, or a community for self in a particular space, time and context.” (Vatsyayann, 1995) Over the last decade, the cultivation of mindfulness has become a common part of the curriculum in classrooms around the world. A recent survey indicates that nearly 50% of teachers are sharing mindfulness with children. To date, researchers have predominately used outcome-based trial designs to understand the practice’s efficacy for improving wellness in children. Less research has been directed towards understanding how children perceive mindfulness experiences. This gap inspired the research question – What are students’ perspectives of learning mindfulness practices at school? Thematic analysis was employed to understand and interpret 38 elementary school students’ mindfulness journals. Findings suggest that mindfulness enhances student wellbeing and helps children develop a greater awareness of their body, mind and emotions. Implications of these findings are discussed. Future research is required to determine how mindfulness practices enhance and sustain student wellbeing and learning. (Miller, 2005). With respect to the above literature the researchers thought to identify the Wellness Self-Perception of the students. For this a study titled ‘Study of Self-Perception of Wellness of Under-Graduate Physical Education Students’ was performed.

1.1. Objective: To know the Self-Perception of Wellness of First Year Under-graduate students of Physical Education.

2. METHODOLOGY: The current study is a Descriptive Survey Method

Sample & Sampling Procedure: Population for the current study are First Year Undergraduate students of Physical Education. The researcher for this study Purposive Sampling Method was employed and 88 samples from the MM’s Chandrashekhar Agashe College of Physical Education, Pune were selected.

Tools of the Study: For the current study the Wellness Self-Perceptions Questionnaire was used to assess five wellness dimensions, i.e. emotional, intellectual, physical, social and spiritual wellness. The questionnaire consists of 15 statements (3 each dimension). The subjects score on 4 point scale (4 = *strongly agree*, 3 = *agree*, 2 = *disagree*, 1 = *strongly disagree*). The sum of the three boxes for each wellness dimension to get your wellness dimension totals. The sum all wellness dimension totals give your comprehensive wellness score (CWS). The rating chart was used to rate each wellness area.

3. DATA ANALYSIS: The descriptive analysis is presented below

	Minimum	Maximum	Mean	Std. Deviation
Emotional	1.00	3.00	2.3636	.62848
Intellectual	1.00	3.00	2.2727	.65613
Physical	1.00	3.00	2.4318	.60259
Social	.00	3.00	2.5000	.69481
Spiritual	.00	3.00	2.1136	.77950
CWS	1.00	3.00	2.2045	.55001

Frequencies of the Scores

Category	Emotional	Intellectual	Physical	Social	Spiritual	CWS
Low Wellness	0	0	0	2	3	0
Marginal Wellness	7	10	5	4	13	6
Good Wellness	42	44	40	30	43	58
High Level Wellness	39	34	43	52	29	24
Total	88	88	88	88	88	88

Chi-Square Analysis

	Emotional	Intellectual	Physical	Social	Spiritual	CWS
Chi-Square	25.659 ^a	20.818 ^a	30.432 ^a	76.727 ^b	42.364 ^b	47.545 ^a
df	2	2	2	3	3	2

Asymp. Sig.	.000	.000	.000	.000	.000	.000
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- a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 29.3.
b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 22.0.

4. RESULTS:

- From the frequencies of the scores it is clear that most of the students have shown Good Wellness or High Level Wellness score.
- From the Chi-Square analysis it is clear that there is significant difference found among all the wellness dimensions.
- It is clear from the analysis that the subjects have shown better wellness score and so it can be concluded that they possess a better wellness in all the five dimensions

5. CONCLUSIONS AND RECOMMENDATIONS:

From the study it can be concluded that the students of First Year B.P.Ed. have shown better wellness score in the questionnaire. The reasons for better wellness might be regular fitness or active lifestyle they are undergoing due to the B.P.Ed course. It is recommended to study the reasons behind better wellness of these students.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
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**STUDY OF AMATEUR CYCLISTS PARTICIPATING IN THE
PARIS-BREST-PARIS LONG-DISTANCE CYCLING
COMPETITION**

¹Dr. Ujwala Raje, ²Dr. Ameet Prabhu
¹Assistant Professor, ²Associate Professor,
CACPE, Pune - 37

Abstract:

The current study is related to Long-Distance Cycling competition. The objective of the study was to investigate why amateur cyclists wanted to compete in such a long distance race and review their practice method and to know what problems come up during practice or competition. The researchers selected 50 amateur cyclist from Pune who participate in Paris-Brest-Paris Long-Distance Cycling Competition. A questionnaire was employed to collect the information from the sample. Frequency and percentage was calculated from the raw scores received and the data was interpreted. Results show more popularity in Long Distance Cycling. The objective behind Long Distance Cycling is participation in Competition and Races in India and other countries. The difficulties faced by Cyclist are that they have mental stress, face technical difficulties with cycle and face managerial difficulties at competition or races while Long-Distance Cycling. Further studies related to Long Distance Cycling is recommended.

Key Words: Long Distance Cycling

Objectives:

- To investigate why amateur cyclists want to compete in long-distance cycling race and review their practice methods.
- To know problems aroused during practice or competition.

1. INTRODUCTION:

In 1891, the Petit Journal of France organized the world's first official long-distance cycling competition for amateur cyclists. Pro cyclists and any amateur cyclist participated in the same group. 400 amateur cyclists participated and out of them 206 cyclists completed the competition within the given time frame and got good response and as a result the Paris-Brest-Paris competition is organized once every 4 years since then; after the start of the Paris-Brest-Paris competition, in 1903, Prof. The Tour de France begins for cyclists. Prior to 1931, in Paris-Brest-Paris, Prof. Cyclists and amateur cyclists competed in the same group. In it many times Prof. The cyclists were betting. Some of these cyclists cover 1200 km in 90 hours. The distance was easy to cross and they did not enjoy the challenges, so they were challenged to cover the distance of 1200 km in 80 hours. So the cyclists who completed the 1200 km distance in 80 hours or 90 hours were divided into two separate groups. The innovation of the Paris-Brest-Paris competition in these two types of groups began. So that amateur cyclists can also create a challenge between themselves. Cyclists and amateur cyclists were categorized and now people from all over the world participate and complete the competition. In the competition held in 2007, 5311 amateur cyclists officially participated; It was attended by men and women between the ages of at least 18 and at most 70. More than 3,000 cyclists completed the race in the allotted time. Long-distance cycling races / activities are always challenging and even more difficult for amateur cyclists, as the biggest challenge is to plan the time for them to practice and participate in the activities while managing their daily work or business. This is how competitors maintain physical fitness with planning. While doing all

this, they present information on how they plan their diet, how their cyclists overcome technical difficulties during practice or race, and how they build up all the financial strength they need. More than 50 countries from all over the world come to participate in 'Paris-Brest-Paris'. These competitions are organized by a permanent organization affiliated with AUDAX CLUB PARISIEN in that country. The cyclist wants to complete the competition in the allotted time without any outside help. The time limit is fixed for each interval. The distance and the time frame for it are as follows

Table 1. Table of distances and time limits for qualifying rounds for Paris-Brest-Paris

Distance (km)	Time)to be completed in hrs.(
200	13.5 hrs.
300	20 hrs.
400	27 hrs.
600	40 hrs.
1200	80 hrs., 90 hrs. Paris-Brest-Paris

Only after completing all the distances in the table (ie 200,300,400, 600km) as per the rules of AUDAX CLUB PARISIEN, the contestant is declared as 'Super Randonier' to complete the series. Qualifies for the Paris-Brest-Paris competition with a time limit of 80hours, 90hours.

2. METHODOLOGY: The current study is a survey - descriptive research type

2.1. Sample & Sampling Methods

All the cyclists from the City of Pune participating in the qualifying round of the Paris-Brest-Paris Cycling Championships are the population for the study and 50 cyclist from AUDAX INDIA RANDONNEURS - AIR were selected as sample for the study. Purposive sampling technique was chosen to select the sample.

2.2. Data collection Tools:

A questionnaire was employed on the sample to collected required information; purpose of participation, daily routine, fitness and technical difficulties faced during competition; and interview of few cyclist were taken for gaining other important information like their personal experiences, views and attitude towards the competitions, etc. Raw scores were analysed on the basis of frequency and percentage and the data was interpreted.

Table 2. Analysis of the Questions through Frequency and Percentage

SN	1		2		3		4	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Q1	20	40	5	10	17	34	8	16
Q2	2	4	31	62	6	12	11	22
Q3	13	26	7	14	9	18	21	42
Q4	25	50	22	44	3	6	0	0
Q5	3	6	28	56	11	22	8	16
Q6	9	18	11	22	29	58	1	2
Q7	0	0	29	58	6	12	15	30
Q8	2	4	31	62	6	12	11	22
Q9	18	36	12	24	12	24	8	16
Q10	8	16	30	60	4	8	8	16
Q11	13	26	7	14	30	60	0	0
Q12	2	4	11	22	6	12	31	62
Q13	10	20	16	32	12	24	12	24
Q14	11	22	32	64	7	14	0	0
Q15	17	34	7	14	19	38	7	14

3. RESULTS: From the analysis it is clear that

- More Subjects compete in Long duration Cycling for Fitness and Competition Preparation rather than just cycling or recreation.
- More subjects advertise travelling by cycle when they do Long-Distance Cycling
- The subjects were a mixture of Experience and amateurs to Long-Distance Cycling
- Most of the Cyclist manage the funds individually while other manage through sponsors whereas funds through social organizations.
- Most of the Cyclist practice Cycling for 5 days a week and prefer a Up-Down Terrain for Cycling.
- Most of the Cyclist use an Indian bike and Road Cycle for Long-Distance Cycling
- To keep a record of their fitness and other parameters they use Smart devices like Fit Bands, Speedo meters, etc.
- Considering the maximum distance covered there were almost equal responses received from the subjects with most responses of less than 300 km in a day.
- Most of the Cyclist prioritize practice and relaxation when participating in Long-Distance Cycling.
- Bad roads are the most difficulties faced by cyclist during Long-Distance Cycling.
- The difficulties faced by Cyclist are that they have mental stress, face technical difficulties with cycle and face managerial difficulties at competition or races while Long-Distance Cycling.
- They would intend to participate and practice for the Ultra Spice (India) and Paris-Breast-Paris Race the most in coming future.

4. CONCLUSIONS:

Long-Distance Cycling has become popular now in India too and the participation in races and competitions in India as well as foreign countries has increased considerably. Similar studies will help us to collect more information regarding Long Distance Cycling and know training methods employed by cyclist, difficulties and problems faced by them. Further studies are also recommended on Fitness parameters, cyclist profiles, solutions to problems and difficulties and related which will result in more participation and popularity of Long Distance Cycling.

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Critical Study on the Effect of Physical and Mental Health & Wellness Before and During COVID 19 Pandemic as per Indian Context

¹Dr. Purnima Joshi, ²Dr. P.Prashanth, ³Dr. P.Ravi Kumar

District Sports & Youth Welfare Officer, Department of Sports & Youth Welfare Madhya Pradesh

Student Activity & Sports Officer, National Institute of Technology. Goa

Professor and Head, Department of Physical Education, National Institute of Technology- Warangal.

Abstract:

The corona virus disease 2019 (COVID-19) pandemic is having a profound effect on all aspects of society. Precisely on physiological, psychological, sociological particularly effects on physical health, mental health of the mankind. Need of the hour, it is thought fit to give immediate priority in collecting high-quality data on the effects of the COVID-19 pandemic on physical health, mental health, emotional health, spiritual health, environmental health, nutritional health and social media addiction factor across the population as per Indian context. There is an urgent need for research to address consequences of the said factors under pandemic conditions, around COVID-19. Discovery, evaluation, and refinement rising to this challenge will require integration across disciplines and sectors, and should be done together with people with lived experience. This Position Paper provides a strategy that may be both adapted for, and integrated with, research efforts in other countries. The study was taken up through google Drive with a self made questionnaire to differentiate Before and During Covid -19 Lockdown on Physical and Mental Health & Wellness habits of the selected stakeholders for the period of first lockdown phase imposed in India from 22nd March 2020, As the Nationwide and Worldwide lockdown has stalled everything, not only it has adversely affected but also stalled everything (professionally. Mentally. Personally) and everyone universally. Two parameters were taken to study before and during Covid-19 Physical and Mental Health & Wellness of the stakeholders. Total numbers of Male N= 137 and Female N=108 were replied and tested with Mean and Standard Deviation followed by Z - Scale. The final results of both the mental and physical health & wellness of stakeholders had frictional difference between Before and During Covid -19 Physical and Mental Health & Wellness of the stakeholders hence projected hypothesis was accepted as null hypothesis.

Key Words- Coronavirus -Corona viruses are a large family of viruses which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease COVID-19. (www.who.int)

Covid-19 - COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. COVID-19 is now a pandemic affecting many countries globally. (www.who.int)

Pandemic - A ‘pandemic’ derived from Greek language known as an epidemic of an infectious disease that has spread across a large region, for instance multiple continents or worldwide, affecting a substantial number of people(Wikipedia)

Physical Health and Wellness - Attainment of Physical health through its components like Aerobic, Anaerobic, Strength and flexibility in order to keep a homeostasis of human body at its optimum and efficient functioning level and also known as absence of co-morbidities and illness(Purnima Joshi) .

Mental Health & Wellness - is defined as “a state of **well-being** in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.”

1. INTRODUCTION:

It is already evident that the direct and indirect Physiological, Psychological and social effects of the corona virus disease 2019 (COVID-19) pandemic are pervasive and could affect Health and Wellness now and in the future. The pandemic is occurring against the backdrop of increased prevalence of health issues in India in recent past. Furthermore, severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), the virus that causes COVID-19, might infect the brain or trigger immune responses that have additional adverse effects on brain function and overall health in patients with COVID-19. At this juncture it is necessary that Researchers must deploy resources to understand the Physiological, Psychological, and Sociological effects of the COVID-19 pandemic. Existing research infrastructure and expertise, but the research community must act rapidly and collaboratively if it is to deal with the growing threats to health. A fragmented research response, characterized by small-scale and localized initiatives, will not yield the clear insights necessary to guide policy makers or the public. Rigorous scientific and ethical review of protocols and results remains the cornerstone of safeguarding patient and upholding research standards. International comparisons will be especially helpful in this regard. In this Position Paper, we explore the Physiological, Psychological and Sociological effects of COVID-19 and set out clear immediate priorities for each of these aspects. The general population survey, done by Ipsos MORI, revealed widespread concerns about the effect of social isolation or social distancing on wellbeing; increased anxiety, depression, stress, and other negative feelings; and concern about the practical implications of the pandemic response, including financial difficulties. The prospect of becoming physically unwell with COVID-19 ranked lower than these issues related to the social and Psychological response to the pandemic. The MQ: Transforming Mental Health stakeholder survey of people with lived experience of a mental health issue likewise highlighted general concerns about social isolation and increased feelings of anxiety and depression. More pacifically, stakeholders frequently expressed concerns about exacerbation of pre-existing mental health issues, greater difficulty in accessing mental health support and services under pandemic conditions, and the effect of COVID-19 on the mental health of family members, especially children and older people. Both surveys are reported online. These findings, combined with the published scientific literature, informed the development of our research priorities. Our present surveys represent a snapshot of the current situation, but they will need to be repeated more rigorously over the course of the pandemic, and the research priorities reviewed.

2. REVIEW OF RELATED RESEARCH:

2.1. Effect of COVID-19 on Mental Health:

Population-level factors, such as the effect of social distancing measures (more recently being re-described as physical distancing) and other necessary public health measures, affect mental health within a syndemics approach. By syndemics we mean intersecting global trends among demographics (eg, ageing, rising inequality) and health conditions (eg, chronic diseases and obesity) that yield resultant co morbidities. These interacting health effects and societal forces that fuel them combine to form syndemics, or complex knots of health determinants. Research priorities around COVID-19 require us to embrace complexity by deploying multidimensional perspectives. Although a rise in symptoms of anxiety and coping responses to stress are expected during these extraordinary circumstances, there is a risk that prevalence of clinically relevant numbers of people with anxiety, depression, and engaging in harmful behaviors (such as suicide and self harm) will increase. The potential fallout of an economic downturn on mental health is likely to be profound on those directly affected and their caregivers. The severe acute respiratory syndrome epidemic in 2003 was associated with a 30% increase in suicide in those aged 65 years and older; around 50% of recovered patients remained anxious; and 29% of health-care workers experienced probable emotional distress. Patients who survived severe and life-threatening illness were at risk of post-traumatic stress disorder and depression. Many of the anticipated consequences of quarantine and associated social and physical distancing measures are themselves key risk factors for mental health issues. These include suicide and self-harm, alcohol and substance misuse, gambling, domestic and child abuse, and psychosocial risks (such as social disconnection, lack of meaning or anomie, entrapment, cyber bullying, feeling a burden, financial stress, bereavement, loss, unemployment, homelessness,

and relationship breakdown). A major adverse consequence of the COVID-19 pandemic is likely to be increased social isolation and loneliness (as reflected in our surveys), which are strongly associated with anxiety, depression, self-harm, and suicide attempts across the lifespan.

2.2. Social media mental health:

People seek trusted information via the media, which can provide swift, critical guidance regarding the pandemic. Media consumption can be adaptive and positive for mental health. However, reports of infectious diseases often use risk-elevating messages, which can amplify public anxiety. Social media can be a source of rapidly disseminated mis-information, amplifying perceptions of risk. Repeated media exposure to information about an infectious disease particularly can exacerbate stress responses, amplify worry, and impair functioning. Anxiety and uncertainty can drive additional media consumption and further distress, creating a cycle that can be difficult to break. Media-fuelled distress can promote behaviours that negatively affect the health-care system (eg, visits to emergency departments and hoarding of face masks), with downstream mental and physical health consequences.

2.3. Effects of the Virus on Physical Health and Mental Health:

Almost nothing is known with certainty about the effect of SARS-CoV-2 infection on the human nervous system. SARS-CoV-2 is a zoonotic virus and a review from 2005 suggested that about half of zoonotic virus epidemics have been caused by neurotropic viruses that invade the CNS. The closely related corona viruses responsible for the severe acute respiratory syndrome epidemic in 2003 and the so-called Middle East respiratory syndrome in 2012 are biologically neurotropic and clinically neurotoxic, causing mental health and neurological disorders. SARS-CoV-2 has a similar receptor-binding domain structure to SARS-CoV and probably shares its neurotropism and neurotoxicity. Neurological symptoms of COVID-19 infection are common, diverse, and often severe. In a retrospective study of 214 patients in Wuhan, China 36% had CNS symptoms or disorders and the subgroup of 88 patients with severe respiratory disease had significantly increased frequency of CNS problems (45%). The problems reported include dizziness, headache, loss of smell (anosmia), loss of taste (ageusia), muscle pain and weakness, impaired consciousness, and cardiovascular complications. Similar reports have begun to emerge from Italy. Some of these acute neurological presentations could reflect systemic aspects of infection, such as disseminated intravascular coagulation causing strokes or intense inflammation and hypoxia causing delirium. SARS-CoV-2 infection of the brain could be a contributor to the core medical syndrome of respiratory distress and failure in patients with COVID-19.

2.4. Exercise in the time of COVID-19:

The immune system is highly responsive to physical activity, with the extent of the response related to both duration and intensity of exercise. Moderate-intensity exercise training is associated with a reduced incidence, duration and severity of upper respiratory tract (predominantly viral) infections. A number of epidemiological studies suggest that regular physical activity is associated with decreased incidence of and mortality from influenza and pneumonia. No scientific data currently exists regarding the effects of exercise on corona viruses. Exercise is moderately more effective than no therapy for reducing symptoms of depression. In relation to anxiety, Aylett et al reviewed 15 studies and found that aerobic exercise was effective in both patients with raised anxiety on a validated drafting scale and those with formally diagnosed anxiety disorders. High-intensity exercise programs were found to be more effective than those of lower intensity. Restriction of activity increases the risk of weight gain by reducing energy expenditure. Exercise has a role to playing the management of the vast majority of these conditions. These therapeutic and preventative effects should be maintained throughout the current period of activity restriction. In terms of home-based exercise, simple internet or YouTube search will reveal a large number of home programs of dance, aerobics, yoga, Pilates, strength workouts and stretching. Aerobic exercise can be facilitated by the use of stairs and inclines; running on the spot; home exercise bikes, treadmills and running machines; or laps of the backyard pool. Simple household items such as filled water bottles and cans or packets of food can be useful as weights. Even these low weights can be quite challenging if many repetitions are attempted. Exercises against body weight such as squats, push-ups, sit-ups and calf raises on the edge of a stair or an incline are also useful. For those not interested in 'exercise', the following home-based activities can be vigorous enough to satisfy the criteria for moderate exercise: sweeping floors, vacuuming, general carpentering, mowing the lawn, raking leaves, cleaning windows and pushing a stroller.

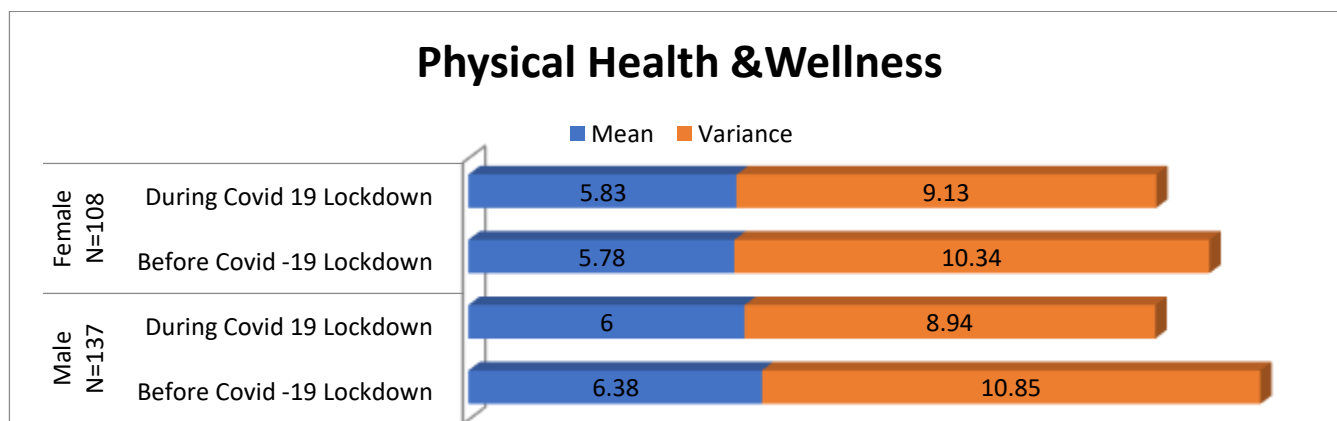
3. METHODOLOGY:

It is already evident that the direct and indirect Physiological, Psychological through the corona virus disease 2019 (COVID-19) pandemic are pervasive and could affect Health and Wellness now and in the future. The pandemic is occurring against the backdrop of increased prevalence of health issues in India in recent past.

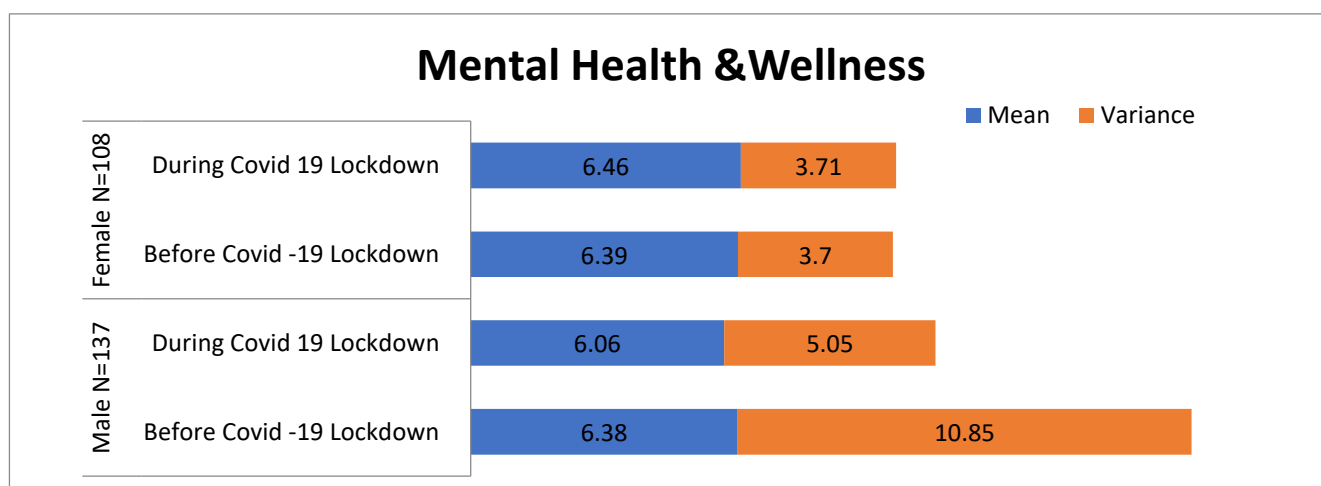
Need of the hour, it is thought fit to give immediate priority in collecting high-quality data on the effects of the COVID-19 pandemic on physical health, mental health, Sleeping habits, reading habits, mobile or gadgets usage, family interaction and positive outlook of oneself were being questioned on the sample population and vulnerable groups as per Indian context. We need to gather high-quality data rapidly to ascertain the effects of before and during lockdown. Thus it is thought fit to conduct the general population survey to be taken up through online by adopting questionnaire method. Multiple choice Questions were prepared and flushed forward by taking the help of Google forms/ drive keeping focal points on the effects of the COVID-19 pandemic on physical health, mental health and wellness of the possible respondents. Two hundred and Forty five Indian Nationals responded ; among them 137 Males and 108 are Females. The age varied from 15 years to 75 years in which there were 66 vegetarians and 179 Non Vegetarians. Appropriate statistical treatment was administered. The statistical procedure includes calculation of mean standard deviation followed by Z score (Graffin, 1982). The findings of the survey may represent a snapshot of the current situation across the country as far as Mental and Physical health and wellness is concern.

3.1. Hypothesis- It was hypothesized that there will be no significant difference between the Pre and Post analysis as Null Hypothesis. As only one month span's data was taken under observation.

4. RESULT AND ANALYSIS:



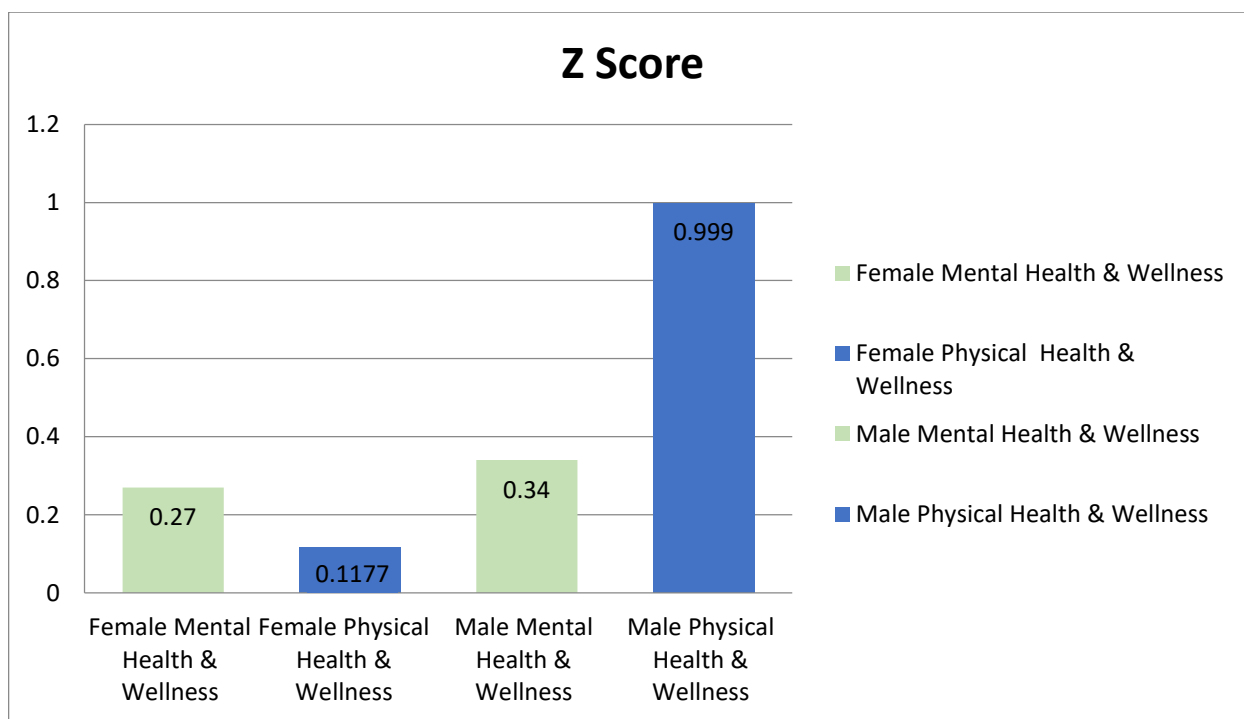
Physical Health & Wellness of Female (N=108) stakeholders before Covid -19 Lockdown Σ 5.78 and Σ 5.83 during Covid -19 lockdown with a 9.13 and 10.34 of variance in it. Z Score was applied in order to test the significant difference between the Before and During Covid -19 lockdown Physical health and wellness practice amongst the 108 female stakeholders under which their aerobic, anaerobic, flexibility, basic body weight Strengthening were taken into consideration through a google drive circulated questionnaire. Physical Health and Wellness of Male (137) Stakeholders before Covid -19 Lockdown Σ 6.38 and Σ 6.00 during Covid-19 Lockdown with a 10.85 and 8.94 of variance respectively. Z-Scale was applied to test the difference further, Z-Score resulted as null hypothesis no significant difference was found before and during Physical Health and Wellness.



Mental Health & Wellness of Female (N=108) stakeholders before Covid -19 Lockdown \sum 6.39 and \sum 6.46 during Covid -19 lockdown with a 3.7 and 3.71 of variance respectively. Z score was applied in order to test the significant difference between Before and During Covid -19 lockdown Physical health and wellness practice amongst the 108 female stakeholders under which their aerobic, anaerobic, flexibility, basic body weight Strengthening were taken into consideration through a Google drive circulated questionnaire. Physical Health and Wellness of Male (137) Stakeholders before Covid -19 Lockdown \sum 6.38 and \sum 6.00 during Covid-19 Lockdown with a 10.85 and 5.05 of variance respectively. Z-Scale was applied to test the difference further, Z-Scale resulted as null hypothesis; no significant difference was found before and during Physical Health and Wellness.

4.1. Z-Scale Results:

As questions like Physical aerobic –anaerobic activity, Flexibility and body weight Strengthening based questions were being asked under one parameter of Physical Health & Wellness to compare the male (137) and female (108) with set of 5 questions on mental health and wellness were compiled in order to obtain difference between before and during Covid-19 Lockdown . Physical and Mental Health & wellness of the stakeholders segregated on gender basis. The Z- Score resulted into null hypothesis which was projected as no significant difference will be getting in the parameters before and during Covid -19 Lockdown 1 month ‘span which was accepted as there is no significant difference been observed.



5. CONCLUSION:

5.1. Female Mental Health and Wellness before and during the lockdown calculated, since calculated value is 0.27 and table value 1.96 at 5% level of significance. Whereas, $0.27 < 1.96$ so we accept Null Hypothesis. Hence, We conclude that there is no significance difference between Before Covid 19 & During Covid -19 lockdown reason being they must have kept themselves preoccupied or engaged before with significant official or regular work when Lockdown took place they possibly got time to do major household work and improve their mental Wellness by meditating and devoting time for their personal evolvement during one month time.

Male Mental Health and Wellness- Male sample size of N=137 calculated value is 0.94 and table value 1.96 at 5% level of significance. As, $0.94 < 1.96$ so we accept Null Hypothesis therefore we conclude that there is no significant difference between before and During Covid -19 on Mental health and wellness of male counterparts Male stakeholders hardly get time to look after their mental wellness but here survey taken up by majority of Govt. Servants who possibly must have been balancing their respective mental and social wellness

systematically thus possibly we haven't found any significant difference before and during Covid-19 lockdown in this one month time.

Physical Health & Wellness of Female Stakeholders (N=108) was also found insignificant as calculated value is 0.1177 and tabulated value 1.96 at 5% level of significance, $0.1177 < 1.96$ so we accept Null Hypothesis therefore we conclude that there is no significant difference between before Covid 19 & During Covid 19 lockdown. Possible reason could be self awareness due to health and fitness boom across India which happened early 21st Century they might have continued their regular routine with same zest which is why the results found insignificant before and during Covid-19 Lockdown. Females have always been multi-taskers as compares to their male counterparts which also might have been one of the reasons of insignificant difference.

Physical Health & Wellness of Male Stakeholders (N=137), since calculated Z score value is 0.999 and table value 1.96 at 5% level of significance thus $0.999 < 1.96$ so we accept Null Hypothesis as per the projected hypothesis. Therefore, it is been concluded that here is no significance difference between before Covid 19 & during Covid-19 lockdown reason being they must have been keeping their health as a paramount importance and during lockdown possibly, they must have followed same regime so on and so forth.

Further extensive study can be explored with male and female dimensional aspect, Although both male and female are diversified for having different Physiological and Psychological aspects yet a behavioral and habit oriented study could be taken up for further investigation in order to get possible significant results with other wellness parameters like emotional health, spiritual health, environmental health, nutritional health and social media addiction factor across the population as per Indian context for more duration of lockdown period.

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**EFFECTIVENESS OF A SIX WEEK PATANJALI YOGIC
PRACTICES PROGRAM ON BODY WAIST CIRCUMFERENCE
PARAMETER IN SEDENTARY LIFESTYLE HABITAT BELONG
TO MALE YOUTHS OF MANIPUR.**

¹Dr. Maibam Nodiyachand Singh, ²Khadangbam Mukta Singh

¹Assistant Professor, (S-III), ²Research Scholar,

^{1,2}Department of Physical education and sports science, Manipur University.795003

Email: 1nodiyachand@yahoo.com, 2Muktakhadangam20@gmail.com

Abstract:

Maharishi Patanjali was mention of term ‘Yoga ‘ according to his yoga text of second sutra in Sanskrit script as ‘yogaha chittavritti nirodaha’, The aim of this study was Effectiveness of a six week Patanjali Yogic practices program on body waist circumference parameter in sedentary lifestyle habitat belong to male youths of Manipur. The total number of samples were 25 young male as subjects of the study who voluntarily to actively participate in this study with their age ranged from 17 to 35 years old. Independent variables were Patanjali Yoga asanas. The Dependent Variables was waist circumference. The data were collected through the technique of experimental procedure of pre and post. The data obtained were analyzed for the statistical significance using a paired “t” test.

Results: Statistical results significant that Patanjali Yogasana training has the effect on Waist circumference on belly region for helping fat burning.

1. INTRODUCTION:

Maharishi Patanjali was mention of term ‘Yoga ‘ according to his yoga text of second sutra in Sanskrit script as ‘yogaha chittavritti nirodaha’, this meaning in Sanskrit as “Yoga is the stoppage of mental modifications”. Again this philosophy of Yoga further explains that these modifications of the mind or chittas are called vrittis. Yoga means controlling the thought waves in the mind, and preventing the mind from wandering. The most important contribution of Maharishi patanjali was propounds the Ashtanga Yoga or the Raja Yoga (the royal yoga). The “Ashtanga Yoga “which is related with eight limbs of Yoga. They are- Yama, Niyama, Asana, Pranayama, Pratyahara, Dharna, Dhyana, and Samadhi. The last decade onwards people were growing with the excessive amount of time in sedentary behaviors lifestyle. The Spending too much time in sedentary behaviors differs from not getting enough physical activity. The scientific study of sedentary behavior has become popular in recent years. In fact, several systematic reviews of sedentary behaviors and health outcomes among children and adolescents,

1.1. PURPOSE OF THE STUDY:

The purpose of this study was Effectiveness of a six week Patanjali Yogic practices program on body waist circumference parameter in sedentary lifestyle habitat belong to male youths of Manipur.

2. METHODS:

Young healthy adults male were recruited from Boys hostels and rented from Langthabal Kunja leikai, from Imphal West district .These Subjects were recruited on belonging to habit to be sedentary behavior lifestyle and no physical activities for the previous 10 months ago. This experimental study was conducted at local community hall from Langthabal Kunja heinou Makhong, Imphal west. The total number of samples were 25 young male who are actively participated in this study, age ranged from 17 to 35 years old. Independent variables of the study were Patanjali Yoga asana (AUM chanting, pranayama, suryanamaskar, cultural asana etc.) The Dependent Variables of this experimental study was administration of Anthropometric parameters such as Body waist circumference. The training schedule was 6 weeks along with 6 days per week and duration

of hours i.e 6:30 am to 7: 30 am .The yogic asanas load was prescribed according with principle of FITT . The data were collected through the technique of experimental procedure of pre and post data collection.

3. COLLECTION OF DATA:

The data were collected through the administration with the following process. The physical body of the subjects stands straight up and then breathes out. The tool of measurement was used with a tape which was to check the circumference around the smallest part of abdomen as waist. This site of waist is just above body belly button. The pre and post test were conducted before and after the 6 weeks Hatha Yoga training programme

Hatha yogasana practice training schedule and training load prescription according to FITT Principle as bellow

FREQUENCY	INTENSITY		TIME	TYPE
Frequency of Stimulus	Intensity of Stimulus	Density of Stimulus (rest)	Duration of Stimulus	YOGA
3 times per 6 days	10 sec.× 3=30 sec	2×3= 6 sec.	30+6=36 sec	<u>AUM chanting</u>
4 times per 6 days	10 sec.×6 times= 60 sec	3 sec.× 5 times=15 sec	60+15=75	<u>Pranayama of Nadi shodana</u>
	10 sec.×6 times= 60 sec	3 sec.× 5 times=15 sec	60+15=75=	1).Chandrabhedana
	10 sec×2=20 20sec × 6=120 sec	3 sec.× 5 times=15 sec	120+15=135 sec. Total=285=4:45 sec	2).Suryabhedana
	1× 30 times=30sec. 30×5 rep.=150 sec.	5sec.× 3 times=15sec	150+15=165 =2:45	3).Anuloma-viloma
	10sec × 12=120sec 120sec ×12= 1446sec	5 sec. × 3 times=15sec	1446+ 15 =1461 sec =25:1sec	Kapal bhati
				<u>Survanamaskar</u>
				<u>Patanjali Yoga asanasa according to based on cultural position</u>
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	<u>Standing Asana</u>
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	1).Utasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	2) Tadasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	3).Ardha kriti chakrasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	4).Padahasthasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	5).trikonasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec. Total= Total=372=7:52	6) Konasana
				<u>Sitting Asana</u>
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	1) Vajrasana
	26 sec. × 2 times=52	5sec. × 2 times=10sec	52+10=62sec.	2).Ardha Ustrasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	3).Pachimutasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	4).Yoga bandukasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec.	5).Gomukhasana
	26 sec. × 2 times=52	5 sec. × 2 times=10sec	52+10=62sec. Total=372=7:52	6).Ardha matsyendrasana
				<u>Prone Asana</u>
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56sec.	1).Bhujagasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	2).Salvasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	3).Naukasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	4).Dhanursana

	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	5)Ek pada salvasana(both)
			Total=280=4:40 sec	
				Supine asana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56sec.	1)Nabasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	2)Setu bandhasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	3)Pawan-muktasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	4)Halasana
	26 sec. × 2 times=52	2 sec. × 2 times=4sec	52+4=56 sec.	5)Sarvangasana
			Total=280=4:40sec	
			2 min :51 sec	Savasana (Deep relaxation technique)
			TOTAL=60 MIN=one hour	

4. STATISTICAL ANALYSIS:

The data obtained were analyzed for the statistical significance using a paired “t- test” by using Statistical Package for the Social Science (SPSS) version 20 and $p < 0.05$ was considered the level of significance.

5. RESULT AND DISCUSSIONS OF THE FINDING:

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	patanjali yoga for pre test value	82.9180	25	12.66166	2.53233
	patanjali uoga for post test value	80.9040	25	12.46848	2.49370

Table -1. Paired Samples Statistics

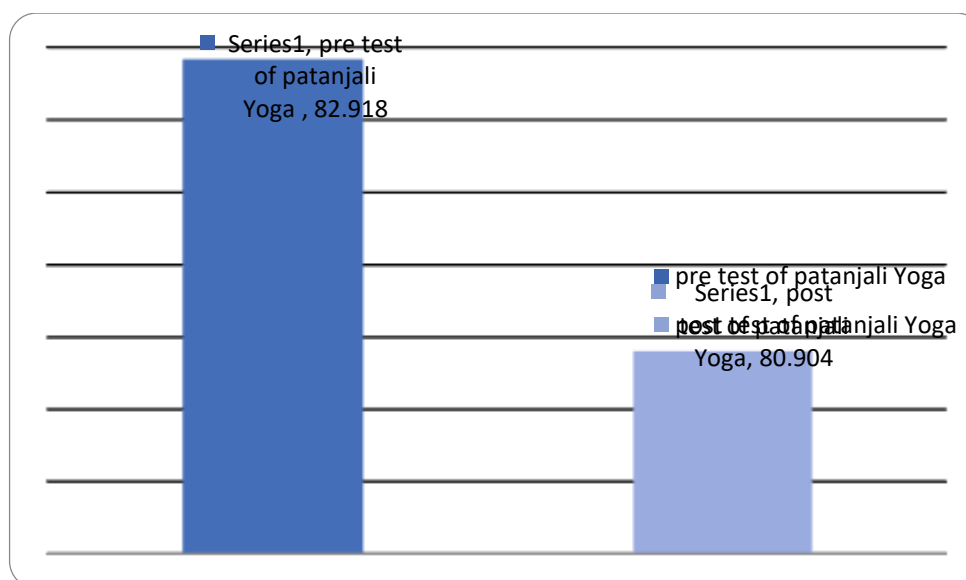


Figure: Pre test and Post test value of body Waist circumference

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			

Patanjali yoga of pre test on WHR - Hatha yoga of post test on WHR	2.014	1.96646	.39329	1.20228	2.82572	5.121	24	0.000 ***
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*** Highly significant

Table 2. Paired Samples Test

The following interpretation can be made on the basis of result showed in the above output:

1. After six weeks yogic training, mean value of Waist circumference of post test score 80.9040 which is lesser than pre test mean score 82.9180.
2. It can be seen from Table 2. That the value of t-statistic is 5.121. This t- value is significant as the p-value is 0.000, which is less than 0.05. The calculated value of t- is 5.121 is greater than tabulated value 2.064. Ho- may be rejected so, six weeks Hatha Yoga practices training has the highly significant that there was effectively reduction in Waist circumference from Young male of sedentary lifestyle living from Langthabal Kunja, Manipur.

6. DISCUSSION OF FINDING:

We know that waist hip ratio value of according to World Health Organization was 0.85 or less and WHR of 1.0 or higher increases the risk for heart disease and other conditions that are linked to being overweight. In this case, Patanjali principle of yogic practice may enhance better digestion. Generally yogic training is effective to control body fat. So it has been evaluated from the statistical results significant that Patanjali Yogasana training has the effect on Waist circumference on belly region for helping fat burning.

7. CONCLUSION:

Patanjali Yoga principle is one of best and preventive measure of excessive fat store inside the bodies. This experimental study suggested that yoga practice according to principle of FITT will helpful for management of time and accurate systematic training protocol. So this pilot studies helpful for decrease excessive fat from the waist region of the abdomen from Body.

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BENEFICIAL EFFECTS OF MEDITATION AND YOGA IN SPORTS

DR. SARANG KHADSE

Director of Physical Education and sports, Jawaharlal Nehru College Wadi , Nagpur

Email - drsarangkhadse13@gmail.com

Abstract:

Meditation is a practice where an individual uses a technique – such as mindfulness, or focusing the mind on a particular object, thought or activity – to train attention and awareness, and achieve a mentally clear and emotionally calm and stable state. Yoga is a group of physical, mental, and spiritual practices or disciplines which originated in ancient India. Yoga is one of the six orthodox schools of Hindu philosophical traditions.

1. INTRODUCTION:

Meditation has been practiced since antiquity in numerous religious traditions, often as part of the path towards enlightenment and self realization. Some of the earliest written records of meditation (Dhyana), come from the Hindu traditions of Vedantism. Since the 19th century, Asian meditative techniques have spread to other cultures where they have also found application in non-spiritual contexts, such as business and health. Meditation may be used with the aim of reducing stress, anxiety, depression, and pain, and increasing peace, perception, self-concept, and well-being. Meditation is under research to define its possible health and other effects.

1.1. Role of meditation and yoga in sports:

Meditation has recently grown in popularity, and as more people see the benefits of it, more coaches, trainers and athletes are beginning to incorporate it into their training plans. Novak Djokovic, Olympian and professional tennis player claims he practices 15 minutes of mindful meditation a day. Other athletes like LeBron James, Kobe Bryant, and Derek Jeter, to name a few, also use meditation.

1.2. Enhances Focus:

Meditation allows us to focus on the present moment. There are a lot of distractions for an athlete as they perform; the noise of the crowd, the competitors beside them, or even past mistakes. These distractions can have negative impacts on their performance and may be the reason an athlete misses the podium or their chance at making an Olympic team. The practice of meditation teaches athletes to strengthen their focus on the present task at hand and drop all distractions, especially negative thoughts that may interfere with their success. Staying focused on the game or race is an essential component for an athlete to succeed.

2. HELPS ATHLETES COPE WITH PAIN:

With all the intense training that athletes go through on a regular basis, it's not unusual for them to be in pain or discomfort. According to a recent study, meditation has been proven to sharply reduce a person's sensitivity to pain. The study measured how participants responded to pain before and after attending four 20-minute meditation training sessions over the course of four days. The results showed that participants rated pain 57% less unpleasant and 40% less intense, on average, after they went through the meditation training. These findings show that meditation can help athletes cope with pain, which can help them push through those tough moments of training when it hurts the most.

3. IMPROVES SLEEP PATTERNS:

Another benefit that meditation has on athletes is that it improves sleep patterns. A study published in the Journal of Sleep showed that athletes who do not get enough sleep can experience negative effects such as weight gain, inability to maintain focus, mood disturbances, increased anxiety or depression, and decreased motor control. All these negative effects can dramatically impact an athlete's performance. By incorporating

meditation into their workout routine, athletes can sleep better and fight insomnia. This is because meditation techniques evoke the relaxation response, a deep physiological shift in the body that's the opposite of a stress response. This relaxation response can help eliminate stress, which is usually the cause of sleep trouble. Athletes who have difficulty sleeping due to the stress of their training or upcoming competitions, could benefit from a good night's sleep.

4. BOOSTS THE IMMUNE SYSTEM:

Not only does meditation help an athlete sleep better, it also helps boost their immune system, preventing illness that could affect their training or competition. A study conducted by the University of Wisconsin, evaluated the potential preventative effects meditation and exercise have on incidence, duration and severity of acute respiratory infection (ARI) illness. The study found that those who practiced meditation experienced fewer incidences of ARI, as well as shortened duration and severity of symptoms compared to those in the exercise and control group. Bottom line: meditation can help lower the chance and severity of illness, allowing athletes to continue to train for success.

5. REDUCES STRESS:

Whether it be from training or competition, athletes are always under stress. While some stress can be good, too much can hinder performance. Therefore, it's important for athletes to find ways to manage and reduce their stress. Meditation is a good way to do it because it increases positive effects and decreases negative effects, such as anxiety. A recent study found that participants who experienced mindfulness-based stress reduction had significantly less anxiety, depression and somatic distress compared to those in the control group. Their findings suggest that the emotions they were experiencing may be processed differently in the brain. Athletes who adopt mindful meditation can reduce their stress and be more prepared to perform during competitions. Meditation has many key benefits that can help with athletic performance. Athletes who incorporate meditation into their workout routine can be better prepared for competition and have a mental edge on their opponents.

6. YOGA

Yoga is a group of physical, mental, and spiritual practices or disciplines which originated in ancient India. Yoga is one of the six orthodox schools of Hindu philosophical traditions. There is a broad variety of yoga schools, practices, and goals in Hinduism, Buddhism, and Jainism.

7. PHYSICAL BENEFITS

"The relaxation techniques incorporated in yoga can lessen chronic pain, such as lower back pain, arthritis, headaches and carpal tunnel syndrome," explains Dr. Nevins. "Yoga can also lower blood pressure and reduce insomnia." Other physical benefits of yoga include:

- increased flexibility
- increased muscle strength and tone
- improved respiration, energy and vitality
- maintaining a balanced metabolism
- weight reduction
- cardio and circulatory health
- improved athletic performance
- protection from injury

8. CONCLUSION:

As every athlete or coach knows, a huge part of the game is mental, and yoga can help with your mental strength, too. Meditation helps you focus, reduces stress, and stabilizes emotions. It's also known to help as a form of pain management, which can be very beneficial in sports.

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IMPACTS OF COVID-19 ON E- SPORTS: ROLE OF E-SPORTS AND TECHNOLOGIES DURING PANDEMIC

Dr. Harish C. Mohite

Director of Physical Education

Smt. Rajkamal Baburao Tidke Mahavidyalaya Mouda, Dist. Nagpur

Abstract

Game is a significant supporter of financial and social turn of events. Its job is very much perceived by Governments, remembering for the Political Declaration of the 2030 Agenda, which thinks about "the commitment sports make to the strengthening of ladies and of youngsters, people and networks, just as to wellbeing, training and social consideration goals."

1. Introduction

The COVID-19 pandemic has made the most huge interruption the overall brandishing schedule since World War II. Over the world and to changing degrees, games have been dropped or delayed. The 2020 Summer Olympics in Tokyo were rescheduled to 2021. Onlookers have no games to watch and players no games to play. Just a couple of nations, for example, Turkmenistan, Belarus and Nicaragua, have proceeded with proficient donning matches as arranged.

2. Effects of COVID-19 on sports

With the abrogation of, for instance, the Tokyo Olympic Paralympic Games, and the European Soccer Championships, the year 2020 will be reviewed all the more promptly for the movements in the brandishing season because of the Covid-19 pandemic instead of instances of heavenly wearing greatness. Limitations on movement, physical action, and mass social occasions due to COVID19 pandemic have had significant ramifications for competitors and players, with limitations of access to preparing scenes, dropping of occasions, and loss of income. These suggestions can have equivalent mental outcomes. Lately, numerous assets have been made accessible on this point, including direct mediations for competitors, and circuitous for different partners including mentors and guardians. How competitors and accomplices in game can altogether adapt to such affliction is helpful from an assistance arrangement point of view and informative for explaining our comprehension of numerous subjects including feeling guideline, adapting abilities, strength, psychological well-being disgrace, and prosperity techniques

3. Mixing the Digital and Physical Worlds

Arenas, fields and ballparks have for quite some time been at the cutting edge of blending the physical and computerized universes. By utilizing advanced innovation like increased reality, groups and clubs were simply starting to discover ways innovation could drive fans to the arena as opposed to keeping them at home. Following quite a while of social removing, we've gotten progressively dependent on innovation to work, mingle and achieve basic capacities. Individuals who already may have utilized innovation to make a call or send a snappy instant message have now gone through weeks putting innovation at the focal point of their lives. Previous late connectors have now made up for lost time, making innovation in a post-COVID-19 world

progressively basic to the games understanding. Portable tagging, cashless installments and online concession requesting will be the new standard. Touchless entryways and mechanized innovation that guides in clean practices will likewise be vital.

4. The Role of Esports

As the pandemic caused the crossing out and deferments of thousands of live occasions, esports continued scoring wins. The League of Legends European Championship went on for all intents and purposes with negligible difficulties. Game spilling site Twitch announced a 31 percent expansion in rush hour gridlock in March, that month the pandemic shut down conventional games classes all over the place.

Presently conventional games alliances are depending on esports occasions to produce intrigue and energy while in-person occasions are waiting. Recipe 1 and NASCAR have facilitated virtual races that have occurred simultaneously as recently booked live occasions with darling drivers contending for all intents and purposes. This sudden change by they way we encounter and draw in with games has made one thing understood: esports are staying put and will probably locate another arrangement of fans because of the pandemic. Long haul, I expect that customary donning groups will keep on discovering approaches to use virtual gaming close by face to face occasions.

5. Human Connections

Indeed, even as innovation and virtual games gain prominence, the requirement for human association despite everything exists. The need to see a live occasion will endure as innovation develops around the occasion fringe, making capacities like stopping and buying concessions simpler. After COVID-19, I envision arenas will by and by load up with fans anxious to help their groups and eager to gain new experiences with loved ones.

Wearing clubs and groups have assumed a vital job in the network's reaction to the infection. In the case of loaning their arenas or fields for use as a temporary medical clinic or gracefully focus or assembling their fan bases to help those out of luck, sport is as key to the network as could be. While future settings might be intended to expand network readiness in the midst of emergency, COVID-19 has enlightened the basic job sports plays in uniting individuals. With a re-established center around innovation, sports and live occasions will keep on making those human associations—ones that will outlive any impermanent interference.

6. Conclusion

Of course, COVID-19 has additionally overturned the donning schedule, with proficient alliances wherever suspending their exercises to constrain the spread of the infection. Indeed, even the Summer Olympics, normally one the world's most-watched brandishing communicates, has been pushed back a year. The COVID-19 lockdowns have supported client commitment with computer games and esports. Incomes for some, gaming organizations and stages have expanded during the pandemic. The pandemic is quickening existing patterns inside the gaming business.

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**RELATIONSHIP BETWEEN AGE AND LEVEL OF
PARTICIPATION AMONG POLO PLAYERS OF IMPHAL EAST
DISTRICT OF MANIPUR**

¹Lourembam Ibetombi Devi, ²Dr. S. Ranjit Singh,

¹Research Scholar, ²Principal,

¹Department of Physical Education & Sports Science, Manipur University.

²Oriental College, Government of Manipur, Imphal West, Manipur.

Abstract:

Polo is one of the oldest team games of the world. In Manipur Polo is locally known as Sagol Kangjei. The modern Polo that is played in the world today originated from Manipur. Review of literature shows that no study has been made on the average age of Polo players of Manipur. The purpose of this study is to find out the relationship between age and level of participation among the Polo players. A total of 30 players belonging to seven polo clubs of Imphal East District of Manipur affiliated to the Manipur Horse Riding and Polo Association were taken as samples. The data on the age/date of birth of the players were collected through the officials of the clubs. For the level of participation of players, the tournament records of last 10 years of the state association were used. To find out the relationship between the age and level of participation, the collected data was statistically analysed by conducting Pearson's correlation and ANOVA tests. Results of the study indicated significant relationship between the age and level of participation among the Polo players of Imphal East District, Manipur.

Key Words: *Sagol Kangjei, Polo Players, relationship, participation, tournament records.*

1. INTRODUCTION:

The game of polo is also known as hockey on horseback. A good horsemanship and skill of the game is required for success in the game. The Ponies also play an important role in the game. The game is played on a fast pace as polo ponies are well trained for the game. As game required large fields, good equipment and good ponies, it is regarded as game of the aristocrats and nicknamed game of the kings. However, it has been played by the rich and poor alike in Manipur. Outside the state, the aristocrats, princes and kings only played the game and hence it has been nicknamed the game of kings. It is also known as the king of games as horsemanship was regarded as noble accomplishment¹. A renowned writer on Polo J.K. Stephen wrote that “Let other people play at other things, the king of games is still game of kings”. The game of polo was a national game of the small princely state of Manipur and it was recorded by many British officers posted in Manipur after the Treaty of Yandabo in 1826. The game was first known as hockey sitting on horseback as recorded by Captain R.B. Pemberton in 1834². Later Mc Culloh called it hockey on horseback as there was no English name for this game. Dr. Brown (1873) still called it by that name³. The Silchar Kangjai Club, first polo club in the world was set up in 1859 and when the first rules of the game was drafted in 1863 at Silchar, Cachar, it was still called *Kangjai*⁴. The Calcutta Club set up in 1863 was also christened as Calcutta Hockey Club which indicates that name Polo was not yet adopted for the game. Lieutenant General Joseph Ford Sherer, the father of Modern Polo played a key role in setting up both the clubs and the spread of Polo from Manipur to other places of British India and world. In Peshawar, in 1863, a variation was played under the name *Kangjai Bazee*, meaning game of *Kangjei*. According to Encyclopaedia Britannica, the term Polo is a Balti word meaning “ball” and English term for game of *Sagol Kangjei* or Hockey on Horseback has been derived from that⁵. There are evidences that the game was named “Polo” by Calcutta Polo Club in late 1860s to early 1872. The game is said to have evolved during the reign of King Kangba as a pastime game in 3100 BC from whom it is said to have named the Polo Stick as *Kang-jei* and the ball as *Kang-drum*. The Guinness Book of Records acknowledged the game to have originated from Manipur, it recorded that “ Polo can be traced to origin in Manipur State, C. 3100 B.C. when it

was played as *Sagol Kangjei*⁶. It is one of the popular indigenous games of Manipur and the original game is still played side by side with international polo in the state.

Different sports have different peak period of age depending on the oxygen demand muscular requirement and above all the skill requirement. This has a relationship with the number of years of practice and at what age the player is initiated in to the game. The social factor of age plays a big role when played at competitive and non-competitive level. The polo players in Manipur fall in to a wide cross section of age limits. Though for many games, the age of thirty is regarded as limit for competitive sports, in Manipur Polo is played till late age. Review of literatures shows in football, little studies have been done on the peak age of a footballer, but the average age of champions league players has been found to be 26.5 years and for tennis, the average age of top 100 players during last decade has been found to be 27.9 years.⁷ Another study found that men have a harder time balancing the older they get, starting at age 25. Balance depends on the coordination of three main systems in the body: visual, vestibular, and somatosensory systems⁸ for which age is an important factor. According to a study made on the swimmers of various age groups in master swimmers in USA, it has been found that the decline in performance with increasing age was found to be quadratic rather than linear⁹. For the peak age of performance in long distance running a study was done on marathon runners (based on Berlin Marathon) and found that APP was 32 years in women and 34 years in men using 1-year age groups, and 30-34 years in women and 35-39 years in men using 5-year age groups¹⁰. The speed with which the athlete reacts is a combination of their ability to recognize the required response, the choices available to them, the type of reaction required, practice in responding to this situation, fatigue, and the age of the athlete. In addition to the generalized impact that age presents on injury and the body's ability to recover, age is a significant reducing factor in the assessment of reaction time in athlete¹¹. There has not been much study done in the game of Polo in Manipur or elsewhere. A few studies have been made on the historical aspects of this game by researchers L. Sharatchandra Singh (1998)¹² and W. Budha Singh (1992)¹³ and according to their findings, the game of polo is an indigenous game of the state of Manipur. Horace Laffaye (1935) traced the spread of this game from Manipur to other parts of India and rest of the world and its evolution as an Olympic games¹⁴.

1.1. Objectives: In modern days Polo has become an expensive sport, but no study has been carried out regarding age and level of performance among the polo players in Manipur. The purpose of this study was to find out the age of players and its relation with the level of participation among the polo players of Imphal East District of Manipur.

2. METHODOLOGY:

Selection of Subject: The present study was conducted on 30 Polo players belonging to seven polo clubs of Imphal East District of Manipur by random selection. The seven polo clubs are affiliated to Manipur Horse Riding and Polo Association (MHRPA) which is an affiliated body of the Indian Polo Association.

Instrumentation: The data on the date of birth or the age in years of the players were collected through the officials of the clubs. The age was taken in completed years and months and days were ignored for the purpose of instrumentation. The data were collected only from the willing players and the purpose of the data collection were clearly made understood to the players. For the level of participation of the players, it was based on the performance in the state, national and international level tournaments. The tournament records maintained by MHRPA were obtained for the level of performance by the players by giving different scores for different levels of tournaments.

3. RESULTS:

To find out the significant effect of age on level of participation of male Polo Players, studies were made on the frequency of players in different age groups and the performance of the players in different age groups. The standard deviations and t-ratios were computed from the collected data and the data were subjected to further analysis. It has been observed that there is significant relationship between frequency and age of the Polo Players of Manipur. The players falling in one age group were totalled for each year of age, the study was made for the male polo players of age 20 to 28, all the 30 samples were distributed to respective ages. The bar graph shows the pattern of distribution of players in to different age categories.

The age and level of participation was analysed. The age was determined from the date of birth provided by the players. The performance was taken from the tournament records maintained by the MHRPA. For being a registered player, there is one score, for each years participation in the state level tournaments, there shall be another score. For being winner in the state level tournament, there shall be 3 scores and 2 for the runners up. For national level, winner and runner gets 5 and 3 scores; for international level, winner and runner gets 10 and 5 scores. The records of last 10 years were considered for this study. The following table shows the mean performance level of the players of each age categories.

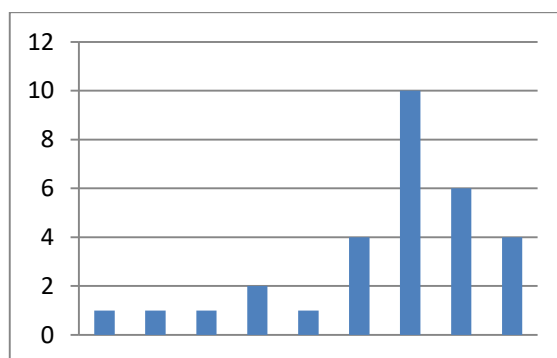


Figure 1. Distribution of samples in to different Age Groups.

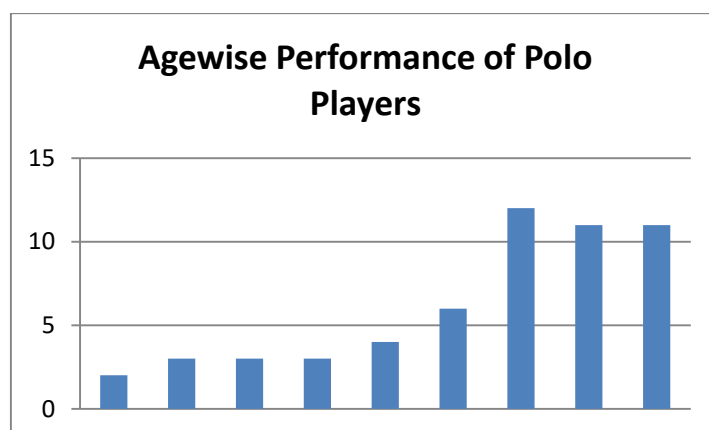


Figure 2. Age & Level of Participation

The correlation between the age and number of players and age and level of performance was statistically analysed. In the Pearson's Correlation analysis through SPSS, in the age-frequency correlation, the coefficient of correlation (r) is of moderate magnitude (0.696) indicating moderate correlation between the two variables.

Type of Correlation	Correlation coefficient (r)	N	(Sig.2-tailed)- p	Remarks
Age-Frequency	0.696	9	0.037	Correlation is significant at the 0.05 level (2-tailed).
Age-Participation	0.936	9	0.000	Correlation is significant at the 0.01 level (2-tailed).

The value of p was .037 which is lower than the critical value of 0.05 suggesting that there is a positive moderate correlation between the age and number of players. But in the Pearson's Correlation analysis of age-level of participation, the value of " r " is of very high magnitude (0.936) and value of p was 0.00 which is lower than the critical value of 0.05 suggesting that there is a very high positive correlation between age and level of participation of the polo players. ANOVA test was done on the Age –Participation data and the value of " F " was 13.8 which is bigger than the table value of $F_{(5,3)} = 9.01$ and value of $p = .028$ which is also below the $\alpha = 0.05$.

4. DISCUSSIONS & FINDINGS:

It has been found that the maximum number of players, i.e. 10 players falls in the age group 26 years group (33.3%) followed by 6 players in 27 years group (20%). The 28th year, which is the final year of the present study is represented by 4 samples (16.6%). The average age of the samples worked out to be 25.57 years, say 26 years. In the level of participation, the size of the mean performance is maximum in the 26th year with a mean score of 12 and followed by the 27th and 28 with mean scores of 11 each. The minimum mean score is found in the 20th year which is the first year of age range of this study with a mean score of 2. The last three years of the age range shows maximum performance index in this study. The likely reason is that in Polo

in addition to the players skill of the game like dribbling, hitting, scoring etc. its control and coordination with its mount is also very important and the players adjustment with the mount takes some time improves with more association with the ponies.

5. CONCLUSIONS:

- There is a relationship of age with the number of Polo players in Manipur, the number of players is more in mid age range.
- The average age of the Polo players of Manipur falls in 26th year range.
- There is a high positive relationship between age of a Polo player and his performance.
- The performance of a Polo player increases with age and the mean maximum performance lies near 26th year of age.

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EFFECT OF DROP SET AND STRENGTH SET TRAINING IN MUSCULAR HYPERTROPHY ON SELECTED BODY BUILDERS

¹ABHIJITH R. ²JAVIO JOSE M (Co-Author)

B.P. Ed., M.P. Ed., Degree College of Physical Education,
Sant Gadge Baba Amravati University

Email - ¹abhijith1994r3@gmail.com, ²javiojose@gmail.com

Abstract:

Bodybuilding is a sport involving strenuous physical exercise in order to strengthen and enlarge the muscles of the body. An individual who engages during this activity is mentioned as a bodybuilder. Muscle hypertrophy is the term for the expansion and increase of the dimensions of muscle cells. It occurs as a result of workout like weightlifting, and therefore the term is related to weight training. Drop sets work by allowing you to extend the quantity of labor that you simply perform in each set. This enables for more fatigue created for greater improvements. Strength training is an exercise type that's designed to increase lean muscle tissue, improve structural strength. The prime purpose of the study was to find out the effect of drop set and strength set training on muscular hypertrophy. Thirty (30) bodybuilders were selected from the state of Kerala with age ranging from 17-27. The sampling was done using purposive sampling method. On the basis of literature, it was hypothesized that drop set will have more effect on muscular hypertrophy than strength set on selected bodybuilders. The data pertaining to the study was collected by anthropometric test. To determine the significant effect of drop set and strength set training on muscular hypertrophy and to compare the both training methods, dependent t-test and 'F'-test (ANOVA) were employed. Drop set training had comparatively more effect on the muscular hypertrophy of bodybuilders than Strength set training.

Key Words: Muscular Hypertrophy, Drop-set, Strength-set, Body builders

1. INTRODUCTION:

Bodybuilding is the sport of using exercise to regulate and develop one's musculature for aesthetic purpose s by progressive resistance exercise. a private who engages during this activity is mentioned as a bodybuilder who consider themselves athletes and showmen, and they spend hours in the gym lifting weights to build muscle. The expansion and increase of the dimensions of muscle cells is known as Muscle hypertrophy. the foremost common sort of muscular hypertrophy occurs as a results of workout like weightlifting, and therefore the term is usually related to weight training. Stimulation occurs during the contraction of the muscle—during the particular exercising. Whenever a muscle is exercised, it contracts. This repeated contraction during a workout causes damage to the interior muscle fibers. These muscle fibers are weakened throughout the course of a workout. Once damaged, these fibers are then able to be repaired. Muscle cell repair occurs after the workout, while the muscles are resting. New muscle fibers are produced to assist replace and repair the damaged ones. More fibers are produced to form up for the damaged ones, and this is often where the particular muscle growth takes place. The drop set training is a convoluted and modern technique which is employed by athletes to develop muscle and strength quickly. Drop sets work by allowing you to extend the quantity of labor that you simply perform in each set. This enables for more fatigue to be created and greater improvements. Strength set training type is the exercise type that's used to extend lean muscle tissue, develop strength, minimize excess body fat, It's often related to the utilization of weights but can take a spread of various forms

1.1. PURPOSE OF THE STUDY:

The prime purpose of the study was to find out the effect of drop set and strength set training on muscular hypertrophy which was tested on selected bodybuilders.

1.2. HYPOTHESIS: On the basis of literature and personal understanding of the scholar it was hypothesized that drop set would have significantly better effect on muscular hypertrophy than strength set on selected bodybuilders.

2. METHODOLOGY:

Thirty (30) bodybuilders were selected from the state of Kerala and their age was ranging from 17-27 and purposive sampling method was used for data collection. For the purpose of study, Strength Set, Drop Set Training and Muscular Hypertrophy were selected as variables. The data pertaining to the study were collected by anthropometric test used to measure the circumference of body muscle parts of particular landmarks. To determine the significant effect of drop set and strength set training on muscular hypertrophy and to compare the both training methods, dependent t-test and 'F'-test (ANOVA) were employed. To test the formulated hypothesis, the level of significance was chosen at 0.05. It was hypothesized that there would be significant difference on muscular hypertrophy on selected bodybuilders in drop set and strength set training. It was further hypothesized that drop set will have significantly better effect on muscular hypertrophy in bodybuilders than strength set

Table 1. Summary of One Way Analysis of Variance for the Pre-test Data on Muscular Hypertrophy through Anthropometric Test of two Experimental Groups and one Control Group of Body-builders

Source of variance	Degree of freedom	Sum of square	Mean sum of square	F-ratio
Between the groups	K - 1 3 - 1 = 2	0.728	0.364	.0034 [@]
Within the groups	N - K 30 - 3 = 27	2869.4	106.274	

@Not significant at .05 level

Tabulated

$F_{.05(2,27)}=3.35$

It is evident from the findings of the above table-1 that the calculated F-value of 0.0034 is too less than that of tabulated F-value of 3.35 which is required to be significant at .05 level for the 2, 27 degrees of freedom, which indicates that there is no significant differences among the pre-test means after distributing three groups. Since the F-ratio is found to be insignificant, therefore Post Hoc Test is not applied to determine the paired mean difference. Mean comparison has been shown graphically in Fig.1.

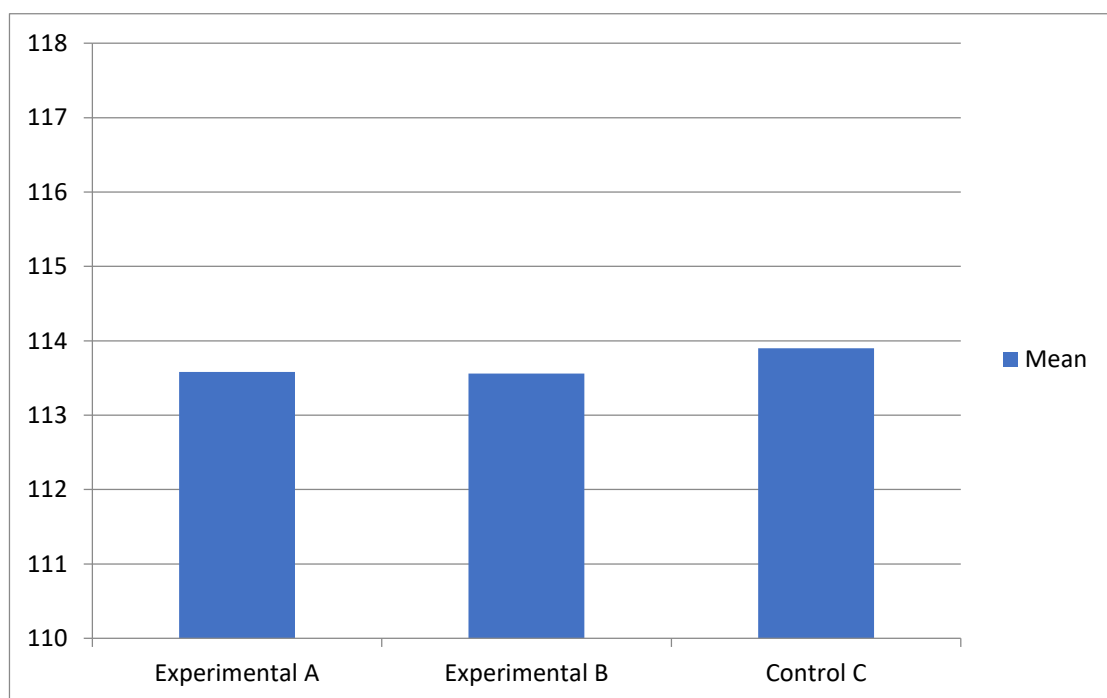


Figure 1. COMPARISON OF MEANS OF PRE-TEST DATA ON MUSCULAR HYPERTROPHY OF TWO EXPERIMENTAL AND ONE CONTROL GROUP

Table 2. Comparison of Pre-Test and Post-Test Means of Two Experimental and Control Group for the Data on Muscular Hypertrophy Tested through Anthropometric Test of Body-builders

Group	Pre-Test Mean	Post-Test Mean	Difference between Pre-Test and Post-Test Scores (D)	Standard error of sum of D	t-Ratio
Experimental (A) Strength Set Training	113.58	118.92	53.4	1.0349	51.59*
Experimental (B) Drop Set Training	113.56	120.44	68.8	1.6316	42.16*
Control (C)	113.9	114.66	7.6	1.0044	7.56*

*Significant at .05 level

Tabulated 't' $_{.05(18)} = 2.262$

The findings of the above table-2 reveal that there are significant difference in between pre-test and post-test of experimental Group-A i.e, Strength Set Training Group and Experimental Group-B i.e, Drop Set Training and Group-C i.e, Control Group because the calculated t-values of 51.59, 42.16 and 7.56 are greater than the required tabulated t-values of 2.262 at .05 level for the nine (9) degrees of freedom. The comparison of means has been shown picturesquely in Fig.2.

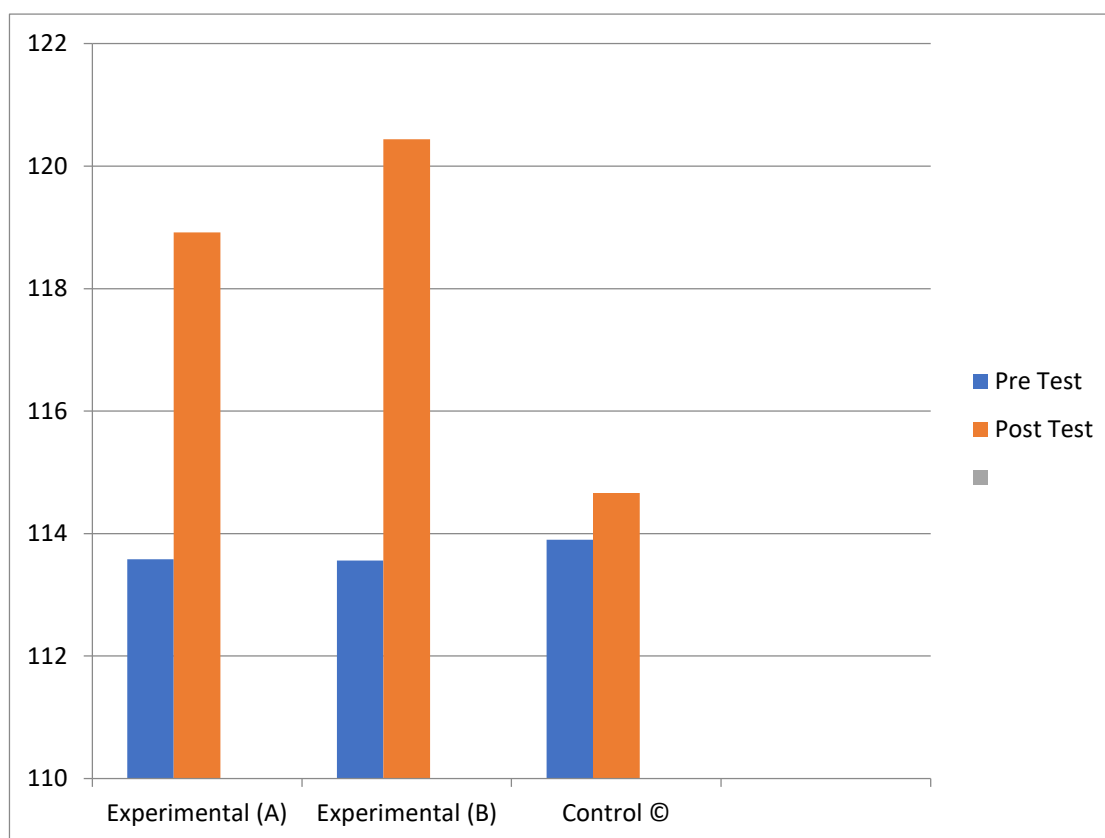


Figure 2. COMPARISON OF PRE-TEST AND POST-TEST MEANS OF THE TWO EXPERIMENTAL GROUPS AND ONE CONTROL GROUP OF BODY-BUILDERS

Table 3. Summary of One Way Analysis of Variance for the Post-Test data on Muscular Hypertrophy through Anthropometric Test of Experimental Groups and Control Group of Body-builders

Source of Variance	Degree of freedom	Sum of Squares	Mean Sum of Squares	F-ratio
Between the Groups	$K - 1$ $3 - 1 = 2$	179.5547	89.77735	3.654*
Within the Groups	$N - k$ $30 - 3 = 27$	663.264	24.5653	

* Significant at .05 level

Tabulated $F_{.05(2, 27)} = 3.35$

It is evident from the findings of the above table-3 that the calculated f-value of 3.654 is higher than the tabulated f-value of 3.35 for the 2, 27 degrees of freedom at .05 level, which shows mean difference among the three groups, is statistically significant. Since the obtained f-ratio is found to be significant, therefore to

determine the paired mean difference Least Significant Difference (LSD) Post Hoc Test is employed, and it has been shown in Table-4.

Table 4. Paired Mean Difference among the three Groups for the Data on Muscular Hypertrophy Tested through Anthropometric Test

Mean of			Mean Difference	Critical Difference
Strength Set	Drop Set	Control		
118.92		114.66	4.26	4.548
118.92	120.44		1.52	4.548
	120.44	114.66	5.78*	4.548

*Significant at .05 level

It is comprehensively understood that the difference between the means of Drop Set Group and Control Group of 5.78 is only statistically significant because it is quite greater than the critical difference value of 4.548 at .05 level. This table also shows that there is no significant difference between Strength Set Training and Drop Set Training Group (MD= 1.52) as well as Strength Set Training and Control-Group (MD= 4.26) as both the obtained mean difference values is less than that of Critical Difference values of 3.598 needed to be significant at .05 level. Ordered mean difference has been presented graphically in Figure 3

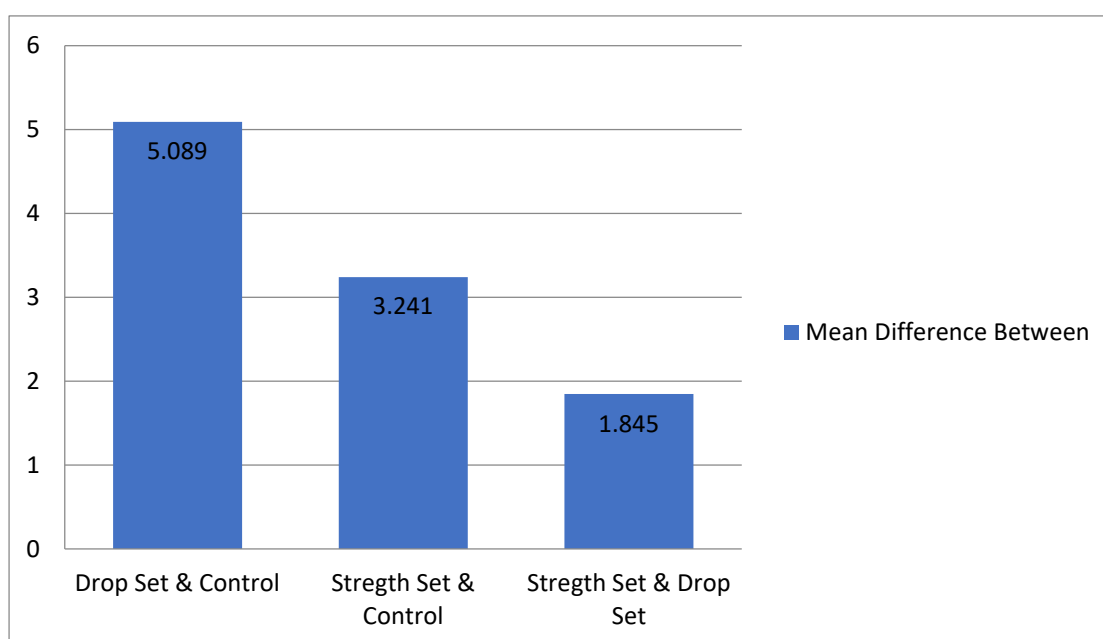


Figure 3. ORDERED MEAN DIFFERENCE BETWEEN THREE GROUPS

5. RESULT AND DISCUSSION:

It is evident from the findings of the below table-1 that the calculated F-value of 0.0034 is too less than that of tabulated F-value of 3.35 which is required to be significant at .05 level for the 2, 27 degrees of freedom, which indicates that there is no significant differences among the pre-test means after distributing three groups. Since the F-ratio is found to be insignificant, therefore Post Hoc Test is not applied to determine the paired mean difference. Mean comparison has been shown graphically in Fig.1 The findings of the below table-2 reveal that there are significant difference in between pre-test and post-test of experimental Group-A i.e, Strength Set Training Group and Experimental Group-B i.e, Drop Set Training and Group-C i.e, Control Group because the calculated t-values of 51.59, 42.16 and 7.56 are greater than the required tabulated t-values of 2.262 at .05 level for the nine (9) degrees of freedom. The comparison of means has been shown picturesquely in Fig.2. It is evident from the findings of the below table-3 that the calculated f-value of 3.654 is higher than the tabulated f-value of 3.35 for the 2, 27 degrees of freedom at .05 level, which shows mean difference among the three groups, is statistically significant. Since the obtained f-ratio is found to be significant, therefore to determine the paired mean difference Least Significant Difference (LSD) Post Hoc Test is employed, and it has been shown in Table-4. It is comprehensively understood that the difference between the means of Drop Set Group and Control Group of 5.78 is only statistically significant because it is quite greater than the critical difference value of 4.548 at .05 level. This table also shows that there is no significant difference between Strength Set Training and Drop Set Training Group (MD= 1.52) as well as Strength Set Training and Control-

Group (MD= 4.26) as both the obtained mean difference values is less than that of Critical Difference values of 3.598 needed to be significant at .05 level. Ordered mean difference has been presented graphically in Figure 3

6. DISCUSSION OF FINDINGS:

The findings of table 1 showed no significant differences among the pre-test means of the three groups. It may be attributed to the fact that the groups were formed after the collection of pre-test data; the scholar manually arranged the subjects by shuffling to make the equal groups, hence insignificant difference is observed among the means of three groups. The findings of table 2 showed significant difference between the pre-tests and post-tests of all the groups. It may be attributed to the fact that both Strength Set and Drop Set Training Groups have undergone significant changes in their Muscular Hypertrophy due to the effectiveness of the treatment they were undergoing for the study. The significant changes of the Control Group may be due to the diet followed by the subjects which the research scholar didn't have any control on because apart from the training method one follows, the nutritional requirement of the body is equally plays an important role in the muscular hypertrophy of the subject. The findings of table 3 and 4 show significant mean differences among the Drop Set and Control Group. The findings also revealed there are no significant differences between Drop Set and Strength Set Group as well as Strength Set and Control Group. It may be attributed to the fact that Drop Set Training is far more effective than Strength Set Training in Muscular Hypertrophy of the subjects. Drop Set Training as the name suggests dropping of weights to twenty percentages lighter after RM of two sets without any rest in between whereas Strength Set Training follows the same weight RM sets with ninety seconds of rest in between each set, which also means Drop Set Training is less time consuming when compared to Strength Set Training. The cause of effectiveness may be because Drop Set Training builds up fatigue more on the target muscle part and optimal mechanical wear and tear occurs collectively more in Drop Set than in Strength Set Training. It also quickly accumulates more volume, greater muscle pump, undue more metabolic stress on the target muscle part. Thus along with proper and sufficient intake of nutrition and supplements optimum muscular hypertrophy takes place in bodybuilders who are undergoing Drop Set Training. Even if so it's been scientifically proven that Strength Set Training is better when it comes to strength development.

7. CONCLUSION:

Strength set and Drop set training has shown significant effect on the muscular hypertrophy of bodybuilders. Drop set training showed comparatively better effect on the muscular hypertrophy of bodybuilders than Strength set training.

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COMPARATIVE STUDY OF CREATIVITY AMONG DIFFERENT POST GRADUATE COURSES

¹SAURABH OJHA, ²VIKRAM SINGH KAIRA (Co-Author)

¹B.P.E, B.P.Ed, M.P.Ed (Pursuing)

¹Degree College of Physical Education, Amravati, Maharashtra

²B. Com, M. Com, B.P. Ed, M.P. Ed, Diploma in Sports Coaching (Football), Certificate in Health & Fitness
(Mumbai), Ph.D. Scholar

Email - ¹saurabhohjhadu@gmail.com

Abstract:

The main purpose of this study was to find out the significance of difference in Creativity among different Post Graduation Courses viz. M.P.Ed., B.P.Ed and D.Y.Ed. For the purpose of this study 75 male students, 25 from each courses were selected as subject and age of the subjects was ranging from 18 to 25 years. M.P.Ed., B.P.Ed and D.Y.Ed students were selected from different Physical Education courses of H.V.P. Mandal's Degree College of Physical Education. The subjects were selected by adopting simple random sampling method. Data of Creativity were collected by administering Creativity Questionnaire developed by Anne de A'Echevarria, on the aforementioned students and the scores were recorded according to the developed key of the concerned questionnaire. It was hypothesised that there would be significant difference in Creativity and in its sub-variables among the students of different courses. To determine the significance of difference on the above mentioned psychological variable among the three groups of student's One way Analysis of Variance (ANOVA) was employed. The level of significance was set at 0.05 for testing the hypothesis, the finding of the statistical analysis revealed that significance of difference was found in the variable of Creativity among the three different courses. The Finding of the study showed greater level of Creativity of M.P.Ed students as compared to B.P.Ed and D.Y.Ed students

Key Words: Creativity, M.P.Ed., B.P.Ed, D.Y.Ed etc .

1. INTRODUCTION:

There are too many physical and psychological aspects which play vital role in our day to day life. Games and sports are the laboratory for us to invent our creativity and academic achievement. Creativity is the heart of art. Art is the capacity to see beyond our sight, to give a form to our imagination true is known as creativity. The psychological study of creativity is the crucial to human progress if step are to be made in the sciences, humanities, and arts we must arrive at a far more detailed understanding of the creativity process, its forerunner, and its inhibitors. Creativity is the gesture of turning innovational and imaginative ideas into reality. Creativity is distinguished by the ability to view the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Creativity requires two processes: thinking, then producing. Creativity involves modifying your ideas, imagination, and dreams into reality. When you are being creative, you can spot the hidden sample, make connections between things that are not commonly related, and come up with new ideas. Creativity is a one of the medial source of sense in our lives, most of the things that are fascinating and important. Humans are the product of creativity and when we are involved in it, and we feel that we are living more fully comparing the rest of life.

1.1. Purpose of the study:

The main purpose of the present study was to find out the difference in Creativity among the students of different Post Graduation Courses.

1.2. Hypothesis:

Researcher hypothesised that there would be significant difference in Creativity among the students of different Post Graduation Courses.

2. METHODOLOGY:

75 male students, 25 from each course were selected as subject. M.P.Ed., B.P.Ed and D.Y.Ed students were from different Physical Education courses of H.V.P. Mandal's Degree College of Physical Education. Simple random sampling method was adopted to select the subjects. Age of the subjects was ranging from 18 to 25 years. Data on Creativity was collected by using creativity Questionnaire developed by Anne de A'Echevarria, on the aforementioned students and the scores were recorded according to the developed key of the concerned questionnaire and the obtained scores were arranged in the table for further statistical analysis.

Table – 1

Summary of One-way Analysis of Variance (ANOVA) for the Data on Creativity and its Sub-Variables among the Students of M.P.Ed., B.P.Ed and D.Y.Ed

Variables	Source of Variance	Degree of Freedom	Sum of square	Mean of Sum of Square	F - ratio
Inspiration	Between group	2	3.94	1.97	0.19 [@]
	Within group	72	760	10.55	
Clarification	Between group	2	47.56	23.78	2.088 [@]
	Within group	72	820.00	11.388	
Evaluation	Between group	2	70.68	35.34	4.16*
	Within group	72	612.00	8.5	
Distillation	Between group	2	158.83	79.415	7.985*
	Within group	72	716.11	9.945	
Incubation	Between group	2	0.53	0.265	0.02 [@]
	Within group	72	909.82	12.63	
Perspiration	Between group	2	171.24	85.62	6.45*
	Within group	72	955.77	13.274	
Creativity	Between group	2	1767.24	883.62	9.44*
	Within group	72	6738.33	93.58	

* Significant at 0.05 level

Tabulated $F_{0.05(2, 72)} = 3.123$

Table – 2

Paired Mean Difference for the Data on Creativity and its Sub-Variables among The Students of M.P.Ed., B.P.Ed and D.Y.Ed

Variable	Mean of			Mean Difference	Critical Difference
-----	M.P.Ed	B.P.Ed	D.Y.Ed	-----	-----
Evaluation	12.44	11.48	***	0.96	1.64
	12.44	***	9.92	2.52*	1.64
	***	11.48	9.92	1.56	1.64
Distillation	11.38	11.76	***	0.38	1.79
	11.38	***	8.40	2.98*	1.79
	***	11.76	8.40	3.36*	1.79
	12.04	11.04	***	1.00	2.04

Perspiration	12.04	***	8.36	3.68*	2.04
	***	11.04	8.36	2.68*	2.04
Creativity	70.44	67.72	***	2.72	5.44
	70.44	***	58.76	11.68*	5.44
	***	67.72	58.76	8.96*	5.44

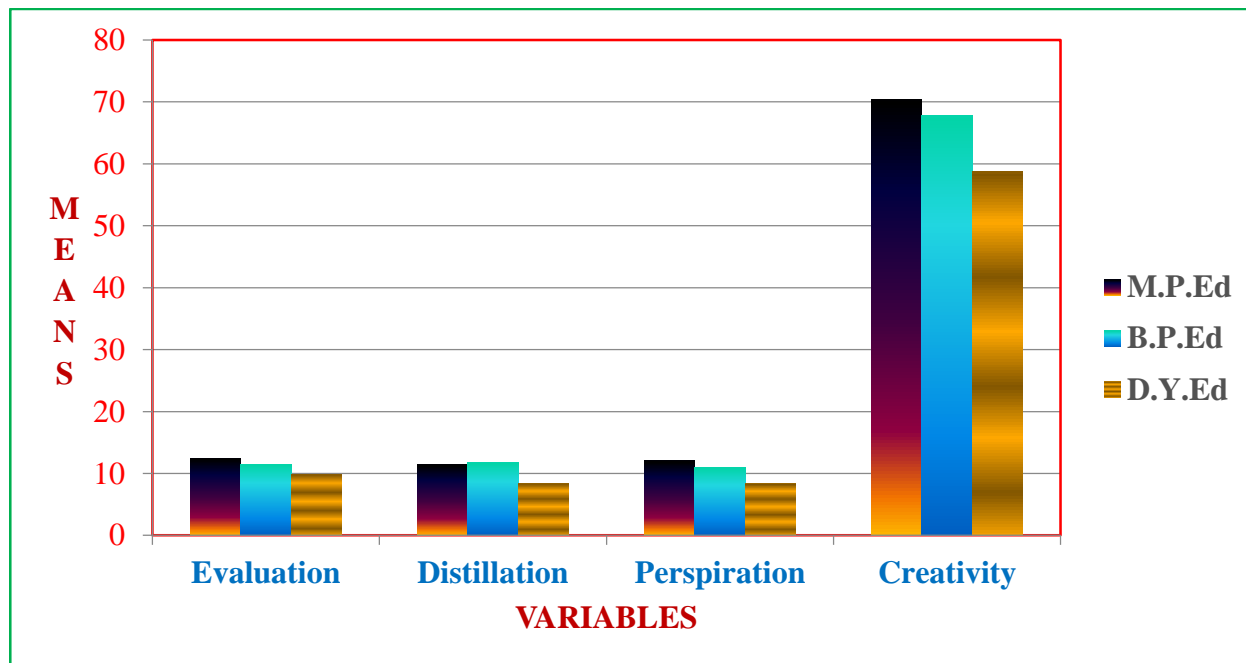


Figure 1: Comparison of Means for the Data on Variable and Sub-Variables of Creativity among Different Post Graduation Courses

3. Results and Discussion:

To determine the significance of difference of Creativity and its sub-variables among the students of three different Post Graduation Courses One Way Analysis of Variance (ANOVA) statistical technique was employed independently for each variables, where F – ratio was found to be significant, *post-hoc* test was applied to find out the paired mean difference. The level of significance to test the hypothesis was set at 0.05. The findings pertaining to the study have been shown in Table-1 and 2

It is evident from Table-1 that the significance of difference is found in the sub-variables of Evaluation ($F = 4.16$), Distillation ($F = 7.985$), Perspiration ($F = 6.45$) of Creativity and in overall Creativity ($F = 9.44$) among the students of different Post Graduation Courses, as the obtained F–value are quite higher than that of tabulated F–value of 3.123 needed to be significant at 0.05 level for 2, 72 degrees of freedom.

The findings also reveal that insignificant difference is observed in the sub-variables of Inspiration ($F = 0.19$), Clarification ($F = 2.088$) and Incubation ($F = 0.02$) of Creativity among the students of different Post Graduation Courses, because the obtained F–value are quite less than that of tabulated F–value of 3.123 needed to be significant at 0.05 level for 2, 72 degrees of freedom.

It is evident from the findings of post-hoc test that there is significance of difference in between M.P.Ed and D.Y.Ed ($MD=2.52 > CD=1.64$) whereas insignificant difference is found in the variable of Evaluation in between M.P.Ed and B.P.Ed ($MD=0.96 < CD=1.64$) and B.P.Ed and D.Y.Ed ($MD=1.56 < CD=1.64$). The table also reveals that there is significance of difference in Distillation between the M.P.Ed and D.Y.Ed ($MD=2.98 > CD=1.79$) and B.P.Ed and D.Y.Ed ($MD=3.36 > CD=1.79$) whereas insignificant difference is found in between M.P.Ed and B.P.Ed ($MD=0.38 < CD=1.79$).

It is also observed from table-2 that there is significance of difference in the variable of Perspiration in between M.P.Ed and D.Y.Ed ($MD=3.68 > CD=2.04$), B.P.Ed and D.Y.Ed ($MD=2.68 > CD=2.04$) whereas insignificant difference is found in between M.P.Ed and B.P.Ed ($MD=1.00 < CD=2.04$). The table also indicates that there is significance of difference in the overall Variable of Creativity in between M.P.Ed and

D.Y.Ed (MD=11.68 > CD=5.44) and B.P.Ed and D.Y.Ed (MD=8.96 > CD=5.44) whereas insignificant difference was found in between M.P.Ed and B.P.Ed (MD=2.72 < CD=5.44).

4. Discussion on Findings

From the findings of below given table-1 it is understood that Creativity of the M.P.Ed students are significantly greater than B.P.Ed and D.Y.Ed, this may be because M.P.Ed students are much more involved in intramural and extramural organization of competitions. The subjects like research, statistics, psychology, physiology etc and the dissertation work which needs deep knowledge, high imagination, sincerity and seriousness, leads to the improvement and development in level of Creativity. Though B.P.Ed students are also involved in these activities but comparatively less than M.P.Ed student due to which they showed significantly less Creativity than M.P.Ed. Whereas, D.Y.Ed students are least involved in these types of organization and subjects as compared to M.P.Ed and B.P.Ed students because of which they have shown lowest performance. Therefore M.P.Ed students are found greater in Creativity compared to B.P.Ed and D.Y.Ed students.

5. Conclusion

Recognizing the limitations of the study and on the basis of statistical findings it may be fairly concluded that

- i. Significant mean difference was observed among the students of M.P.Ed., B.P.Ed and D.Y.Ed in the variable of Creativity along with its three sub-variables of Evaluation, Distillation and Perspiration.
- ii. Insignificant mean difference was found among the students of three different Post Graduation Courses in the sub-variables of Inspiration, Clarification and Incubation of Creativity.

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STUDY OF MOTOR ABILITY AMONG THE SELECTED COMBATIVE SPORTS PLAYERS

¹Sarungbam Sen Singh, ²Kukumoni Patir, ³Sumit Kr. Thapa, ⁴Dr. L. Santosh Singh

^{1,2}Research Scholar, Department of Physical Education and Sports Science, Manipur University, Canchipur,
India

³Lecturer - PSTE - Physical Education. District Institute of Education and Training (DIET), Jorhat, Titabor,
Assam, India

⁴Assistant Professor, Department of Physical Education and Sports Science, Manipur University, Canchipur,
India

Abstract:

The present study was conducted to compare General Motor Ability among the selected state level combative sports of Judo and Taekwondo players. In this study, the subjects for data collection were drawn from the SAI Centre Imphal, Manipur. Random sampling technique was used to select the subjects. The sample consisted of 30 male players who have been participated in the state level competition of Manipur, fifteen ($N_1=15$) from Taekwondo Players and fifteen ($N_2=15$) from Judo Players. To find out the General Motor Ability among the selected combative Sports, the General Motor Ability Test Phillip's J.C.R Test was used. To find out the significant differences between the State Level Judo and taekwondo players of Manipur, the independent t-test statistical technique was employed. The level of significance was set at 0.05. The results showed that the Judo players were better Motor Ability than the Taekwondo Players. (Vertical Jump $t_{.05}(28) = 2.048 < 3.90$, Chinning Up $t_{.05}(28) = 2.048 < 2.59$ and Shuttle Run $t_{.05}(28) = 2.048 < 4.79$)

Key Words: General Motor Ability, Vertical Jump, Chinning-Up, Shuttle Run, Taekwondo, Judo.

1. INTRODUCTION:

Motor fitness refers to the efficiency of basic movements in addition to the physical fitness. It may be defined as one's present innate and acquired ability to perform motor skill of a general and fundamental nature excluding specialized sport skill.^[1] Now a day, more attention has been given to know the structure of Coordination Motor Abilities (CMA) and found that it has significant important in combat sports. They play a major role in precision and economy of sport movements under constantly changing conditions i.e. the ability to differentiate movement variables, time and space orientation, speed of reaction, motor adjustment, movement combining, static balance or the ability to regain balance during the fight (dynamic balance) and precise reproduction of perceived rhythm (movement rhythm).^[3] Taekwondo is a Korean martial art.^[2] It is characterized by its emphasis on head-height kicks, jumping and spinning kicks, and fast kicking techniques. Combat effectiveness taekwondo requires proper levels of coordination motor abilities (CMAs) at every stage of training.^[4] On the other hand, Judo is a one of the very attractive combat sports which require dynamic changes the equilibrium in a dynamic system of two opposed judokas demand from fighters a high level of technical-tactical proficiency, an abundant repertoire of motor stereotype programmes and an ability to apply them, a highly developed ability to adjust them in an instant when needed in combat, and an ability to create ever new defensive, attacking and counter-attacking motor actions (Sterkowicz, Kiejda, & Blach, 1997; Sterkowicz & Maslej, 1998; Franchini, Sterkowicz, Meira, Gomes, & Tani, 2008; Sertić, 2004).^[5] Judo is generally considered as a sport which combines strength and endurance. In this sport, with predominance of open movement habits, an important role is played by coordination abilities.^[4]

1.1. Statement of the Problem:

The statement of the problem was to find out the motor ability among the selected combative sports between the Judo and Taekwondo Players of Manipur.

1.2. Purpose of the Study:

The purpose of the study was to find out the motor ability among the selected combative sports between the Judo and Taekwondo Players of Manipur.

1.3. Hypothesis of the Study:

It was hypothesized that there might be significant difference in motor ability among the selected combative sports between the Judo and Taekwondo players.

2. MATERIALS AND METHODS:

For the purpose of the study, total thirty (30) male players from Taekwondo ($N_1=15$) and Judo ($N_2=15$) were selected as a subject from Manipur. The age of the subjects were ranged between 14-24 years. The subjects for data collection were drawn from the SAI Centre; Imphal, Manipur. Random sampling technique was used to select the subjects. The sample consisted of thirty (30) male players who have been represented in the State Level Competition of Manipur. Phillip's JCR Test was used for measuring the General Motor ability Test of Taekwondo and Judo Players of Manipur.

3. RESULTS AND DISCUSSION: The Significant mean difference in the performance of Vertical Jump between Taekwondo

TABLE 1.

Group	N	Mean	Σ	SE _M	df	t-value
Taekwondo	15	8.13	.516	.133	28	3.90*
Judo	15	8.20	.414	.107		

*Significant at .05 level

$$t_{.05}(28) = 2.048$$

From the finding of the above table, the mean value of taekwondo players is 8.13 and the mean value of Judo players is 8.20. After analysis the data 't' ratio is 3.90* at 0.05 level of significance. Hence there is significant difference found between the Taekwondo and Judo Players of Manipur.

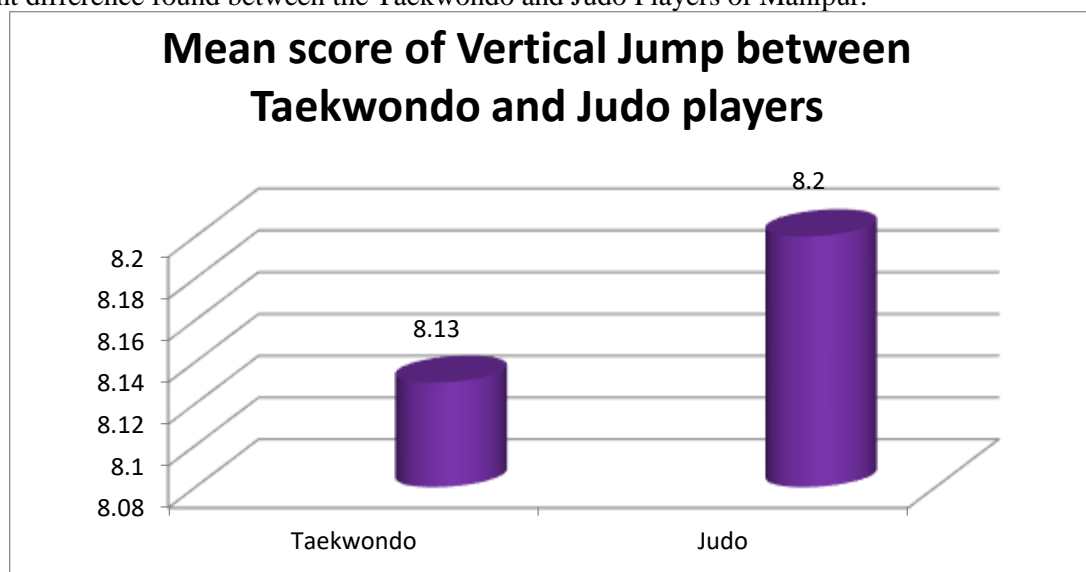


Figure 1. Graphical representation of Mean Difference in the performance of Vertical Jump between Taekwondo and Judo Players.

The Significant mean difference in the performance of Chinning-Up between Taekwondo and Judo players is presented in Table 2.

TABLE 2.

Group	N	Mean	Σ	SE _M	df	t-value
Taekwondo	15	1.20	1.93	.500	28	2.59*
Judo	15	1.33	.488	.126		

*Significant at .05 level

$$t_{.05}(28) = 2.048$$

From the finding of the above table, the mean value of taekwondo players is 1.20 and the mean value of Judo players is 1.33. After analysis the data 't' ratio is 2.59* at 0.05 level of significance. Hence there is significant difference found between the Taekwondo Players and Judo Players of Manipur.

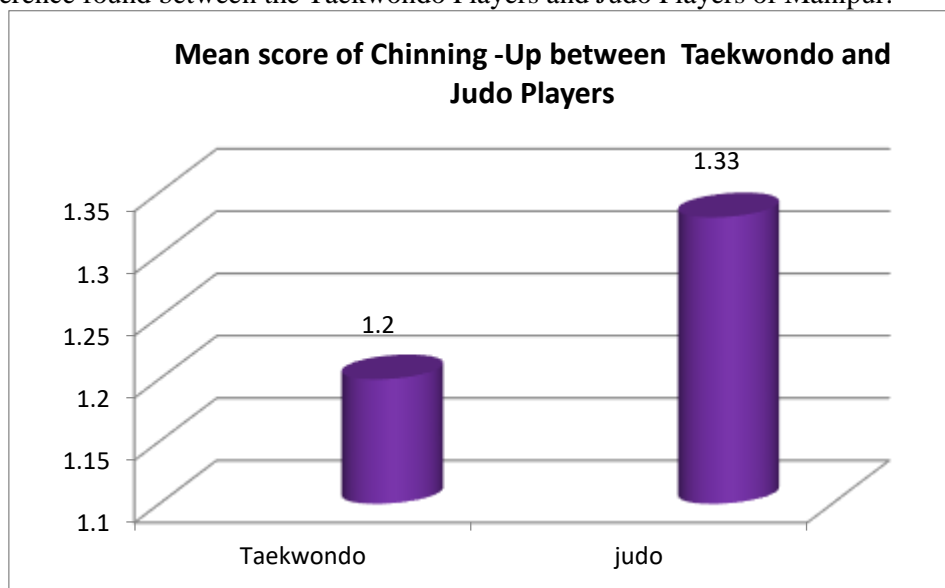


Figure 2. Graphical representation of Mean Difference in the performance of Chinning- Up between Taekwondo and Judo Players

The Significant mean difference in the performance of Shuttle Run between Taekwondo and Judo players is presented in Table 3.

TABLE 3.

Group	N	Mean	Σ	SE _M	df	t-value
Taekwondo	15	3.13	3.66	.945	28	4.79
Judo	15	8.33	2.05	.532		

*Significant at .05 level

$t_{.05} (28) = 2.048$

From the finding of the above table, the mean value of Taekwondo players is 3.13 and the mean value of Judo players is 8.33. After analysis the data 't' ratio is 4.79* at 0.05 level of significance. Hence there is significant difference found between the Taekwondo and Judo Players of Manipur.

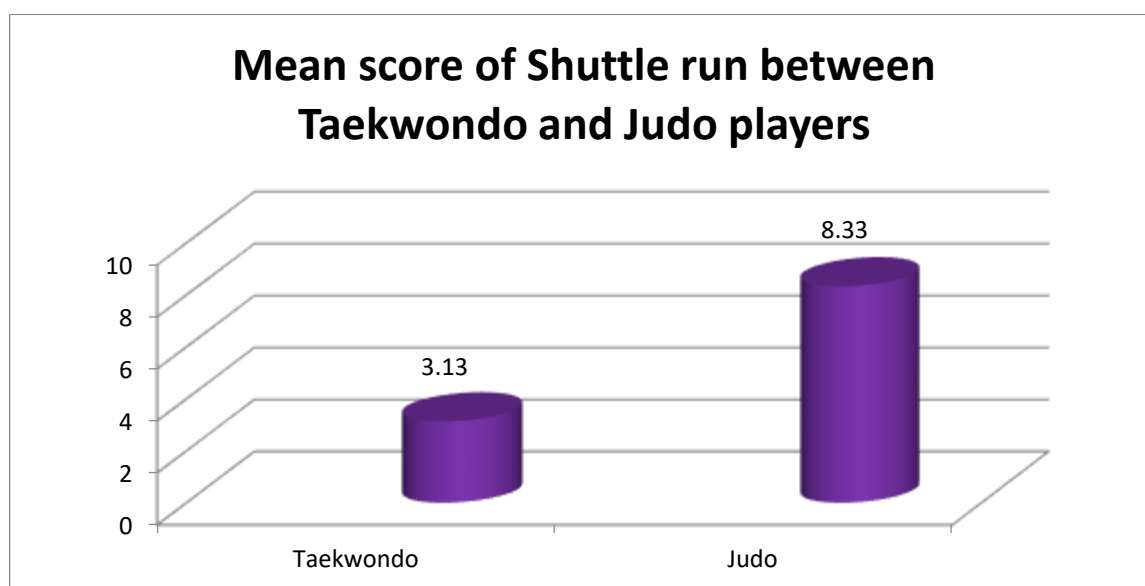


Figure 3. Graphical representation of Mean Difference in the performance of Shuttle Run between Taekwondo and Judo Players

4. DISCUSSION:

It is evident from the above tables that significant differences are noticed in General Motor Ability between the Taekwondo and Judo Players of Manipur state. The significant results is due to all the selected

players of Taekwondo and Judo have been staying at different places, having different type of foods intake, having different training schedule, having different life style of the players. The analysis of data on the motor ability between the Taekwondo and Judo Players of Manipur State has been examined by independent t-test. The JCR test was applied to assess the significant differences between the Taekwondo and Judo Players of Manipur State. Thus, it was found that the Judo players were significantly better in vertical jump and chinning-up whereas Taekwondo were better in shuttle run than Judo players of Manipur.

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OBESOGENIC ENVIRONMENT

Pallavi Neetin Walke
Dhule, Maharashtra, India
Email - palkelkar06@gmail.com

ABSTRACT:

Obesity A major public health challenge of 21st century and it is one of the greatest public health challenges of modern times, Obesogenic environment is the sum of influences that the surroundings, opportunities or conditions of life have on promoting obesity in individuals or populations. Obesogenic environments to occur there must be pre-existing global and local opportunities for abnormal weight gain. Food industry, Built Environment, Neighbourhood environment, Use of Plastic, Individual, Families, work sites, Schools and child care, Government policies, Media, Decreased physical activity all these factors that contribute towards obesogenic environment by having different practices which causes obesity. Obesogenic Environment major Consequences on population like Obesity, Psychological distress, Social discrimination and Malnutrition. Changing the Obesogenic environment ways we can prevent and change our Obesogenic Environment National Policy on Food and Nutrition national policy to propose actions that aim at respecting, protecting, promoting, and providing human rights related to health and food, as well as to emphasize the importance of overweight and obesity as a national public health problem. Families can cook healthy food at home and carry with them as where ever they goes. More emphasis on traditional cooking recipes which are healthier and geographically customised by our grand parents. Less use of plastic cookware and more use iron utensilies, Limiting Screen time of children and teaching them about healthy food options and making fitness awareness. In schools more physical education sessions with health education and nutrition education should be provide and keeping healthy food options at school canteen. Growing fitness culture in workplace, healthy and traditional food availability at canteen Health care system Health Care providers and Insurance Providers, Health Insurance providers should promote healthy behaviours. Local and national policy should emphasis on for planting and buying fresh fruits and vegetables, limiting fast food restaurants, food regulations on food industry limits advertising on media should has recommended daily limits.

Impose Sugars beverage tax as junk food. Reduction in price of healthier foods, such as low-fat snacks and fruit and vegetables, might increase their sales, initiatives to promote fruit and vegetables consumption at schools. Built Environment like buildings and space created, or modified, by people that form the physical characteristics of a community.

Conclusion:

Access to healthy food and access to places to be physically active; thereby, supporting an individual's healthy behaviours towards healthy lifestyle.

Key Words: Obesity, Obesogenic environment, built environment, Media

1. INTRODUCTION:

Changing lifestyles and structure of the society characterised by individualism, overconsumption, and excessive convenience and reduced physical activity, and increasingly obesogenic environments contributed significantly to the obesity epidemic. Obesity rates have increased dramatically around the globe. The cause of obesity, which is the consequence of an imbalance between energy intake and energy expenditure, is multifactorial. It is now recognized that external factors, such as distance to a grocery store, parks, and urban sprawl and neighbourhood safety concerns may contribute to the ability to maintain a healthy weight. How the environment is built can influence an individual's opportunities, as well as barriers, to food intake and physical activity. Overweight and obesity are major public health problems given their high prevalence and wide range of negative consequences. Primary prevention of overweight and obesity is traditionally focused on changing the direct behavioural determinants; reducing energy intake by focusing on dietary behaviours and increasing

energy expenditure by focusing on physical activity or sedentary behaviours. Sustained change in obesity-related behaviours has, however, turned out to be very challenging. Obesity-related behaviours are determined by a wide range of factors, including personal motivations, preferences, beliefs, abilities and skills. But contextual factors - including the social, economic, political and physical circumstances individuals live in- are also of relevance.

1.1. OBESITY:

Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight, and over 30 is obese.

In other words, obesity is an unanticipated consequences of social, economic, political and technological changes or advances of the (past few decades) which have resulted in increased automated services (domestic and industrial); fast and convenient transport services; multiple electronic entertainment media which discourages physical activity and social contacts; mechanized farming, biotechnology and improved food processing technologies that have significantly increased food supply (and accessibility) with high calories at reduced cost, particularly in developed countries, as well as safety concerns for physical activity participation, due to “unfriendly” road designs for recreational walking and cycling, and poor facility maintenance etc. in parks and recreational facilities. Which affects All-causes of death (mortality) High blood pressure (Hypertension), High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease. Osteoarthritis (a breakdown of cartilage and bone within a joint) and many more physiological effects like anxiety, Depression mental illness low confidence etc.

2. OBESOGENIC ENVIRONMENT:

Obesogenic Environment” refers to “an environment that promotes gaining weight and one that is not conducive to weight loss” within the home or workplace (Swinburn, et al., 1999). The obesogenic environment describes all the possible influences that our environment presents which encourage overweight and obesity in individuals and populations. In other words, the obesogenic environment refers to an environment that helps, or contributes to, obesity.

3. FACTORS CONTRIBUTE TO OBESOGENIC ENVIRONMENT:

Obesogenic environments to occur there must be pre-existing globe and local opportunities for abnormal weight gain

- **Food industry:** Ubiquitous and continuous access to food also influenced normative eating behaviours, such that more people snack between meals, eat in restaurants, and spend less time preparing meals at home. More takeaway food services, more food delivery services, increased in food portion sizes, growing choices of restaurants etc. These factors likely increased calorie intake and thereby caused obesity.
- **Built Environment:** As all buildings and space created, or modified, by people that form the physical characteristics of a community. It includes a vast array of items – buildings, roads, buses, homes, parks, recreational areas, greenways, shops and other business areas.
- **Neighbourhood environment:** Community has unsafe walking paths, i.e. cracked sidewalks, unkempt parks and/or limited recreational opportunities; residents are less likely to engage in leisure time physical activity. Greater access to stores and fast food outlets, scarcity of safe, appealing walking parts, parks, physical activity facilities, inconvenience of public transportation, food marketing.
- **Use of Plastic:** Though the FDA says biphenyl A (BPA) is OK to consume in the amount that typically leaches into our food, the chemical additive found in rigid plastics has been linked in numerous studies to weight gain including and study that observed a breakdown product of BPA causing normal cells to turn into fat
- **Individual:** Home and family factors, which includes demographic factors like age, sex, race or ethnicity, psychological factors, Gens environment interactions and other factors.
- **Families:** Excess gestational weight gain, increase smoking among women, food choices convenience (affordability, references and tradition) Less breastfeeding (women entering workforce) High use of electronics pleasure (TV computer internet videogames), use of Household appliances (washing machines, vacuum cleaners, microwaves etc)

- **Work sites:** Accessibility on unhealthy foods, automation of Office jobs (mental v/s physical), break culture, Less PA facilities on-site and Management giving less importance towards physical fitness awareness among the employees. Heavy work hours and workload stress.
- **Schools and child care:** Junk food and sweets and beverages availability in school canteen, Per pressure, few physical education sessions, unequipped physical activity facilities, less importance to physical education, Health education and Nutrition education
- **Government policies:** Government policies influence Public health ,Healthcare, Agriculture, Education, Media ,land use and transportation ,Communication, Foundations, Business, food and beverage companies which all contributes towards indirectly to obesity.
- **Media:** Screen media exposure is one of the best-documented causes of obesity, less awareness about advertising to youth about unhealthy foods. Maximum use of electronic gadgets and promotion of energy dense foods etc.
- **Decreased physical activity:** less active hobbies like games on mobiles, Television and Computers, less Physical activity in school, easily availability of public transport etc.

4. CONSEQUENCES OF OBESOGENIC ENVIRONMENT:

- **Obesity:** Heart diseases and high blood pressure, diabetes, respiratory Complications, Sleep Disorders
- **Psychological distress:** Depression which causes Disorder eating like binge eating, purging, anorexia
- **Social discrimination:** Verbal abuse like Teasing, physical abuse like pinching, limitations like lack of accommodations
- **Malnutrition** being overfed like empty calories confuse metabolism, undernourished like lacking essential and sufficient nutrients.

5. PREVENTIONS:

Changing the Obesogenic environment ways we can prevent and change our Obesogenic Environment

- **Families:** Avoid excess gestational weight gain .smoking limitations, awareness about breastfeeding ,weight monitoring, healthy food Cook at home, free meals snacks, air fryer School meals prepared at home ,less use of plastics and bring back iron utensils for cooking, more physical activity, making aware about cultural ,teaching cooking in traditional ways ,cook more traditional dishes which are more healthier.
- **Nurseries and child care:** Age-appropriate healthy foods, active play ,fun play, short burst keeping televisions turn off and away from Areas where children sleep, educating parents about healthy eating and activity habits
- **Schools:** More physical Education sessions, healthy food choices at school, nutrition awareness, limiting availability and marketing of unhealthy foods, Nutritional education to students health education of students. monthly one-hour sessions on Nutrition Education promoted the consumption of fruit and homemade preparations instead of sugary beverages and other ultra-processed foods. School breaks are an excellent opportunity to develop motivational and recreational activities that improve the PA level and fair play. Compared to Physical education classes, breaks are usually full of non-competitive activities based on fun so more physical activity opportunities at school, importance of reading food labels by spreading awareness about how advertisement can be deceiving.
- **Work sites:** Growing fitness culture in workplace, healthy and traditional food availability at canteen and more options for healthy foods, availability of Physical Activities facilities on-site assess to nutritionist and other councillors.
- **Health care system Health Care providers and Insurance Providers:** Health Insurance providers cover obesity related conditions, incentives for healthy behaviours for obesity reimbursing exercise related expenses
- **Local and national policy** like agricultural policy for planting and buying fresh fruits and vegetables, zoning regulations for bringing supermarkets to low-income neighbourhoods and limiting fast food restaurants, Mass Communication policy for restricting advertising to youth about unhealthy foods, food regulations for standardizing food labelling to include calories per serving and recommended daily limits, Public Health marketing for developing social marketing campaigns to promote healthy living ,community design for planning to promote active transportation bill maintain an increase access to walk cycle parts parks and Recreation facilities, transportation improving infrastructure for public transportation.

- **Other:** Regulate the advertising of junk foods no exposing and glamour rising on healthy foods as much would be decrease the subconscious subliminal influences of consumers receive. Impose Sugars beverage tax as junk food is notorious for its cheapest price increasing the price would make it less likely to people to want to purchase as much, regulating the advertisement of junk foods limit cut back on the amount of media exposure be advertise healthier foods, set limit on the amount of junk food that is advertise on daily basis, imports sugar beverage tax on junk food implementing a tax on Sugar beverage would make it less affordable for people to purchase such items it would force people to have to purchase other items that are healthy this item would no longer be purchased as much, Reduction in price of healthier foods, such as low-fat snacks and fruit and vegetables, might increase their sales, initiatives to promote fruit and vegetables consumption at schools.

6. CONCLUSION:

Changes to the environment alone are unlikely to solve the problems of increasing obesity and declining physical activity levels a better approach is likely to involve complementary strategies addressing individual social and environmental factors. Obesity has become a global crisis. Although most would agree that eating better and being more physically active are the answer to the problem In a world where obesity has now reached epidemic proportions, a thorough understanding of the underlying causes of the problem is essential if society, public health initiatives and government policies are to successfully address the issue. Just changing individual behaviours. We can convince people of the benefits of healthful eating and regular physical activity, but what happens when they go home to a neighbourhood where fresh vegetables are not available and opportunities for physical activity are hard to find, If the environment doesn't help support healthy lifestyles, the change will be next to impossible to sustain. These changes could include access to healthy food and access to places to be physically active; thereby, supporting an individual's healthy behaviours. As communities look for ways to improve the health of their residents, it is necessary that they look at the surrounding built environment to see if changes are warranted. Having access to healthy foods as well as areas that promote an increase in physical activity may help improve the adoption of a healthy lifestyle and decrease the impacts of obesity. Strategies should be directed towards tackling obesity in multi-sectoral manner, given the fact that obesity's drivers traverse various sectors of our lives.

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EATING ATTITUDES OF MALE ATHLETES AND NON-ATHLETES: A COMPARATIVE STUDY

¹Mr. Ajinkya Avadhut Kudtarkar ²Ms. Ridhima Shirodkar,

¹Director, ²Assistant Professor,

¹Sports & Physical Education, Shree VVM's Damodar College of Economics and Commerce- Margao, Goa

²Psychology, Government College of Arts, Science & Commerce- Khandola, Goa

Abstract:

Through this paper, the researchers have tried to highlight the issues related to eating that may be faced by male athletes when compared to their non-athlete counterparts. The purpose is to throw light on the fact that athletes are in an environment that puts them at a greater risk for developing eating disorders as compared to non-athletes. The study uses the quantitative paradigm with 30 male athletes who played at a professional level were matched to their 30 male non-athlete counterparts. The Eating Attitude Test (EAT) developed by Garner et al. was used in this study with the aim to analyze the kinds of eating attitudes in the 2 groups. Through the use of non-parametric tests, a significant difference was seen between the two groups. It was seen that the male athletes had more disturbed eating attitudes as compared to their male non-athlete counterparts. The researchers try to also emphasize upon the impetus of Sports Psychology in India and the importance of having a Psychologist on any sports team.

Key Words: Male Athletes, EAT, Eating Attitudes, Eating Disorders, Sports Psychology.

1. INTRODUCTION:

Eating Disorders may be defined as persistent disturbances of eating or eating related behavior, which result in an alteration in the absorption or consumption of food which would result in significant hampering in psychological health and/or physical health (Walsch, Fairburn, et al. 1995). The National Institute of Mental Health defines Eating Disorders as an illness which causes disturbances in an individual's daily diet that results in either under-eating or over-eating. A major feature of Eating Disorders is that there is a preoccupation with one's body shape and weight which causes significant concern and may be exceptionally distressing (National Institute of Mental Health).

Eating Disorders like Anorexia Nervosa and Bulimia Nervosa were thought to be clinical conditions, which are more prominent in the Western world mainly due to increase in industrialization that brought about lifestyle changes among the people. It is only in the recent years that there has been an initiation on studies of Eating Disorders in other cultures (Pope & Hudson, 1989). Studies carried out in Arab cultures, Malaysia and India have found that these disorders are quite prevalent in other cultures as well; however the difference lies in the way these disorders are experienced and their nature (Lee, 1991). In India there has not been extensive research on this topic until now (Srinivasan et al., 1995), however a study conducted in Madras found that 14.8% of individuals suffered from a syndrome of eating distress (EDS) that does not fall in any specific category as such (Srinivasan et al., 1995). It may be easy to understand that being a part of a sport may act as a buffer to developing Eating Disorders and may also help boost one's self-efficacy (Keel, 1999). Being a part of a sport may be a reason why individuals may have a more positive outlook towards one's body and this may enhance their self-perception regarding one's own abilities and competencies (Taub & Blinde, 1992). However, despite of such information which is available, sports participants are at an increased risk to develop Eating Disorders. They have certain risks which are unique to the environment of sports that may make them especially vulnerable to develop disorders related to eating attitudes or behavior (Thompson & Sherman, 2010). Data in this field lays emphasis on the fact that, individuals who are part of a sport develop more eating problems as compared to those who are not (Byrne & McLean, 2001). There are special considerations where development of Eating disorders is concerned for sports participants. If one takes into consideration Anorexia

Nervosa, the American Psychological Association notes that the onset for this disorder is 13 to 14 years or 17 to 18 years (APA, 2000). It must be noted that individual in sports at this stage are already facing a period of transition. There is also a need to be at a top level in one's sports and the stress associated with this may elevate the risk of developing Eating Disorders (Thompson & Sherman, 2010). Lean sports such as running, swimming, gymnastics, skating etc. are the ones which require the competitors to have a lower body weight and a thinner frame. These sports have a weight class requirement and thus people in such sports may have a high likelihood to develop Anorexia Nervosa. This is not to say that individuals in non-lean sports are not inclined to Eating Disorders. Rather, individuals with a predisposition to develop Anorexia may choose Lean sports (Thompson & Sherman, 2010).

In sports where appearance of the athlete is crucial as stated by the culture or by performance demands, there is a greater risk of developing Eating Disorders. In sports like swimming, gymnastics, diving, skating, female seem more prone to develop such disorders (Eating Disorders and Athletes, 2013). In general it is seen that Bulimia Nervosa tends to occur at a greater rate not only in the general population, but in the sports population as well (Torstveit, Rosenvinge & Sundgot-Borgen, 2008). Bulimia is often seen in Lean sports as well as in sports that focus on weight, though it occurs across all sports and among both genders. Bulimic behaviours are seen to a greater extent among those participants who are a part of weight class sports such as judo, boxing, wrestling etc. (Thompson & Sherman, 2010). When the term 'Eating Disorder' is used, we tend to use it in a generic manner. It includes conditions like Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder, further it also includes efforts made by athletes to alter physical appearance without taking their health into consideration. Eating Disorders may prop up due to the manner in which the athlete perceives himself/herself, due to instructions by the coach, due to competition stress and similar pressures like these (Eating Disorders and Athletes, 2013). Increased emphasis on being fit may have also aggravated the development of Eating disorders among individuals in sports. However the main reason for the development of fitness and recreation centers was the promotion of positive aspects of physical activity. Club sports and intramural sports mainly came up to encourage socialization, recreation and physical fitness. These sports include various organized team sports and competitive sports (Levitt, 2008). It was found that individuals in intramural sports may tend to abuse and misuse the benefits of sport activities and exercise and may develop disordered eating patterns and attitudes (Strelan et al., 2003). It is seen that athletes below the age of 30 years are the ones who generally develop an Eating Disorders. There are many factors in the athlete's environment that make them more prone to develop an Eating Disorder. Taking into consideration the case of Christy Heinrich, an international gymnast; who died of an Eating Disorder in 1994 as she was told that she would be unable to participate in the Olympic Games because of being over the weight criteria (Eating Disorders and Athletes, 2013).

When sub-clinical conditions are taken in to consideration, Anorexia Athletica must be taken into account. This term was used for the first time in 1993 by Pugliese, Lifshitz et al. and was later refined by Sundgot-Borgen in 2008. In this condition there is an intense fear of gaining weight even though the athlete may be underweight. There is a reduction in one's energy intake which causes weight loss of atleast 15%. There is also an excessive and compulsive pattern of exercising. This may at times include episodes of binge eating and the use of pathogenic weight control means like laxative or the practice of self-induced vomiting. Sundgot-Borgen notes that this condition must be looked at like a sub clinical case of Anorexia Nervosa or Bulimia Nervosa (Eating Disorders and Athletes, 2013). Sports Psychology is considered to be a scientific study of people, their behavior in sports and exercise activities. It is concerned about how the sports performance is influenced by psychological factors (Sportpsych India, 2013). Most of the renowned and top sports persons know that peak performance is not got only due to their physical ability but also their mind set and mental equipment and thus there is an increased emphasis on the mind for optimal performance (Sandeep, 2012). Although our country is not yet advanced in the field of Sports Psychology, India is certainly picking up the pace and many youngsters are opting for this career. Thus the main purpose of this study is to highlight that males too are capable of developing disturbed eating attitudes. Further this is especially possible in the case of male athletes who have contributing factors unique to the sports environment. The study also attempts to throw light on the need for the growth of Sports Psychology in India and to enhance the scope for the same.

1.1. Objective:

To assess and compare the risk of developing Eating Disorders among male athletes compare to their non-athlete counterparts.

1.2. Hypothesis:

- There is a significant difference between male athletes and male non-athletes with regard to their eating attitudes.

- There is no significant difference between male athletes and male non-athletes with regard to their eating attitudes.

1.3. Operational Definitions:

- Male Athlete (Independent Variable): an individual (male) who is trained to compete in a sport which involves physical strength, endurance and/or speed.
- Male Non-Athlete: a male who does not compete in any sport which involves physical strength, endurance and/or speed.
- Attitude towards eating (Dependent Variable): in this study, eating attitude refers to any thought, behavior or affect towards food.

2. INSTRUMENTS:

The Eating Attitude Test (EAT) by Garner, Olmstead & Garfinkel, 1982. This test consists of 26 questions in Part A and 5 questions in Part B. Part A expects the participants to be honest and choose the option which suits him the best while Part B tries to assess the overall health conditions of the participant.

2.1. Population: In this study, the population included 60 males between the age groups of 20-40 years, from India.

2.2. Sample and Sampling technique:

The population included 60 males totally, where 30 athletes were selected who participated either in cricket, football, basketball or gymnastics and 30 non-athletes were included, who did not indulge in any sports. The snowball sampling technique was used where the athletes as well as the non-athletes were between the ages of 20 years and 40 years.

2.3. Inclusion Criteria for the 30 male athletes:

- Males who were in the age bracket of 20 to 40 years.
- Males playing a sport at a professional level and representing their respective state or country.
- Males playing at a professional level for minimum 4 years without a break in between.
- Males indulging in sports on a regular basis and attending regular training sessions.

3. RESULTS AND DISCUSSIONS:

Table 1.

Tests of Normality

Classification		Kolmogorov Statistics	Smirnov Df	Sig.	Shapiro Statistics	Wilk Df	Sig.
Athlete	Score	0.115	30	0.200	0.917	30	0.022
Non-Athlete	Score	0.213	30	0.001	0.894	30	0.006

In the above table, the Shapiro-Wilk test reveals that the sample of the athletes as well as the non-athletes was not distributed normally and though normal distribution of athlete group is seen under the Kolmogorov test, the remaining values cannot be neglected. Thus a non-parametric test was used.

Table 2.

Mean rank scores of eating attitude acquired by the groups of Athletes and Non-Athletes

	<u>Classification</u>	<u>N</u>	<u>Mean Rank</u>
Eating Attitude Score	Athlete	30	36.77
	Non-Athlete	30	24.23
		60	

In Table 2 it is seen that the group of athletes obtained a mean rank of 36.77, while the non-athletes obtained a mean score of 24.23. This difference indicates that the athletes display a more disturbed attitude towards eating as compared to their non-athlete counterparts.

Table 3

Non Parametric test statistics of the two groups of Athletes and Non –Athletes

	<u>Score</u>
Mann Whitney U	262.000

Z	--2.787
Asymp. Sig. (2 tailed)	0.005

Since $Z = -2.79$, $p < 0.01$, there is significant difference among eating attitudes of male athletes and their non-athlete counterparts. It then becomes clear that eating attitude among athlete (Mean = 36.77) is higher than the eating attitude of the non-athletes (Mean = 24.23). This shows that the athletes depict a more disturbed attitude towards eating as compared to their non-athlete counterparts. The null hypothesis is thus rejected and the Research hypothesis is accepted.

4. DISCUSSION:

Table 2 indicates that the groups of athletes have more troubled eating attitudes as compared to their non-athlete counterparts. The mean score of athletes was found to be 36.77, while that of the non-athletes was 24.23. This indicates that the athletes seem more prone to develop disturbances in eating patterns when compared to their non-athlete counterparts. This finding is in line with research done in this field which has generally been done in the Western world. Indian context still has to open boundaries to this field of thought. India today is encouraging sport activities and thus further exploration on this topic will be beneficial.

Thompson, Sherman, McLean in 2010 found that athletes have additional risks for developing disturbed eating attitudes which are unique to their environment. The niche which the athletes have for themselves is very competitive and each wants to thrive and be on the top. The research also depicts that most athletes than non-athletes acquired a score around 20, which indicates that there is a risk for developing eating disorders. Athletes also reported that they felt extremely guilty if they ate out of proportion or missed out on their exercise routine. They also noted that if on any occasion they did binge, they did compensatory exercise to balance it out. A coach of Australian origin pointed out that the Indian food tends to be rich and heavy, this may not be appropriate for all athletes and a lot depends on the sport. This must be kept in mind as athletes tend to balance meals in such a way that they me start obsessing about the same. On discussions with the athletes they believed that in order to be at their peak their skill had to be sharp for which their bodies had to be up to the mark. Younger athletes seem to have greater disturbances than the more experienced ones, who may have found a way to have a perfect balance. Certain non-athletes too seemed to be at a risk for developing eating disorders. These too maintained a healthy diet, went to gyms or did some form of regular exercise. They did want to maintain a good physique; however this was not their top most priority.

5. CONCLUSION:

Through this research efforts are made to point out on the fact that male athletes are prone to develop eating disorders due to the unique environment which they are a part of. The Mind and Body connect has been spoken about to a great deal and India has a dire need to develop Sports Psychology. Each team should have a professional who would be able to address issues such as these that would help athletes to deal with bodily issues and eating attitudes in a healthy manner. Through this research those athletes and non-athletes with risky scores were asked to consult a therapist to help them deal better with their issues. The limitations of this study include that only few sports have been taken and the researchers have focused on the male population. In the future, studies can expand on this basic concept such that more research is available within the Indian subcontinent.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
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Body Composition and Anthropometric Parameters between Elite and Non-Elite Table Tennis Players of North East India

¹Ak. Bojen Meetei, ²M. Monoranjan Singh, ³Mary Maheo ⁴K.Somarani Devi

Department of Anthropology, D.M. University, Imphal

Email -¹bojenmeeteiak@gmail.com

Abstract:

Aims: The purpose of this study was to predict the most influencing factors in performance level by comparing body composition and anthropometric parameters between elite and non-elite table tennis Players of North East India.

Methods: A total of fifty six TT players (30 male and 26 female) were categorised in to two groups according to their performance level: elite players (10 male and 9 female) and non-elite players (20 male and 17 females) participated in the study during the 1st NE Olympic Games, 2018 held at Khuman Lampak Sports Complex, Imphal. Body composition analyser (Tanita: TBF-310), anthropometer, measuring tap and hand grip dynamometer were used for collecting data of the study. Descriptive statistics, t-test and logistic regression were computed with the help of SPSS version 15 software. **Results:** Elite players were significantly younger than non-elite players. Percent body fat (%BF) and fat mass (FM) was significantly lower ($p < 0.05$) in both male female elite TT players as compared to non-elite players. **Conclusion:** The results suggest that lower %BF, FM, optimal BMI and optimal body height were predicted as the most influencing factors enhancing better performance in table tennis competition.

Key Words: Body composition, Table Tennis, Elite and Non-Elite players, Performance

1. INTRODUCTION:

Table Tennis is a game characterised by consecutive series of fast and powerful hits against a lightweight ball. It is considered an intermittent sport involving high activity of the lower and upper limbs during competitions (Zagatto et al, 2010; Kondric et al, 2013). Particularly, table tennis is characterized as an endurance intensive effort, but with an important contribution from the a-lactic energy system during the repeated high-intensity efforts (Zagatto et al, 2010; Kondric et al, 2013). Regarding muscle performance, a table tennis player is not required to produce high levels of muscular strength but does need developed motor control (Zagatto et al, 2010; Kondric et al, 2013). Research interest in anthropometric characteristics and body composition of the players of different sporting events had been developed during the last decades. Different studies supported the requirement of specific anthropometric characteristics which determine the suitability of the player for best performance in that specific game (Reily et al, 2000; Ackland et al, 2003). In this way, body composition could be considered an important parameter to assess sports performance. The assessment of anthropometric measures are widely used for many purposes, such as talent identification (Pion et al, 2015) and monitoring the development of muscle mass, which could contribute to improvement in body movement and metabolic demand (Hogstrom et al, 2012). Furthermore, regarding racket sports, the long term training can act as an important osteogenic factor, especially for players who practice for many years, causing member asymmetry of fat-free mass and bone mineral content between the dominant and non-dominant limbs (Sanchis-Moysi et al, 2010). In tennis, which is also a racket-sport, significant differences between bone mass density of adolescent female players and non-tennis players particularly deposited in lumbar spine and hip bone were observed by Ermin et al. 2012.

Many sports scientists have suggested that higher percent body fat may be a discriminator for success. Callister et al (1991) found that more successful male players maintained lower body fat percentages. Although there were many importance of studying body composition in sports performance, only a few studies have documented the body composition of table tennis players and the majority of these only characterized the somatotype through the measurement of body weight, height and the sum of skin folds (Carrasco et al, 2010; Munivrana et al, 2011). Therefore, the purpose of this study was to compare the components of body composition and anthropometric parameters between elite and non-elite NE table tennis players according to different performance levels and gender.

2. MATERIALS AND METHODS.

A total of fifty six TT players (30 male and 26 female) were categorised in to two groups according to their performance level: elite players (10 male and 9 female) and non-elite players (20 male and 17 females) participated in the study during the 1st NE Olympic Games, 2018 which was held at Khuman Lampak Sports Complex, Imphal. Body composition analyser (Tanita: TBF-310) was used to assess the different components of body composition viz. percent body fat (PF%), fat mass (FM), free fat mass (FFM), total body water (TBW), and body mass index (BMI). In addition, anthropometer, measuring tap and hand grip dynamometer were used for measuring anthropometric characters/parameters following the International Society for the Advancement of Kinanthropometry (ISAK) procedure. Descriptive statistics, t-test and binary logistic regression were computed with the help of SPSS version 15 to assess the mean differences of studied parameters between elite and non-elite TT players and prediction of influencing factors in performance. Confidence interval was set at 95% with a significance of $p < 0.05$.

3. RESULTS:

Table 1 shows the descriptive statistics and t -test of anthropometric parameters between male elite and non-elite table tennis players of North East (NE) India. Four significant differences ($p < 0.05$) were observed among the eight parameters. Male elite TT players were found significantly lower in age and body weight as compared to non-elite players. The mean values of waist girth and hip girth were significantly lower as compared to his counterpart. No significant differences ($p > 0.05$) were observed in body height, waist hip ratio and hand grip strength.

Table 1. Descriptive Statistics and t-test of anthropometric Parameters between Male Elite and Non-Elite Table Tennis players of North East India

*Significant Level $p < 0.05$

Parameters	Male Elite TT Players (n= 10)		Male Non-Elite TT Players (n=20)		t- value	p-value
	Mean	SD	Mean	SD		
Age (yrs)	17.8	2.25	25.5	9.73	3.363	0.003
Body weight (kg)	53.50	9.45	61.05	8.49	2.133	0.048*
Body height (cm)	166.90	8.23	168.02	4.45	0.489	0.694
Waist Girth (cm)	63.40	15.70	76.49	8.02	2.479	0.030*
Hip Girth (cm)	83.90	6.08	91.07	6.30	3.010	0.007*
Waist Hip Ratio(WHR)	0.753	0.168	0.839	0.055	1.570	0.148
Hand Grip Right (kg)	37.40	6.53	37.73	5.42	0.140	0.891
Hand Grip Left (kg)	33.70	6.58	35.68	5.36	0.823	0.423

Table 2 present the mean differences of body composition between male elite and non-elite table tennis players of North East India. There is a decreasing trend of all the components (variables) of body composition among the elite judokas as compared to non elite TT players. Fat mass (FM) was found significantly ($p < 0.001$) lower in elite judokas as compared to non -elite players. It indicates that lower fat mass can influence in performance. Elite TT players have significantly ($p < 0.05$) lower in percent fat than the non-elite players. Normal BMI (20.83 kg/m²) was observed among the male elite TT players and significantly lower value as compared to non-elite players even though they were fall within the range of normal BMI

Table 2

Descriptive Statistics and t-test of body composition between Male Elite and Non-Elite Table Tennis Players of North East India.

*Significant Level $p < 0.05$

Variables	Male Elite TT Players (n=10)		Male Non-Elite TT Players (n=20)		t- value	p-value
	Mean	SD	Mean	SD		
Percent Body fat (%)	6.06	2.38	10.69	3.21	4.023	0.000*
Fat mass (kg)	3.30	1.55	6.83	2.31	4.944	0.000*
Free Fat Mass (kg)	50.21	8.58	54.83	6.65	1.494	0.156
Total Body Water (kg)	36.76	6.28	39.99	4.82	1.428	0.174
Body Mass Index (kg/m ²)	19.18	2.49	21.65	2.42	2.603	0.019*

Table 3 shows the descriptive statistics and t -test of anthropometric parameters between female elite and non-elite table tennis players of North East (NE) India. Three significant differences ($p < 0.05$) were observed among the eight variables. Female elite TT players were found significantly lower body weight as compared to non-elite players. The mean values of waist girth and waist hip ratio were significantly lower as compared to his counterpart. No significant differences ($p > 0.05$) were observed in age, body height, hip girth and hand grip strength.

Table 3

Descriptive Statistics and t-test of anthropometric variables between Female Elite and Non-Elite Table Tennis Players of North East India

*Significant Level $p < 0.05$

Variables	Female Elite TT Players (n=9)		Female Non-Elite TT Players (n=17)		t- value	p-value
	Mean	SD	Mean	SD		
Age (Yrs)	17.11	2.803	21.00	9.00	1.634	0.116
Body weight (kg)	47.00	5.86	54.72	9.63	2.538	0.018*
Body height (cm)	150.50	6.69	155.73	5.08	2.053	0.061
Waist Girth (cm)	60.73	14.76	74.17	8.808	2.504	0.029*
Hip Girth (cm)	80.44	17.66	89.88	6.94	1.542	0.156
Waist Hip Ratio	0.753	0.051	0.823	0.044	3.465	0.004*
Hand Grip Right (kg)	26.55	5.89	25.91	5.40	0.273	0.789
Hand Grip Left (kg)	23.61	4.15	23.64	4.81	0.20	0.984

Table 4 reveals the mean differences of body composition between female elite and non-elite TT players. Statistically significant differences ($p < 0.05$) were observed in percent body fat (% fat) and fat mass (FM). Female elite players were found significantly lower in % fat and FM as compared to non-elite players. No significant differences were observed in FFM, TBW and BMI.

Table 4

Descriptive Statistics and t-test of body composition between Female Elite and Non-Elite Table Tennis of North East India

*Significant Level $p < 0.05$

Variables	Female Elite TT Players (n=9)		Female Non-Elite TT Players (n=17)		t- value	p-value
	Mean	SD	Mean	SD		
Percent Body fat (%)	17.54	6.12	25.81	4.99	3.486	0.004*
Fat mass (kg)	8.53	3.89	14.47	4.95	3.359	0.003*
Free Fat Mass (kg)	38.46	2.88	40.28	5.32	1.131	0.269
Total Body Water 9kg)	28.17	2.09	29.48	3.89	1.121	0.273
Body Mass Index (kg/m ²)	20.83	2.23	22.55	3.11	1.626	0.119

Table 5 predicts the most important influencing factors of body composition in winning the game of table tennis. This binary logistic regression analysis identified that percent body fat (%BF) as most influencing factors and contributing significant negative contribution ($p < 0.007$) towards the success of the game. The results reveal that the lower level of percent body fat are significantly associated with the chance of becoming elite table tennis players as predicted by OR.

Table 5

Binary Logistic Regression Analysis in prediction of influencing factors in performance

No. of Steps	Variables of Interest	Coefficient of Regression	p-value	Odd Ratio (OR)
Step 6(a)	%BF	-.573	.008	3.33
	Body height	-.048	.547	.564
Step 7(a)	%BF	-.551	.007	.576

Table 6 reveals that Brazilian National TT team have a lower body fat percent (12.6%) and fat mass (8.6 kg) as compared to TT players of Sports Authority of India, Kolkata (regional team) and Hooghly District, West Bengal (District Team). The Elite North Eastern TT players is found to have lower percent body fat (6.06%), fat mass (3.30 kg) and higher fat free mass (50.21 kg) as compared to Brazilian and SAI TT team.

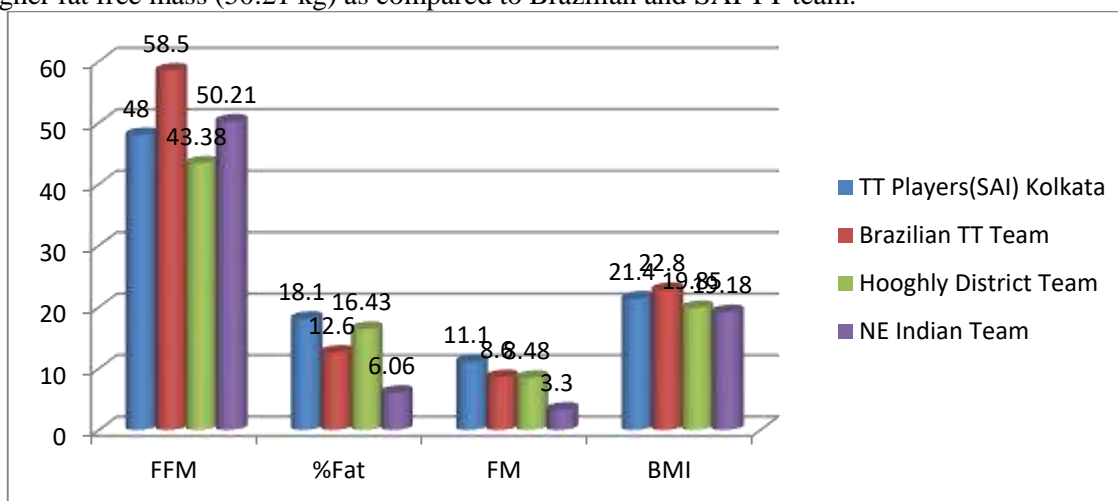


Fig.1 Bar chart showing the variations of mean values of body composition components of four groups of Players

Table 6
 Comparison of high level Male TT player's body composition of Regional and National Team

Team/ Region/Nationality	FFM (Mean± SD)	% fat (Mean± SD)	FM (Mean± SD)	BMI (Mean± SD)	Authors (s)
TT players (SAI), Kolkata (15.6 yrs)	48.0±7.39	18.1 ± 8.61	11.1±6.99	21.4 ±3.03	Dey et al, (1991)
Brazilian TT Team (21.6 yrs)	58.5±6.2	12.6 ± 2.9	8.6±2.9	22.8± 1.9	Zagatto et al, (2015)
Hooghly District TT Team, West Bengal (13.29 yrs)	43.38±2.69	16.43±4.96	8.48±2.54	19.85	Bandyopadhyaya et al, (2016)
NE Indian TT Players (17.8 yrs) (Present study, 2019)	50.21±2.49	6.06 ± 2.38	3.30±1.55	19.18±2.49	Meetei et al, (2019)

4. Discussion

Body composition is a very important parameter of sports performance, since an excess of FM can act as 'dead weight' in modalities in which body mass needs to be lifted repeatedly against gravity or moved as fast as possible in different direction (Hogstrom et al., 2012), such as in table tennis. Body fat percentage, as a component of body composition, is a key determinant of sports performance as established in earlier studies. The findings of present study reveal that there were significant differences in different components of body composition between elite and non-elite TT players. Male elite players presented significantly lower FM and %BF than non-elite players. It can be predicted that lower % BF and FM observed amongst the elite players is associated with higher performance and higher %BF and FM amongst the non-elite players is associated with weak performance in the game of table tennis. The present findings were supported by the earlier studies. Excess of fat mass may impair sports performance (Ozkan et al., 2009), thus many authors study the correlation of sports results, along with technical and tactical abilities, with body composition (Callister et al, 1991; Thomas et al., 1989).

Carrasco et al. (2010) observed higher FM and %BF in female as compared to male is found similar with the present findings. High values of FM and %BF, mainly localized in the lower limbs, could act as an "over load" becoming an important restrictive factor to performing rapid movements and changes of direction, acceleration and deceleration; characteristic table tennis actions (Nikolic et al, 2014). In addition, a high body fat level increases the possibility of developing injuries (Tylor et al., 2015). Performance in speed and capacity to respond a quick returned

ball would decrease when body fat accumulates and increasing the risk of developing injuries. A previous report indicated that 35-65% of the injuries occur in the lower limbs (Ellenbicker et al., 2009). On the other hand, the long-term practice of racket sports such as tennis and table tennis seems to induce an important osteogenic effect on the arm (humerus) and forearm (radius and ulna) bones and an increase in muscle mass due to the mechanic impact loading characteristic (Sanchis-Moysi et al, 2010; Carrasco et al, 2011).

Some of few table tennis coaches believe that table tennis training is highly specific (Junhua et al, 2012) which is based on techniques only. On the contrary, a professional table tennis player requires high level physical capacity, technical skills and tactical competence (Kondrič et al, 2010). The percentage of body fat plays an important role for the assessment of physical fitness of the players (Sergej 2003). Increase in body fat can reduce the aerobic and anaerobic fitness (Powers and Howley, 1997). For example when doing multi-ball practice specially on top spin one might overlook the importance of cardio-vascular endurance with the possession of optimal level of fat mass and percent body fat as important components in a complete scientific training and coaching program. Coaches always feels in their minds that additional strength or endurance might impair motor abilities and coordination in different strokes.

It is well established that suitable physique has an importance to achieve success in particular sports. The measurement of height and weight has some importance in selecting sports talents (Beunen et al, 1988). In the present study, male NE elite TT players were found significantly lower in age and body weight as compared to his counterpart. The mean value of waist girth is found to have significantly lower in both male and female elite players as compared to his/her counterparts. It reveals that the lower value of waist girth and waist hip ratio achieved amongst the female elite players might have due advantages in lateral and forward and backward movement during the match than higher values of waist girth and waist hip ratio of non-elite players. It may be suggested that anthropometric characteristics are the parameters that exert influence on achieving high performance level and talent identification in any sporting events.

5. Conclusion

In conclusion, body composition can be used as a tool in achieving success in sports. It can help to prevent injury and maximize the body's potential during competition. Athletes in most sports need to keep their focus on body composition. It is evident that higher percent body fat may be a discriminator for success. The present findings suggest that optimal level of fat mass, free fat mass and % body fat have significant effect on player's performance in the event of table tennis. The results of the present study may, therefore, be very useful for trainers and coaches to formulate a systematic and scientific training and coaching program to enhance performance level in the national and international competitions.

6. Practical Application

The findings of the research can be used in the State and National team selection. It can also be utilised in the selection process of young table tennis players in striving towards the success of high level competition.

7. Limitation of the Study

The limitations of this study are small sample size and higher range of age interval among the players who represents different north east states.

8. Acknowledgements

We are very thankful to the NE Table Tennis Players who took part in the study. Our special thanks to the President, Manipur Olympic Association (MOA) and team officials of NE States for giving permission and extending their kind help and co-operation during data collection of the present study.

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YOGA - A RELIEF FOR STRESS ON COVID - 19

Prof. B.S. Patil

Director in Physical Education

Dr. Babasaheb Ambedkar College Aundh, Pune-67

Abstract:

The state of the mind and that of the body are intimately related. If the mind is relaxed, the muscles in the body will also be relaxed. Stress produces a state of physical and mental tension. Yoga is recognized as a form of mind body medicine. In yoga, physical postures and breathing exercise improves muscles strength, flexibility, blood circulation and oxygen uptake as well as hormone functions. In addition, the relaxation induced by meditation helps to stabilize the autonomous nervous system with a tendency towards parasympathetic dominance. Physiological benefits which follow help yoga practitioners become more resilient to stressful conditions and reduce a variety of important risk factors for various diseases, especially cardio respiratory diseases.

1. INTRODUCTION:

The entire world is caught in the vice-like grip of the COVID-19 pandemic with 200 countries reporting casualties, increasing alarmingly moment-by-moment. Within a period of 4 months, every human being on our planet has been affected directly or indirectly by this virus that has brought out the worst fears in each and every one of us. Even the most advanced and developed countries have been brought to their knees by something that is so small that we cannot even see it. This “invisible enemy”, the virus, has brought forth another companion too. One that cannot be seen, heard, smelt, tasted or touched and yet affects us to the very core of our being. In the modern world our mind is bombarded continuously with the stressors that create a state of physical and mental tension. Life is surrounded with problems in the modern age. Our life is becoming a hell because of mental agitations. More and more people are stressed now days. The number of people who are addicted to drugs and alcohol is increasing day by day. Similarly there is an increase in the number of people contemplating suicide. It is well known that the state of mind and that of body is intimately related. If the mind is relaxed, the muscles in the body are also relaxed. Taking into account this interrelationship the ancient yogis formulated a method that unites all the movements one needs for physical health with breathing and meditation practices that ensures peace of mind. COVID-19 has brought on another pandemic in its wake, that of Fear Psychosis. Everyone everywhere is scared to death and this is further aggravated and worsened by an unrelenting onslaught of negative news from the media. Social media has shown how it can really worsen such apprehensions and turn them into fear psychosis, minute by minute.

In recent time, a branch of modern medical science has developed and is known as Psycho-NeuroImmunology. It deals with the phenomenon of how our thoughts and emotions can affect our immune system. Stress, fear and negative emotions are known to weaken our immune system while Yoga (including meditation), mindfulness, positive emotions, and relaxation strengthen it. The limbic system plays a major role in triggering such emotional upheaval that then results in a weakening of the immune function. When the immune function is weakened every microbe gets a chance to attack us as all our defenses are wrecked. Fear, especially of the magnitude being experienced and expressed by all of us in the present times, will totally destroy any chances we have of fighting this devious enemy.

2. STRESS AND MODERN MAN:

Stress is something we cannot avoid in our life. We are all caught in a world where stress is an epidemic. “The stress of modern life affects us all in one way or another. When we are unable to release stress we will lose our control on our mind and body. Medical research has confirmed the role of stress in premature ageing, as well as its complicity in the many common health problems today such as hyper tension, diabetes, asthma, sexual dysfunctions, insomnia, peptic ulcer, neurosis, digestive disturbances and even concern. On the top of that, stress weakens the immune system and makes us vulnerable to infection and a whole host of other medical conditions. Life is not easy at all. The main reasons for all these lies in man’s retrace for life. People aspire to achieve superior positions in life and to accomplish

this they compete with each other. When they fail to achieve their dreams, they fall under depression. There are many reasons for stress like:-

- Personal stress arising in the work place
- Strained family relationships with teenage children
- Emotional stress caused by financial problems
- Post traumatic disorders after an unhappy event like an accident
- We feel stress even when we are on the holiday.

All these various types of stress and many more, can however group into four main types of stress.

2.1. Eustress:

- The thrill and excited feeling while watching a horror movie
- The feeling of excitement when you have won a game or race
- The happy feeling of being loved These feeling make us good and they are the so-called good stress or positive stress. It is a type of stress that only occurs for a short period of time.

2.2. Distress:

Distress is a negative stress. It is a stress disorder that is caused by adverse events and it often influences a person's ability to cope. Some events leading distress are:

- Death of loved one
- Financial problems
- Chronic illness

2.3. Hyper stress:

It results from being overloaded or over worked. When someone is hyper stressed, even little things can a strong emotional response. People who are most likely to suffer from hyper stress are:

- Working mothers who have to multi –task, juggling between work and family commitments
- People who are under constant financial strains.
- Generally people working in fast environment.

2.4. Hypo stress:

Hypo stress is one of those types of stress experienced by a person who is constantly bored. Someone in an unchallenging job, such as a factory worker performing in the same task over and over, will often experience hypo stress. The effect of hypo stress is feelings of restlessness and lack of inspiration. This stress is likely to lead us to tension, emotional and physical strain. It is necessary that we learn different ways to tackle stress and calm our mind for good health and wellbeing. The natural relaxation is the best way to powerfully control stress. Regular practice of yoga is one the best stress releasing techniques, which will help us to feel good and youthful.

3. What is yoga?

Yoga, derived from the Sanskrit word *yuj* meaning *to yoke or union*, is a 3000 year-old discipline that was developed as part of traditional Indian medicine. Yoga is the merging of the individual soul with the universal soul. It is not a religious dogma, but is simply a tool for exploring the depth of human nature or examining the mysteries of the body and the mind. Yoga is now recognized as a form of mind-body medicine, because mental and spiritual parts of one are being. And because of this there is a growing research to support its health benefits.

Yoga practice usually includes the use of physical postures, controlled breathing and meditation to improve the overall well-being. First of all the practice of yoga cultivates emotional stability by bringing involuntary muscles under the control of the mind. Secondly yoga liberates the mind from sensory fetters by controlling the senses thereby bridging the gap between the body and mind, and thirdly, by completely merging the subject and the object where by the mind loses its sense of identity a necessary prerequisite for the liberation of soul. Yoga is now practiced by million of people in the world of wellness, relaxation and spiritual growth.

4. YOGA FOR STRESS:

Yoga conceptualizes mind and body as a single unit. Deep breathing, visualization techniques and other forms of positive imagery can help us take charge of our emotions physically and release toxic thoughts and feelings. All reactions in the human body function under a psychosomatic base. The human body & the mind, their functions are inter-related. As a result, if one is affected, the other is also affected. As the famous saying goes, a sound body contains a sound mind. So Yoga Sadhana gives special consideration to both body & mind. The 8 elements (Ashtanga Yoga), of Yoga can be divided into Antharanga Sadhana (internal) & Bahiranga Sadhana (external). The basis of this division is the aspect of psychosomatics. When we perform Yama, Niyama-an empowerment of the body & the mind is possible. Through a sound body,a sound mind is attained – this is the principle behind Yama Niyama. Yama, Niyama, Asana, Pranayama, Prathyahara, - these are known as Bhahiranga Sadhana. Dharana, Dhyana, and Samadhi these are known as Antharanga Sadhana. The 5 aspects in Bahiranga Sadhana aim the human body while the 3 aspects

of the Antharanga Sadhana aims the human mind. Even if we perform one Sadhana, say, the Antharanga Sadhana, it also gives the result of the performance of the other sadhana, since both are inter-related. Because the functioning of the body influences the functioning of the human mind.

5. BREATHING EXERCISES:

Breathing exercises are of great importance in yoga. They provide freshness and energy immediately to the stressed body and mind. One of the breathing exercises is Kumbhakam which is divided into Anthar Kumbhakam and Bahir Kumbhakam, Anuloma Vilomapranyam, Abdominal breathing. These breathing techniques are simple techniques that control the flow of vital energy to the brain and have a very calming and balancing effect on the mind and body. Also provide relaxation and stress relief to the human body. The concentration of mind is requisite in the performance of these breathing techniques. So, they are really effective in reducing stress.

6. ASANAS:

The asanas which are performed with proper body balance help to retain the concentration power and relieves stress. Kakasana, Vrikshasana, Thalassana, Mayurasana, Natarajasana- these asanas require proper balance for the perfect performance. The basics for body balance are the power of concentration. When we perform Vrikshasana, we focus on a point in front of a wall. But if we close our eyes during the performance of this asana, we will easily lose our balance. This lack of balance is because when we close our eyes, our thoughts are scattered to different spheres and different thoughts come to our mind. As a result, we lose our mental concentration and body balance. These asana provide self-confidence, concentration power and stress relief.

7. MEDITATION:

Meditation is a process absolutely regarding the human mind. We consciously give commands to our mind and the process of meditation enhances the functioning of the mind. The body postures like Padmasana, is very effective for good concentration. During the performance of these exercises, our body attains a pyramidal structure. From Mooladhara to Anja, the body attains a single straight line structure. There are 7 chakras in our body. The lowest chakra is Mooladhara and the highest chakra is Ajna Chakra. Kundalini remains inactive at mooladhara as a potential energy. Meditation awakes the Kundalini, makes it arise through all the 6 energy centers of the chakras and finally enter the 7th energy center. It activates the parasympathetic nervous system which helps in the relaxation of the body muscles. We can use different techniques for meditation. Breathing, environment- concentrates on these aspects for some time with an undisturbed mind. This is the most basic technique in meditation. In the next stage, close the eyes visualize the sky or waterfall or rain or any familiar aspect. Gradually increase the time span of visualization. This can be seen a positive sign for increasing the concentration power of the human mind. When the concentration power is enhanced, stress can be reduced to a great extent.

8. MUDRAS:

Mudras are hand gestures used in yoga and meditation in order to focus and direct energy. Mudras have a prominent role in yoga shastra. Even though they are very simple at the first sight, they are very prominent.

8.1. Chin mudra/ Jnana mudra: This is the Mudra to attain spiritual power. The tips of the thumb and the pointing finger have to be kept together. The others fingers remain relaxed and extended. Do this with both hands and place them on your thigh whilst in Padmasana, during meditation. When the fingers are pointing upwards, it is called Jnana Mudra. When they are pointing downward, it is called Chin Mudra. This is the most important Mudra in Hata yoga. This enhances the physical, mental, emotional and spiritual levels of the human body. Mental stress and strain, tension can be relieved by performing this Mudra. Concentration and memory power can be increased by constantly practicing this Mudra. Sleeplessness, high BP,- these can be corrected.

8.2. Atmanjali mudra/ Pranamanjali mudra: This is a prayer Mudra. The palms have to be joined together in front of the chest. The left and the right hemispheres of the brain can be united through this Mudra. Anjali Mudra is used as a posture of composure, of returning to one's heart whether we are greeting someone or saying good-bye, initiating or completing an action. This yogic process of unification of our active and receptive natures. Practicing Anjali Mudra is an excellent way to induce a meditative state of awareness. Benefits – strong thought process, spiritual power is released and as a result, the concentration power of the mind increases. This plays an important role in reducing stress.

9. CONCLUSION:

Yoga can be a great way to minimize the impact stress has on our life. The field is so broad that there are many different approaches and styles. Practiced with the right approach, yoga is a stress management technique. Yoga emphasis on breathing and the mind and body connection yield strong emotional benefits. People who practice yoga frequently report that they sleep better and feel less stressed. When we practice yoga regularly, we will notice that we are handling a stressful event more easily, whether its family or work. That is the power of yoga.

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**A COMPARATIVE STUDY AMONG SPRINTERS AND LONG
DISTANCE SWIMMERS ON SELECTED RESPIRATORY
PARAMETERS**

¹Neha Baghel, ²Dr. Priya Baghel, ³Dr. Vineet kumar Sharma

1Sports Officer, M.P.R.P.Govt.G.D.College Dewas

2Sports Officer, Govt. C.M.D College Chhatarpur

3TGT(PE) DMS, RIE-NCERT, Ajmer, Rajasthan

Abstract:

The purpose of the study was to see the comparison among sprinters and long distance swimmers on selected respiratory parameters i.e. VO₂ max and vital capacity. To systematize the study, subjects were divided into two groups according to their events in sprint and long distance swimming category a total of 18 swimmers were selected i.e. 10 sprinters and 8 distance swimmer whose age range from 18-25 years of swimming match practice group from LNIPE. In order to see the comparison among sprinters and long distance swimmers on selected respiratory parameters i.e. VO₂max and vital capacity independent T – test was used with the help of data analysis software SPSS 20 and the level of confidence was set at 0.05. Analysis of data revealed that there were significant differences found in Vo₂max. and vital capacity between sprint and long distance swimmers.

Key words: sprinters, long distance swimmers Vo₂max., vital capacity

1. INTRODUCTION:

Today the preparation of an athlete for achievement is a complex dynamic state, characterized by high level of physical, physiological and psychological efficiency and the degree of perfection of the necessary skills and knowledge, techniques and tactical preparation. Swimming which was considered to be only a survival activity has now developed into one of the most popular competitive sport at the international and Olympic level. There are four competitive swim styles: freestyle, backstroke, breaststroke and butterfly. In freestyle, the swimmer can swim any stroke, with the crawl most commonly used and there are different events which are comes in different categories like sprint events, middle distance events and long distance events. 50 mt and 100 mt come in sprint events, 200mt and 400 mt comes in middle distance events and 800 and 1500 mts comes in long distance events and swimmers according to their ability participate in their events. Vigorous water activities can make a major contribution to the flexibility, strength and circulatory endurance of individuals. With the body submerged in water blood circulation automatically increased to some extent; pressure of the water on the body also promotes deeper ventilation of the lung; and with well planned activity, both circulatory and ventilation increased still more. **H.harrison Clarke (July 1977)** shows in swimmers the vital capacity is much greater as compare to others but it also affected by type of an event a swimmer is involved as in sprint or in distance as the Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inhalation .It is equal to the sum of inspiratory reserve volume, tidal volume, and expiratory reserve volume which affects a swimmer's performance a lot. The maximal rate at which oxygen can be consumed per minute, the power or capacity of the aerobic or oxygen system. vo₂max. is the measurement of the maximum amount of oxygen that an individual can utilize during intense or maximal exercise. It is measured as milliliters of oxygen used in one minute per kilogram of body weight, and is one factor that may help determine an athlete's capacity to perform sustained exercise. It is therefore, aerobic in character, while white fiber is anaerobic, endurance events are considered aerobic events in that they require an efficient oxygen transport and utilization system, while sprint events are anaerobic in that oxygen transport is of little or no importance, depending on the distance. The sprinter needs more explosive power and less endurance than the middle distance and distance swimmers. Since swims the 50, the 100 and sometimes the 200 yards distance swimmer needs good endurance and they should thus not eliminate all endurance work from his training programme. He also needs to do some over distance swimming and some short -rest – interval training. The sprinter needs to train his system to release fast and to be able to operate in oxygen debt. With the rapid

growth of freestyle sprint and long distance swimming as a competitive sport lot of research work has been done in other countries to gather information more on physiological aspects in this field and accordingly training athletes on the basis of formed profile for the improvement in the freestyle sprint and long distance swimming performance. Hence, the researcher has been interested to compare in between the sprint and distance swimmers on physiological variables.

2. MATERIALS AND METHODS:

Subject: To systematize the study, subjects were divided into two groups according to their events in sprint and distance category a total 18 swimmers selected 10 sprinters and 8 distance swimmer whose age range from 18-25 years of swimming match practice group from LNIPE. In order to see the comparison of among sprinters and long distance swimmers on selected respiratory parameters i.e. VO₂max and vital capacity independent T – test was used with the help of data analysis software SPSS 20 and the level of confidence was set at 0.05.

3. FINDINGS:

Table 1.Descriptive statistics for VO₂ max.

Group Statistics				
	Variable	N	Mean	Std. Deviation
vo2 max	sprint swimmer	10	41.5010	6.23720
	distance swimmer	8	33.4538	1.18018

Table 1 reveals that the mean and standard deviation for the sprint swimmers is 41.5010 ± 6.23720 and for distance swimmers is 33.4538 ± 1.18018 in relation to vo₂max..

Table 2. t-statistics between sprint and distance swimmer in vo₂ max.

Independent Samples Test							
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference
vo2 max	Equal variances assumed	10.721	.005	3.577	16	.003	8.04725
	Equal variances not assumed			3.992	9.798	.003	8.04725

In the table 2 for testing equality of variance levene's test was used F value was 10.721 which is significant as the p value is.005 which was less than 0.05. Thus the null hypothesis of equality of variance may be rejected and it was concluded that the long distance swimmers has better vo₂max. than sprint swimmers. The t-value was significant as its p –value was .003 which is less than .05 and it was concluded that there was significant difference between sprint and distance swimmers in term of vo₂max.

Table 3.Table 6(a): Descriptive statistics of vital capacity

Group Statistics				
	Variable	N	Mean	Std. Deviation
Vital capacity	sprint swimmer	10	3.1800	.34577
	distance swimmer	8	4.3000	.46599

Table 3 reveals that the mean and standard deviation for the sprint swimmers is $3.1800 \pm .34577$ and for distance swimmers is $4.3000 \pm .46599$ in relation to vital capacity.

Table 4. Table 6(b): t-statistics between sprint and distance swimmer in vital capacity.

		Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Vital capacity	Equal variances assumed	.419	.527	-5.862	16	.000	-1.12000
	Equal variances not assumed			-5.664	12.620	.000	-1.12000

In the table 4 for testing equality of variance levene's test was used F value was .419 which is insignificant as the p value is .527 which was more than 0.05. Thus the null hypothesis of equality of variance may be accepted and it was concluded that the variance of the two groups are equal. The t-value was significant as its p –value was .000 which is less than .05 and it was concluded that there was significant difference between sprint and distance swimmers in term of vital capacity.

4. DISCUSSION AND CONCLUSION:

Analysis of data revealed that there were significant differences in maximum oxygen consumption, and vital capacity between sprint and long distance swimmers. Vo2max. and vital capacity showed significant difference where long distance swimmers have better vo2max. and vital capacity than sprint swimmers. Because of their better cardio-respiratory fitness which is required to do swimming with a reasonable speed for long duration. This study is also supported by **Sodhi(1991)** he has conducted the study on Olympic swimmers by taking a variety of physical measurements. Sprint swimmers were found to be stronger in arm, leg and body strength. The middle distance swimmers found to have greater vital capacity and more than the average amount of adipose tissue. **Shephard roy and Godin gactan (1974)** states that the distance competitors are characterized by a large total lung capacity and forced vital capacity and a good absolute aerobic power.

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**THE INVESTIGATION OF MOTIVATION FOR PARTICIPATION IN
TUG OF WAR AND UNDERARM BOWLING CRICKET**

¹Miss. Shambhavi Gunaga, ²Mr. Madhu G R

^{1,2}Assistant Professor,

Alva's college of Physical education, Moodbidri, Karnataka, 574227

Abstract:

This study was attempted to investigate the motivation for participation in Tug of war and underarm bowling cricket in Dakshina Kannada district. To achieve the necessary data 74 male subjects of which 37 from Tug of War and 37 from Underarm bowling cricket were selected. The selected subjects were from Dakshina Kannada district, during the year 2018-19. The subject's age ranged between 18 to 25 years. To assess the Data on motivation for participation in tug of war and underarm bowling cricket was collected through The 24-item "Sport Motivation Scale", The answers were scored on a 7 point Likert scale and ranged from 1 (does not correspond at all) and 7 (corresponds exactly). There are total six sub scales in the questionnaire: A motivation, External regulation, Interjected regulation, Identified regulation, integrated regulation and intrinsic motivation. All the statistical calculation was carried out with the help of SPSS Windows package. The result shown by suitable graphs and tables.

Key Words: motivation, Dakshina Kannada, Tug of war, underarm bowling cricket etc...

1. INTRODUCTION

Tug of war:

The sport of tug of war has a long regional, dating back to approximately 2000 BC. The term originates from the German togga werra which denotes a contest in tugging or pulling. In some countries, tug of war was included in ceremonial rituals for example, in Korea a tug of war competition was organised in advance of harvest time. In later times, tug of war became a competition of physical strength and it was included in the Olympic Games until 1920 (<http://www.stowa.pwp.blueyonder.co.uk>). More recently, the sport has become organised on a worldwide basis. The Tug of War International Federation (TWIF) was formed in 1960 and has 25 member nations. Regional and World Championships are staged on a yearly basis. Tug of war involves two teams of eight, pulling against one another on a rope of not less than 33.5 m. The object is to pull the opposing team towards a centre line for a distance of 4 m. Two types of competition are used: knockout and points. Teams are categorised by weight, varying from lightweight (not exceeding 560kg) to catch weight (not exceeding 720 kg). Typically, matches are decided over a best of three pulls. The duration of each pull varies, with a mean time of two minutes 30 seconds, but pulls lasting as long as 45±46 minutes have been recorded (Ireland v England, World Championships, Malmo, Sweden, 1988). Rest periods of up to six minutes are permitted between pulls.

Cricket:

Cricket is basically a bat and ball game played between two teams of eleven players. It is one of the oldest sports in the world and has its origin in 16th century in England. The expansion of the British Empire spread this once colonial recreational sport into a spirited game to all corners. Early cricket was at some time or another described as "a club striking a ball (like) the ancient games of club-ball, stool-ball, trap-ball, stob-ball" Cricket can definitely be traced back to Tudor times in early 16th-century England. A number of other words have been suggested as sources for the term "cricket". The first English touring team on board ship at Liverpool in 1859. During the 17th century, numerous references indicate the growth of cricket in the south-east of England. By the end of the century, it had become an organized activity being played for high stakes and it is believed that the first professionals appeared in the years following the restoration in 1660. In the beginning all bowling was underarm, but there were always tensions. As time passed bowlers increasingly wanted to raise the level of their arms and eventually, in 1827, something else that is never seen today, round arm bowling, became legal. At a stroke the majority of bowlers switched their style. There remained just one great exponent of underarm to come. In 1864, the law changed again and the over arm bowling that

we know today was legalised. This had much the same effect on round arm as that style had on underarm back in 1827. By now the underarm, or “lob” bowler had become a curiosity. Not quite extinct, but distinctly uncommon.

Motivation level of the game:

Motivation refers to “the reasons underlying behavior” (Guay *et al.*, 2010). Paraphrasing Gredler, Broussard and Garrison (2004) broadly define motivation as “the attribute that moves us to do or not to do something”. Intrinsic motivation is motivation that is animated by personal enjoyment, interest, or pleasure. As Deci *et al.* (1999) observe, “Intrinsic motivation energizes and sustains activities through the spontaneous satisfactions inherent in effective volitional action. It is manifest in behaviours such as play, exploration, and challenge seeking that people often do for external rewards”.

2. METHODOLOGY:

Selection of the subjects:

To achieve the necessary data 74 male subjects of which 37 from Tug of War and 37 from Underarm bowling cricket were selected. The selected subjects were from Dakshina Kannada district, during the year 2018-19. The subject’s age ranged between 18 to 25 years.

Selection of the test items:

To assess the Data on motivation for participation in tug of war and underarm bowling cricket was collected through The 24-item “Sport Motivation Scale”, The answers were scored on a 7 point Likert scale and ranged from 1 (does not correspond at all) and 7 (corresponds exactly). There are total six sub scales in the questionnaire: A motivation, External regulation, Interjected regulation, Identified regulation, integrated regulation and intrinsic motivation.

Procedure for administration the test collection of data:

The researcher along with a trained helper collected necessary data related to the present investigation in out of field area set up. Data was collected by the investigator during spare time of the subjects at their competition venue. Objectives of the tests were made clear to the subjects at the outset. The researcher oriented the subjects regarding the procedure of all the tests to be conducted. An informed written consent was received from each subject to ensure their willingness to take part in the study as subjects. Honest responses were sought from the subjects and doubts were timely clarified. Each written test tool took back with in 20 minutes each.

Statistical techniques:

The collected data were tabulated for the purpose of analysis. The t-test was used for testing the hypothesis for significance of mean and standard deviation for testing difference in the statistical formula. All the statistical calculation was carried out with the help of SPSS Windows package.

3. ANALYSIS OF DATA AND RESULTS OF THE STUDY:

Table 1. Summary of ‘t’ test on differences in sports motivation between under arm cricket and tug of war.

Underarm cricket and Tug of War							
	Type of Sports	N	Mean	Std. Deviation	Std. Error Mean	T	Sig. (2-Tailed)
A motivation Scale	Underarm Cricket	37	16.4865	6.08560	1.00047	.491	.625
	Tug of War	37	15.8378	5.25734	.86430		
External Regulation Scale	Underarm Cricket	37	20.0270	3.86211	.63493	.574	.568
	Tug of War	37	19.4595	4.61034	.75794		
Interjected Regulation Scale	Underarm Cricket	37	21.5135	3.64860	.59983	1.513	.135
	Tug of War	37	19.9459	5.13672	.84447		
Identified Regulation Scale	Underarm Cricket	37	22.5405	3.61782	.59477	1.927	.058

	Tug of War	37	20.5405	5.17255	.85036		
Integrated Regulation Scale	Underarm Cricket	37	21.3784	4.00937	.65914	2.160	.034
	Tug of War	37	18.9189	5.64889	.92867		
Intrinsic Motivation Scale	Underarm Cricket	37	21.3514	4.33472	.71262	1.309	.195
	Tug of War	37	19.9730	4.71691	.77546		

From table 1. It is evident that there is significant difference in Identified Regulation and Integrated Regulation, among male participants of Dakshina kannada district participating in Underarm cricket and tug of war sports events. The information related to Identified Regulation in male sports persons belonging to Underarm cricket and tug of war sports is graphically depicted in figure 1.

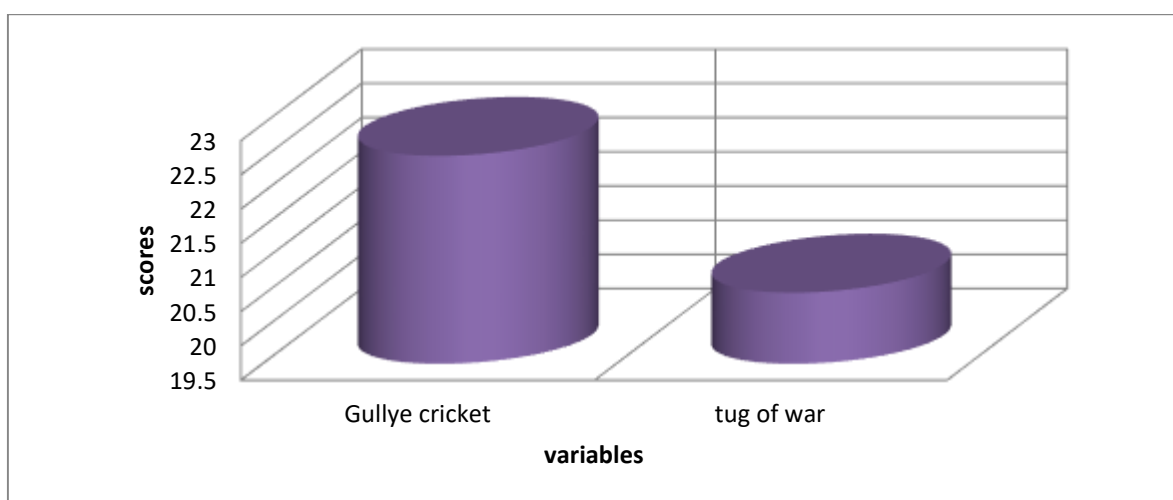


Figure 1. Graphically illustration on Identified Regulation of underarm bowling cricket and tug of war players. From figure 1 it becomes clear that the sportspersons of Dakshin kannada district belonging to underarm cricket sports have higher identified motivation than tug of war sports events. The information related integrated regulation motivation in male sports persons belonging to underarm cricket sports and tug of war sports is graphically depicted in figure 2.

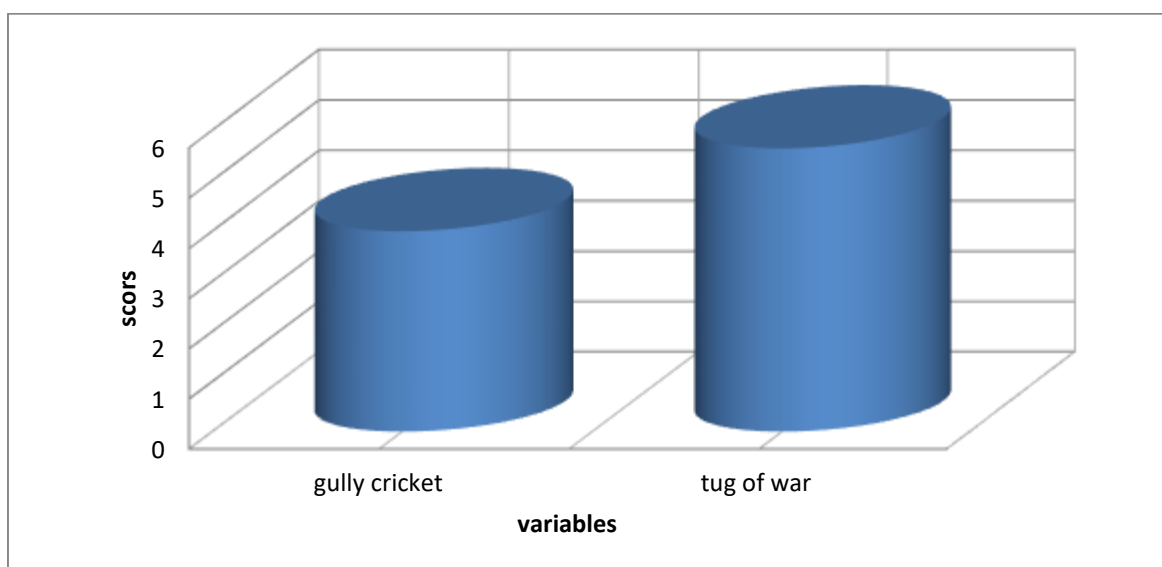


Figure 2. Graphically illustration on Integrated Regulation of underarm bowling cricket and tug of war sports person. From figure 2 it becomes clear that the sportspersons of Dakshin Kannada district belonging to tug of war sports have higher integrated regulation than underarm cricket sports events.

4. SUMMARY CONCLUSION AND RECOMMENDATIONS

This study attempted to evaluate the psychological background of tug of war and underarm bowling cricket participants as well as to discover the relationship between motivation and level of tug of war and cricket performance in the underarm bowling cricket format.

The conclusion was that there is significant difference in the psychological background information on sports motivation for participation of tug of war and under arm bowling cricket players competing at traditional, local and open tournaments level. Finally concluded to underarm cricket sports have higher identified motivation than tug of war sports events and Dakshina Kannada district belonging to tug of war sports have higher integrated regulation than underarm cricket sports events. Motivation of other aspects of a motivation, External Regulation, interjected regulation, intrinsic motivation to their well be no significance difference between underarm bowling cricket and tug of war sports participants.

The following recommendations arise from this investigation:

- This will be useful for the further any other traditional sports investigation.
- Extend knowledge of the role of motivation in success: successful and less successful underarm cricket participants from the same level of tug of war participation should be compared with one another.
- The effects of individualised psychological-skills training on tug of war and cricket performance should be investigated to determine their performance-enhancing effects on participants from various levels of traditional, local tournaments.
- Sports psychologists of tug of war coaches and cricket coaches ranging from amateur to professional level are advised to collate their efforts to develop and implement sports psychological skills training (PST) programmes specifically for the needs of tug of war and underarm cricket players.

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**STUDY OF EFFECT OF PLYOMETRIC TRAINING ON ENDURANCE &
AGILITY OF ATHLETE AGE 14YEARS TO 18YEARS**

¹**Mr. Kiran Aanchal:** Head of Department Physical Education & Sports,
Sanjivani International School (ICSE/ISC), Kharghar, Mumbai

²**Dr. Manohar Mahadeo Mane:** Assistant Professor & Head, Department of Physical Education, University of
Mumbai, Mumbai – 400098, Maharashtra
Email - ¹kirananchan03@gmail.com, ²manoharmane14@gmail.com

Abstract:

The purpose of the study was to determine if six weeks of plyometric training can improve an athlete's Cardiovascular Endurance & Agility. Subjects were divided into two groups, experimental group, and a control group. The experimental group performed in a six-week plyometric training program and the control group did not perform any plyometric training. All subjects participated in two fitness tests: T-test and Harvard Test, and a force plate test for ground reaction times both pre and post-testing. Paired T-test & Unpaired T-test were conducted to analyze the change scores. The experimental group had quicker posttest times compared to the control group for the agility tests and cardiovascular endurance. The experimental group reduced time on the ground on the posttest compared to the control group. The results of this study show that plyometric training can be an effective training technique to improve an athlete's agility and cardiovascular endurance.

1. INTRODUCTION:

Athletics is a collection of sports that include competitions like running, throwing, jumping and walking. The most common types of athletic competitions include track and field, road running, cross country running, and race walking. The objective depends on what the sport exactly is. In races, the objective is to run from the starting point to the destination before the opponents do. The value of athletics in schools is significant and cannot be overlooked. It has a profound impact on individuals, schools, and communities. Athletics is powerful because it can bridge gaps, bring people who otherwise might not interact together, and provide opportunities not available elsewhere. Athletics can also provide opportunities through relationships. Players on a team often grow close and form lasting bonds, bonds that can support students well beyond high school or college. Staying connected can also afford people job and mentorship opportunities or it could simply provide them with life-long friends.

1.1. IMPORTANCE OF PLYOMETRIC TRAINING

“Plyometric training is a high-velocity movement that relies on power generated through what is called the “stretch-shortening cycle.”

The brainchild of Russian Dr. Yuri Verkhoshansky (about 40 years ago) plyometric movements, also known as explosive or jump exercise is a **general term that's usually used to describe and refer to any sort of explosive, jumping exercise.** This form of training forces the muscles to lengthen and contract over and over again at maximum speed.

The majority of plyometric exercises that are a must for runners are the kind of plyometric moves that improve push-off power, ankle range of motion, increase stride length and improve overall cardiovascular conditioning.

A study published in the Journal of Strength and Conditioning Research found that runners who opted for a 6-week plyometric training routine improved their 2400m race times by roughly 4 percent. According to the research, this improvement is the results of increased lower body power and explosiveness, which is the baseline on which top speed is maintained throughout a run. This can also racers finish strong in the final stretch. Plyometric training improves running economy more than lifting weights, according to an 8-week study conducted at the University of Montreal.

1.2. NEED OF STUDY: Physical training needs exposing the organism to a training load or work stress of sufficient intensity, duration and frequency to produce a noticeable or measurable training effect, that is, to improve the functions for which one is training. To achieve such a training effect, it is necessary to expose the organism to an

overload (i.e., stress) that is larger than the one regularly encountered during everyday life. It is a common conception in training environments that “to build up, one must first break down.” Admittedly, exposure to the training stress is associated with some catabolic processes, such as the breakdown of glycogen, followed by overshoot or anabolic response that causes increased deposition of the molecules that were mobilized or broken down during training. As to the effect on other cellular components, this is the best an imprecise statement. Today, the molecular mechanisms involved in training responses have started to emerge, but the pictures are still far from complete. As a basis for studying the training process, however, one can safely state that all cells and tissues of the body, regardless of the presence or absence the training, are subject to some kind of continuous exchange and remodelling. On the cellular level, molecules have a restricted lifetime and are constantly replaced by new molecules of the same kind or by another isoform of the same molecules if so demanded by current activity level.

1.3. OBJECTIVES OF THE STUDY:

The present study has been conducted with the following major objectives:

- To determine the effect of plyometric training on Endurance of Athlete 14 years to 18 years.
- To determine the effect of plyometric training on Agility of Athlete 14 years to 18 years.

1.4. HYPOTHESES OF THE STUDY:

Based on the review of recent literature and researcher’s own field experience in the field of Athletic, due to the effect of plyometric training, it was hypothesized as under:

H₀₁ There is no significant difference between experimental and control group for agility.

H₀₂ There is no significant difference between experimental and control group for cardiovascular endurance.

1.5. SIGNIFICANCE OF THE STUDY

- The study will bring out the role of Endurance on the performance of an Athlete.
- The study will bring out the role of Agility on the performance of an Athlete.
- The study will help trainers to adapt suitable plyometric training for developing Endurance and Agility.
- The study will help the trainer to develop new techniques and tactics for the Athlete.
- The study can also help to formulate the different combinations of the training program for developing Athlete.

Dependent Variables: Cardiovascular Endurance & Agility

Independent Variables: Plyometric Training: High Knee action - Step-ups, Box jumping, Squat thrust and Lateral jump

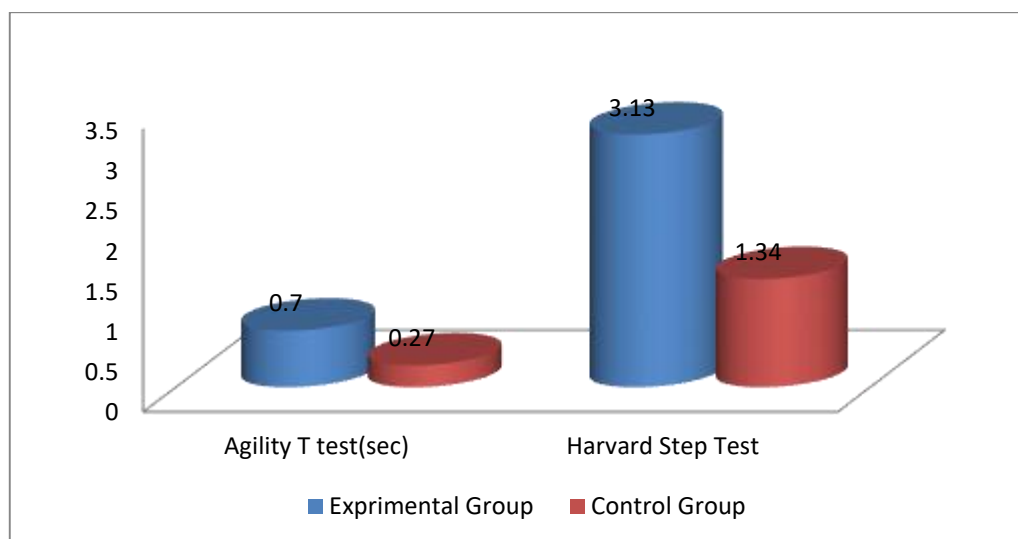
2. RESEARCH METHODOLOGY:

Looking towards the objectives of the study, the experiment had been designed as follows: A sample of 20 Athletics players was selected for the present study. The subject age group was between 14 to 18 years. As the subjects were divided into two equal groups, each group consisted of 10 subjects. Here one group was treated as the Experimental group and the other as the control group. The experiment was conducted in three phases i.e. Pre-test, Training and Post-test. All the dependent variables were measured, before the experiment, to record the baseline data. T-test & Harvard test were administered for this purpose. After pre-testing of the selected dependent variables, the subjects of the experimental group underwent 6 weeks training program whereas the control group did not receive any of the special training expects their regular Athletic practice. Finally, when the treatment period for 6 weeks was over the post-test on the selected variables was conducted for all the subjects of both the groups. However, all the subjects were administered the test in similar ways.

3. ANALYSIS OF DATA:

Table 1. Comparison of Mean Difference between pre & post-test values of Experimental Group and Control Group

Parameters	Mean Difference		SD Difference		't' value	df	p-value
	Experimental Group Pre-Post test	Control Group Pre-Post test	Experimental Group Pre-Post test	Control Group Pre-Post test			
Agility	0.70	0.27	0.70	0.52	3.64	18	0.00185
Cardiovascular Endurance	3.13	1.34	10.31	7.24	4.06	18	0.0007



Graph: Comparison of Mean Difference between pre & post-test values of Experimental Group and Control Group

The difference between the two groups (Experimental Group and Control Group) in improving agility time (sec) in Athletes is extremely statistically significant at 5% level ($t = 3.64$, $p = 0.00185 < 0.05$). The mean improvement in agility test for Experimental Group is 0.70 (SD=0.70) and that of Control Group improvement 0.27 (SD=0.52), which also indicates that improvement in agility by training of Experimental Group. The difference between the two groups (Experimental Group and Control Group) in improving Harvard Step Test in Athletes is extremely statistically significant at 5% level ($t = 4.06$, $p = 0.0007 < 0.05$). The mean improvement in Cardiovascular Endurance for Experimental Group 3.13 (SD=10.31) and that of Control Group improvement 1.34 (SD=7.24), which also indicates that improvement in Cardiovascular Endurance by training of Experimental Group.

4. RESULTS:

It is concluded that **Plyometric training** was effective in improving Agility & Cardiovascular Endurance of Athletes.

5. RECOMMENDATIONS:

The following recommendations have been made based on the results of the present study.

- It is recommended that coaches, trainers and athletes interested in developing motor fitness and skills should adopt these types of plyometric exercises in training.
- The high intensity of plyometric training is the appropriate training to produce significant changes in motor fitness components for the elite athletes before the event.
- The study can be done with a larger sample size.
- A systematic plyometric training program can be chalked out for the improvement of athletes of different age and achievement levels.

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BIOMECHANICAL ANALYSIS OF DROP SHOT IN BADMINTON

¹Mayanglambam Sangita Devi, ²Dr. Y. Santikumar Singh

¹Research Scholar, ²Assistant Professor

^{1,2}Department of Physical Education and Sports Sciences, Manipur University,
Canchipur.

Email - ¹sangitanilk@gmail.com ²santikumar12340@gmail.com

Abstract:

The purpose of this study was biomechanical analysis of drop shot in badminton. In this study, we are interested in analyzing the correlation between the angle of right elbow joint and centre of mass at the point of contact with the shuttle. Seven male badminton players of under-15 who have been participated in the National Level Competition were selected as the subjects of the study. The data were collected with the help of GoPro Hero 7 motion of drop shot. Pearson Correlation was used as a statistical tool and the level of significance was set at 0.05 levels. In this study to find out the angle of the right elbow joint was significantly correlated with centre of mass.

Key Words: Biomechanical, drop shot, Badminton, GoPro Hero 7, Pearson Correlation

1. INTRODUCTION:

Biomechanics can be applied to individuals, investigating their development and training them for more effective movement during activity and sports movement. In sports science, a typical strategy for dissecting execution based on body movements is to film the competitors and physically explain the recording disconnected utilizing a video digitization system. It is a well-known technique in numerous sports but requires mastery from the framework administrator to clarify the recordings so as to feature significant segment of the video system. A past examination identified with badminton abilities has been directed by a few scientists. The forehand overhead stroke is one of the most typical and powerful badminton techniques. Tsai, et al. (2001) used the inverse dynamic to investigate the upper extremities of Taiwan elite badminton players, Gowitzke & Waddell (1977) analysis of badminton strokes. The drop shot is an overhead stroke executed from the rear of the court, the main objective of which is to send the shuttle towards the net with a sliding direction in order to make it drop close to the net.

1.1. Objective of the study:

The purpose of the study was to compare the correlation between the angle of right elbow joint and centre of mass in drop shot.

2. METHODOLOGY:

For the present study the sample consisted of 7 Male Badminton players the age category of under-15 Badminton players from Manipur who have been participated in the National Level competition. The study was confined to right hand shuttles only, drop shot at the time of contact phase in badminton.

Procedure of collection of data:

Videography was used in the study. GoPro Hero 7 high speed cameras were used, which have frequency from 60 to 240 frames per second (f/s). The video camera was mounted on the tripod stand at height of 1.05mts. from the ground. The video camera was placed perpendicularly at side line of badminton court the sagittal plane at a distance of 3.20mts. The subjects performed the skill three times and the best trail was used for the analysis. The data was analyzed by Kinovea 0.8.23 motion analysis software.

Statistical Technique:

The statistical analysis of data pertaining to the study was collected on 7 male badminton players of under -15. Data were analyzed by SPSS (v.20) using Pearson's Correlation and the level of significant was set at 0.05.

3. FINDING AND RESULTS:

Result was made on the basis of the finding of the present study. The researcher reached at the result this empirical investigation which is presented by the respective. Table-1, table-2 and figure -1. Correlation coefficients were used to find out significantly correlated between the selected angle of right elbow joint and centre of mass at

level of 0.05. During drop shot mean and standard deviation of elbow angle is 171.1429 ± 11.73923 , centre of mass is 92.5543 ± 11.73923 (see Table 1). The Pearson product moment correlation of angle of right joint and centre of mass of drop shot is .950 with p-value .001 (see Table 2).

Table 1. Descriptive Statistic of angle of the right elbow joint and centre of mass of drop shot

Descriptive Statistics			
	Mean	Std. Deviation	N
Elbow	171.1429	11.73923	7
CG	92.5543	4.31897	7

Table 2. Correlation Matrix of the angle of right elbow joint and centre of mass

Correlations			
		Elbow	CG
Elbow	Pearson Correlation	1	.950**
	Sig. (2-tailed)		.001
	N	7	7
CG	Pearson Correlation	.950**	1
	Sig. (2-tailed)	.001	
	N	7	7

** . Correlation is significant at the 0.01 level (2-tailed).

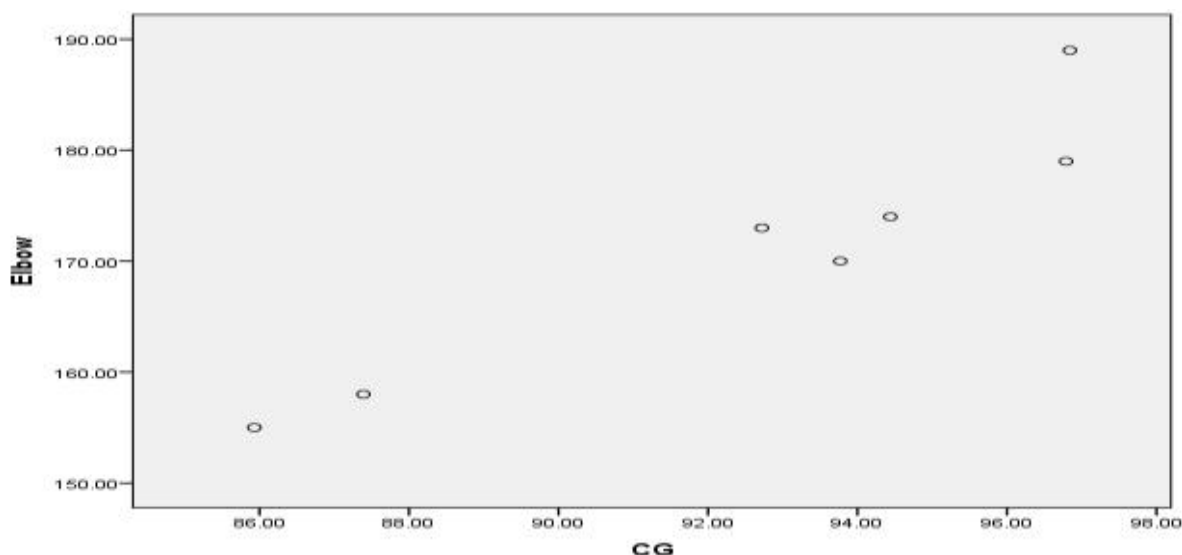


Figure 1. Graphical representation of correlation between the angle of right elbow joint and centre of mass of drop shot.

4. DISCUSSION AND CONCLUSION:

The result showed that a significant correlated between the angle of right elbow joint and centre of mass. These reason may be related to balance and body control. For this results to be meaningful in badminton personal trainers, coaches and badminton athlete's use while execution drop shot stability to improve balance. As a result the chance of a loss of balance may occur injure or will be low skill performance. This would balance the relationship, as well as provide more insight into the reason behind the correlation

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All Round Development of Human Personality

**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

**COMPARISON OF MUSCULAR ENDURANCE AMONG THE MALE
FOOTBALL PLAYERS OF SAI (TAKYEL) AND YAS (KHUMAN
LAMPAK), MANIPUR**

Moirangthem Amarjit Singh, Th. Shyam Singh

Department of Physical Education, Health Education and Sport, DM University, Imphal-795001, Manipur, India

Email - amarjeetmoirangcha@gmail.com

Abstract:

Physical fitness is fine-tuning that helps human body for healthier expression, pleasing sensation and organizes our best. In sports, it is the main constituent of the sports person to achieve their objective. The persistence of the study was stated as “Comparison of Muscular Endurance among the male Football Players of SAI (TAKYEL) and YAS (KHUMAN LAMPAK) Regular coaching centre of Manipur”. The experimental research was assessed for the study. For this, 25/25 (n= 50) were designated randomly from the fields of Football (25) SAI (Takyel) and (25) YAS (Youth Affairs and Sports) state level male players of Manipur between 16 to 20 years who were experiencing even exercise. Data were collected by administrating the following parameters of Muscular Endurance: Cardiovascular endurance test, Standing board jump, Vertical jump. The Descriptive statistics and t-test (significant at 0.05 and 0.01 levels) was tangled to compare the variables. From the analysis highlighted that there were no significance differences of the three different parameters of muscular endurance between the Male Football Players of SAI (TAKYEL) and Youth Affairs and Sports (YAS).

Key Words: Football, Muscular Endurance, Manipur

1. INTRODUCTION:

Physical fitness is to the human body what fine-tuning is to an engine which empowers us to achieve up to our latent as a state that helps us for healthier expression, pleasing sensation and organize our best. According to Nixon, “The ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure- time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue and is a major basis for good health and well- being.”

“Physical fitness refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserves of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him.”

Human life is reflected as incessant processes that begin from the birth to death through to adjust with so many effects comprising outer world environment and inner environment.

Physical development is doomed for accomplishing physical fitness. The capacity of the heart, blood vessels, lungs and muscles of function at optimal efficiency means the most constructive health required for the enthusiastic and gratifying contribution in day-to-day tasks and reconstructed activities.

Physical fitness has also been praised as on his vital necessity for every human being and entirely province of life. There are physical, emotional, mental and social factors which influence the physical fitness, good health and good organic development which clarify its necessity to the people, to progress the physical fitness. It certainly suggests more than capability to do work without much struggles, the physical fitness disturbs to some degree.

‘People, who are physical fit looks better’ feel better and have the noble health essential for a happy and full life, the possession of ideal strength muscle tone and endurance not only for emergencies, but for everyday living can be the sky to energetic health.

In sports, it is the main constituent of the sports person to achieve their objective. The persistence of the study was stated as “Comparison of Muscular Endurance among the male Football Players of SAI (TAKYEL) and YAS (KHUMAN LAMPAK) Regular coaching centre of Manipur.” From the analysis highlighted that

METHODOLOGY

The assessment was gone to acquire the statistics under the experimental research. For the resolution of the study, 25/25 (n= 50) were designated randomly from the fields of Football (25) SAI (Takyel) and (25) YAS (Youth Affairs and Sports) state level male players of Manipur between 16 to 20 years who were experiencing even exercise. Data were collected by administrating the following parameters of Muscular Endurance: Cardiovascular endurance test, Standing board jump, Vertical jump. The Descriptive statistics and t-test (significant at 0.05 and 0.01 levels) was tangled to compare the variables.

RESULT AND DISCUSSION

Table 1: Comparative data of Football male players of SAI and YAS Manipur on Muscular Endurance

PARAMETERS	TEST	CLUB'S NAME	STATISTICAL DATA		
			Mean	SD	t-value
Muscular Endurance	Standing Broad Jump	SAI	7.4284	0.559164	0.275266
		YAS	7.6004	0.542759	
	Aerobic Capacity	SAI	67.5472	2.985993	0.048222
		YAS	65.9564	2.545545	
	Vertical Jump	SAI	1.55	0.244796	0.526593
		YAS	1.4992	0.314072	

*0.05 confidence level, **0.01 confidence level.

From the Table 1 exposed that the parameter on Muscular Endurance test items between the SAI and YAS male football players were found to be

- 1) The ‘t’ test calculation obtain value 0.275266 was less than the both table values 2.021 (0.05 significant level) and 2.704 (0.01 significant level). There was no significance difference of Sanding Broad Jump of leg power between the Football Players of SAI (TAKYEL) and Youth Affairs and Sports (YAS).
- 2) The ‘t’ test calculation obtain value 0.048222 for aerobic endurance was less than the both table values 2.021 (0.05 significant level) and 2.704 (0.01 significant level). There was no significance difference of aerobic capacity between the Football Players of SAI (TAKYEL) and Youth Affairs and Sports (YAS).
- 3) The ‘t’ test calculation obtain value 0.526593 for vertical jump leg power was less than the both table values 2.021 (0.05 significant level) and 2.704 (0.01 significant level). There was no significance difference of SBJ leg power between the Football Players of SAI (TAKYEL) and Youth Affairs and Sports (YAS).

CONCLUSION

After the consequences of the current study, suggest that players should focus the standard requirements of Muscular Endurance.

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**AN EVIDENCE BASED REVIEW STUDY ON METABOLIC
SYNDROME, EXERCISE & NUTRITIONAL ASPECTS**

¹Sharmistha Samanta ²Dr.Sridip Chatterjee

¹Project Assistant, ²Assistant Professor,

Department of Physical Education, Jadavpur University, Kolkata, West Bengal-700032

Abstract:

Background: Metabolic Syndrome (MetS), is now become a global epidemic. It is estimated that 20-25 percent of the world's adult population are suffering with this non communicable disorder. It represents a group of deranged health conditions associated with metabolic disorders. Cardio vascular diseases (CVD), type 2 diabetes, obesity, Alzheimer's disease, dementia, stroke, and cancer fall in to this category. MetS is a multi-factorial syndrome, which results from the interaction between sedentary behaviour, physical inactivity, modern urban diet, habitual dependency (smoking, alcoholism) and genetic factors. **Objective of the study:** Therefore, in this study an approach have been made to understand the impact of diet, nutrition and exercise on the management of metabolic syndrome. **Acquisition of evidence:** To meet the purpose of this study, scientific evidence was gathered through various scientific databases. **Aetiological factors:** Improper life style, inadequate stress management, smoking, low level of physical activity, unhealthy eating patterns are the major cause of Mets. **Role of Exercise and Nutrition on Mets:** Epidemiological and clinical studies have demonstrated that the regular practice of physical activity is an important factor for prevention and treatment of this deranged health condition. Another strategy is dietary modification with proper nutrition are also important for prevention of Mets. **Conclusion:** MetS is often a symptom-free condition. Despite some adverse patho-physiological symptoms, it remains unclear whether the syndrome is a disease entity, by itself, or just a set of risk factors. Low levels of physical activity and unhealthy diet pattern are strongly related to most components of metabolic syndrome.

Key Words: Healthy Diet, CVD, Type 2 diabetes, Obesity, Alzheimer's disease, Dementia, Stroke, Cancer.

1. INTRODUCTION:

Metabolic Syndrome (MetS) was first described by Reaven. It is often a symptom-free but silently developed some deranged patho-physiological conditions with high risk of metabolic diseases. In MetS overall energy utilization and storage of body fat are negatively affected, manifests some co-related established medical phenomenon like, elevated fasting plasma glucose, insulin resistance, central obesity, abnormal lipid profile, elevated blood pressure. [1-5] Sedentary lifestyles, mental stress and over nutrition are major causative factors for the development of Mets. It has been recommended that minimum 30 min of moderate-to-vigorous physical activity and maintenance of proper nutritional diet will reduce the diseases risk. [6]

1.1. Objectives of the study:

The objectives of this novel review study were to

- Identify the risk factors of metabolic syndrome.
- Investigate the prevalence rate and diagnostic criteria of metabolic syndrome throughout the world.
- Measure the effects of different types of exercise on metabolic syndrome.
- Explore how the right kind of nutrition manages the MetS.

So the main motto of the study was to investigate a Co-relation between nutrition, physical exercise and metabolic syndrome and establish a positive effect of healthy life style on the successful management of MetS.

2. METHODS:

2.1. Study Selection and Data Collection Processes:

After completing the initial literature searches, each study title and abstract was screened for eligibility. Full text of all potentially relevant studies were subsequently recovered and further investigated for eligibility. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta- Analysis) flow diagram (see Figure 1) gives

more detailed information regarding the selection process of studies. Information from the included studies was then taken for the analysis and recording in an electronic spreadsheet designed by the first author. Different types of data's were collected from each study.

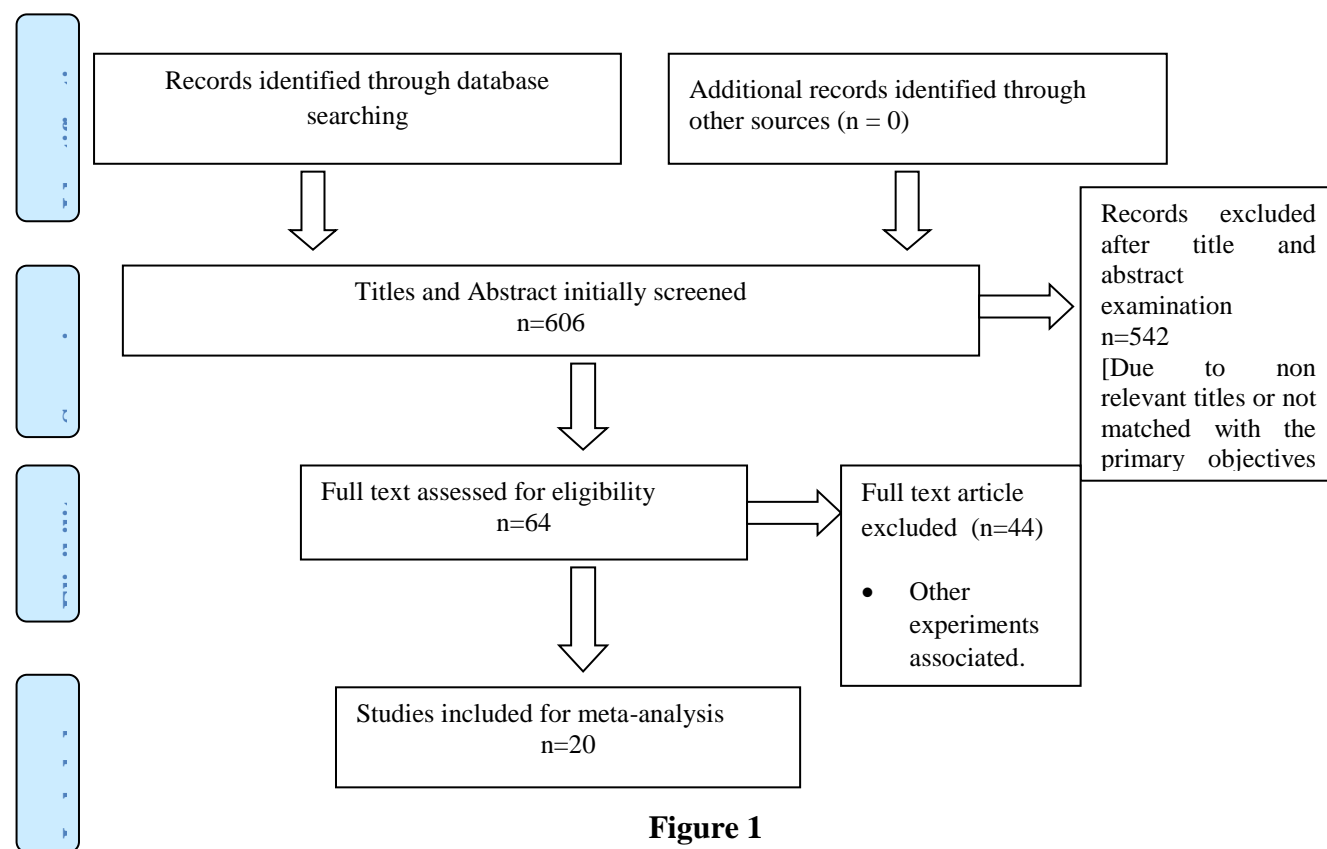


Figure 1

3. OBSERVATION, FINDING AND CONCLUSION:

3.1. Prevalence:

3.1.1. International:

The spectrum of metabolic syndrome is very wide throughout the whole world. Mets is much prevalent in western world. According to the NCEP(National Cholesterol Education Programme) guidelines 21.8% of adults have metabolic syndrome in the United States. [7] Where as in Australia, the prevalence is 29%. [8] The prevalence increases with age and is more common in certain ethnic groups, such as Hispanics and south Asians (i.e. from the Indian subcontinent) [9,10]. ATTICA study was shown that the prevalence of Mets in Greece was 25% in men 15% in women. [11] Another study estimated that prevalence in Portuguese was 27% for women and 19% for men and for the Korean population the prevalence is 29% for men and 17% for women. [12] The Chances of affecting metabolic syndrome is much higher in white men(15.5%) rather than African American men(11.2%). A cross sectional study on adults (Age-20years or more) was carried out in USA which proved that the prevalence rate of Mets was 29.2% [1988-1994] and 32.3% (1999-2002). Another study observed that, in Italy approximately 53 per cent of obese patients and in Netherlands 45% of patients with cardiovascular disease are suffering from metabolic syndrome. [13]

3.1.2 National:

In India the scenario is also terrifying. Community in northern India reported a prevalence rate of 22.37% [14]. On the contrary, a lower prevalence of 19.52% was documented in an urban population in western India. [15] Chow et al. found that the prevalence of Mets is 26.9% in males and 18.4% in females in southern India. [16] It has been observed that, by the year 2030, India will have the most number of diabetic patients worldwide, double the number from China. [17]

3.1.3. Regional:

On the other hand In India the rate of Mets is increasing exponentially in both urban and rural community. It is very rapidly disbursed in different parts of the country (ranging from 11%-41%). Urban south India documented prevalence's ranging from 22.1% to 41%. Likewise, Urban Asian Indians have a greater risk with respect to diabetes and CVD, thus the numbers of affected persons are consistently on the rise [18]. The prevalence of Metabolic Syndrome in Asian Indians varies according to their region, the extent of urbanization, lifestyle patterns, and

socioeconomic/cultural patterns. Recent studies showed that about one third of the urban population in India's major cities have Mets ^[19].

3.1.4. SEX RATIO:

It is recognized that the prevalence of Mets in male was 2 times higher as compared to females. Whereas in other studies in India, Mets prevalence in women was 1.5–2 times higher than in men ^[20, 21]. A higher prevalence in men might be due to their higher rates of overweight, BMI, impaired blood glucose levels, high TG (Triglyceride), and low levels of HDL-C. Another epidemiologic study also proved that the prevalence of metabolic syndrome was higher in men (31.4%) than women (27.0%) because dyslipidemia, hypertension, abdominal obesity are frequently occurring conditions in male rather than female. ^[22] So there is a huge controversy.

3.1.5. Effect on age:

It has been investigated that the risk of affecting Mets is quiet higher among middle aged person rather than young aged person. But now a days adolescence obesity also become a more frequently occurring condition which is a determining factor of Mets. Many national and international reports indicate that the incidence of overweight and obesity among both children and adults are increasing day by day. The waist circumference of children and adults are increased than their weight. Young generations and adults both are much dependent on junk foods which are rich in calories and less in valuable nutrients. So chances of getting MetS are higher among both the adults and adolescent counterparts. But still it can be said that the risk of getting Mets are higher in middle aged and elderly population. A survey was conducted on US population which is graphically represented on Figure 2, 3.

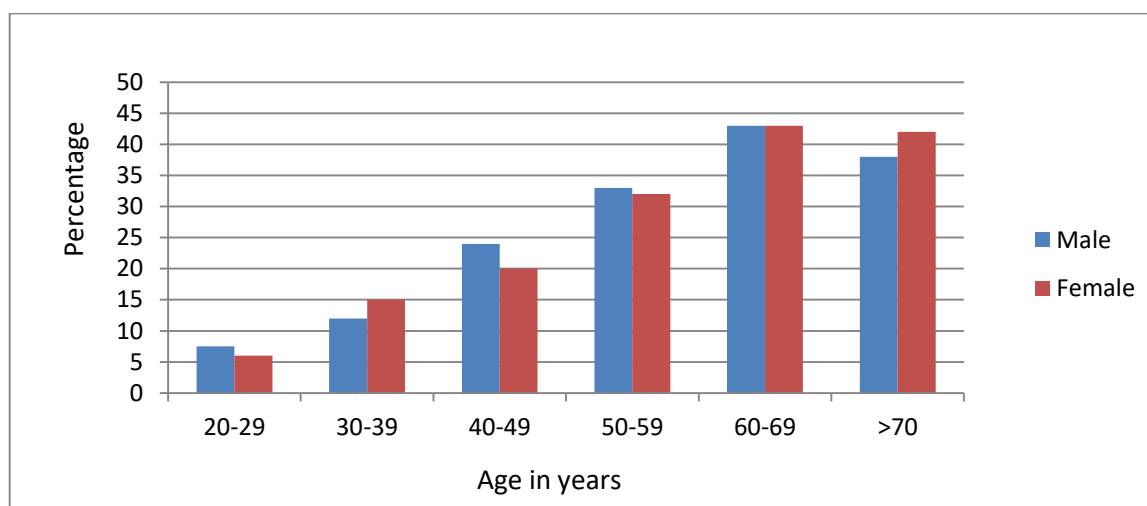


Figure 2. Data are presented as percentage

Age-specific prevalence of the Metabolic Syndrome Among 8814 US Adults Aged at least 20 years, by Sex, National Health and Nutrition Examination Survey, III 1988-1994

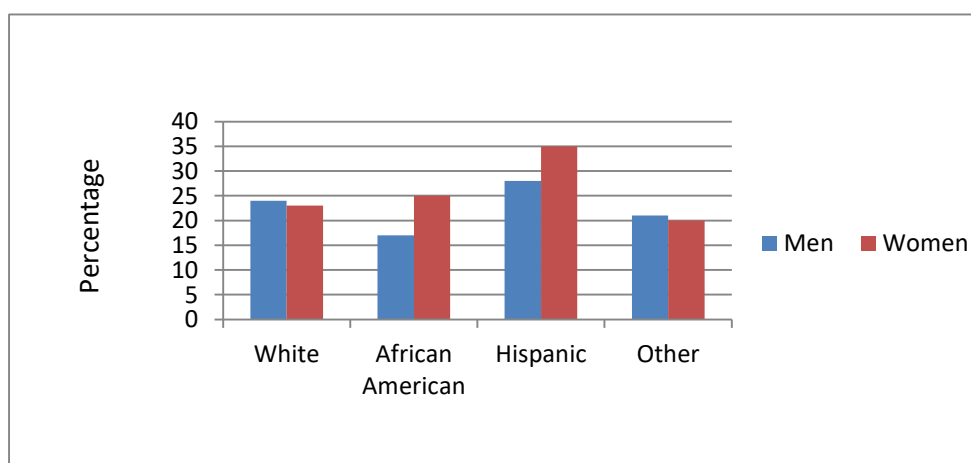


Figure 3 Data are presented as percentage

Age- Adjusted prevalence of the Metabolic Syndrome among 8814 US Adults. Aged at least 20years, by sex and Race or Ethnicity, National Health and Nutrition Examination Survey, III 1988-1994

3.2. Physiological significance of metabolic syndrome:

There are various aetiological factors behind the metabolic syndrome. Which are mentioned below-

- Clinically insulin resistance in skeletal muscles, adipose tissue and liver play a central role in the development of metabolic syndrome. Major cause of insulin resistance is oxidative stress, reactive oxygen species which hamper the insulin mediated glucose uptake.
- Sedentary behaviour i.e. persistent low level of physical activity with high calorie intake lead to positive energy balance, which is one of the major cause of metabolic syndrome. According to National Health and Nutrition Examination Survey(NHANES),^[23]the majority of US population spend their daily nonsleeping time either by sedentary behaviour (58%) or by light-intensity activity (39%), and only 3% time is left for exercise.^[24]This indicates accumulation of body fat in the adipose tissue. Adipose tissue secretes some bio active factors such as adipocytokines such as Tumour Necrosis Factor alpha (TNF- α), plasminogen activator inhibitor and resistin in to circulation. They cause insulin resistance, injury to the endothelium and inflammation leading to atherosclerosis. ^[25]Continued physical inactivity causes chronic subclinical inflammation which is associated with metabolic syndrome. ^[26,27] A number of national and international report supports that only 20% of the population ^[28] is sufficiently physically active due to the sedentary behaviour.^[28]
- Unhealthy Dietary patterns also contribute androgenic obesity which confers metabolic syndrome. Jean vogue (1940) first linked abdominal obesity to metabolic abnormalities. Abdominal obesity or visceral adiposity reflects increased fat deposition around the abdominal organs and measurement of waist circumference (Men>40inches or >102cm and Women>35inches or >88cm) can be used simple screening tool. Unhealthy eating habits like low intake of antioxidant rich foods (green leafy vegetables and fruits), high intake of junk foods and sodium containing foods are important causative factors of metabolic syndrome. Increased intake of calories and less physical activity are also responsible for high waist to hip ratio. ^[29] Today, nearly half of Sweden's adult population is overweight (BMI \geq 25) and approximately 10 per cent suffers from obesity (BMI \geq 30). ^[30]
- A meta-analysis suggested that Smoking may increase the Mets risk. Smoking enhances the risk by several mechanisms. Nicotine released during smoking stimulates the release of several neurotransmitters and hormones (catecholamines, vasopressin, corticotrophin releasing hormone, adrenocorticotrophic hormone, growth hormone, and others).^[31]The levels of inflammatory biomarkers such as C-reactive protein have been shown to be elevated in smokers compared with nonsmokers.^[32]Low HDL-C and increased TGs are frequently present due to an high release of free fatty acids as a consequence of lower lipoprotein lipase activity, higher 3-hydroxy-3-methyl-glutaryl- coenzyme A reductase activity, and higher glucose-6- phosphatase dehydrogenase activity, that leads to increased hepatic very-low-density lipoprotein(VLDL) synthesis. ^[33]
- Stress is also an important contributory factor of Mets. Oxidative stress accelerates the process of unnecessary cell damage. Oxidative damage implies there is an imbalance of production and inactivation of reactive oxygen species (ROS), which leads to cellular dysfunctions. ROS ultimately results atherosclerosis, diabetes, hypertension, aging, Alzheimer's disease, kidney disease and cancer. ^[34]
- Some other related factors are genetic predisposition, Geographical location, Daily alcohol intake, lack of health education etc.





3.4. Reported Diagnostic criteria of metabolic syndrome:








Many international organizations and expert groups, such as the World Health Organization (WHO), the European Group for the study of Insulin Resistance (EGIR), the National Cholesterol Education Program Adult Treatment Panel III (NCEP:ATPIII), the International Diabetes Federation (IDF), and the American Heart Association(AHA), have attempted to incorporate some clinical and biochemical parameters to define MetS more specifically.

Parameters	IDF(International Diabetes Federation) [Obesity + >2]	AHA(American Heart Association)[>3]	NCEP ATP III(National Cholesterol Education Programme-Adult	WHO (World Health Organisation) [Insulin resistance/Diabetes + >2]	EGIR(European Group for the study of insulin resistance) [hyperinsuline
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			Treatment Panel III) [>3]		mia + >2]
Obesity	BMI $>30\text{kg/m}^2$ or specific gender and ethnicity waist circumference cutoffs	Waist circumference for males $>40\text{in}$, females $>35\text{in}$	Waist circumference for males $>40\text{in}$, females $>35\text{in}$	Waist/hip ratio >0.9 in males and >0.85 in females or BMI $>30\text{kg/m}^2$	Waist circumference for males $>94\text{cm}$, females $>80\text{cm}$
Elevated Triglycerides	TG $>150\text{mg/dL}$ or treatment of this lipid abnormality	Fasting TG $>150\text{mg/dL}$ or treatment of this lipid abnormality	TG $>150\text{mg/dL}$ or treatment of this lipid abnormality	TG $>150\text{mg/dL}$	TG $>177\text{mg/dL}$
Decreased HDL	HDL $<40\text{mg/dL}$ in males and $<50\text{mg/dL}$ in females or specific treatment for this lipid abnormality	HDL $<40\text{mg/dL}$ in males and $<50\text{mg/dL}$ in females or treatment for this lipid abnormality	HDL $<40\text{mg/dL}$ in males and $<50\text{mg/dL}$ in females or treatment for this lipid abnormality	HDL $<35\text{mg/dL}$ in males and $<39\text{mg/dL}$ in females	HDL $<39\text{mg/dL}$
Hypertension	SBP >130 or DBP $>85\text{ mm Hg}$ or treatment of previously diagnosed hypertension	BP $>130/85\text{ mm Hg}$ or taking medication for hypertension	SBP >130 or DBP $>85\text{ mm Hg}$ or taking medication for hypertension	$>140/90\text{ mm Hg}$	$>140/90\text{ mm Hg}$ or taking medication for hypertension
Hyperglycemia	Fasting plasma glucose $>100\text{mg/dL}$ or previously diagnosed type 2 diabetes	Fasting glucose $>100\text{mg/dL}$ or taking medicine for high glucose	Fasting glucose $>110\text{mg/dL}$ or $>110\text{mg/dL}$	required Insulin resistance	Insulin resistance required (plasma insulin $>75\text{th}$ percentile)
Other				Urine albumin $>20\mu\text{g/min}$ or Albumin: creatinine ratio $>30\text{mg/g}$	

3.5. Some Biomarker Levels in Metabolic Syndrome:

Biomarker	Source	Metabolic syndrome
Leptin	Adipocyte cell, Cardiomyocyte cell, Vascular smooth muscle cells	
Adiponectin	Adipocyte cell	
Ghrelin	Stomach	
PAI-1 (Plasminogen Activator)	Adipocyte cell, Hepatocyte cells, smooth muscle cells	

Inhibitor)		
Uric acid	Liver	
IL 6	M1 Macrophage	
TNF- α	Viceral adipocyte cell, M1 Macrophage cell	
IL-10	Monocyte cell, M2 Macrophage cell	
Oxidised LDL	Adipocyte cell	
PON-1	Liver	
C- reactive protein	Liver	

3.6. Effect of exercise on MetS:

Various epidemiological studies showed that there is a strong dose response relationship between the level of physical activity or fitness and metabolic syndrome. A fit but overweight or abdominally obese person has a lower risk than an unfit man of normal weight.^[35] Regular exercise can help to reduce body weight, and improves lipid metabolism.^[36-43] It has been shown that physical activity increases the blood flow in muscles, adipose tissues and enhances lipoprotein lipase activity that reduces triglycerides and increases HDL levels. Increased physical exercise also positively affects the particle size and susceptibility to oxidation of LDL particles. The antihypertensive effects of physical activity also recognised. Especially aerobic exercises have blood pressure lowering capacity. Regular exercise improves the peripheral insulin sensitivity and glucose tolerance.^[44, 45] It reduces abdominal obesity and overall body weight also.^[46, 47] An experimental study proved that High Intensity Intermittent exercise (HIIE) for short term is much effective than Long term aerobic exercise (jogging and walking) in reduction of subcutaneous and abdominal adiposity and insulin resistance. HIIE improves body composition and leading to possible reduction in some inflammatory markers, more specifically IL6 therefore reduces inflammation also.^[48-50] Physical exercise also positively affects thrombogenesis, haemostasis, IGFBP-1, endothelial function^[51-52].

Regular musculoskeletal action produces low to moderate amount of ROS. Which is a part of hormesis, it is favourable biological responses to low exposure of toxin and other stressors. A toxin or pollutant causes opposite effects of hormesis. The exercise induces the activity of oxidative damage repairing enzyme, lowers the oxidative stress which leads to detrimental effect.

An exercise therapy was given to a group of obese patients with metabolic syndrome on a regular basis and the result was recorded after 12 weeks. The exercise therapy consisted of 50mins of indoor cycling, 50mins outdoor walking/ running and 20mins stretching exercise, which were conducted by the certified and experienced physical fitness instructor. During 1st 4 weeks intensity was set at 35-55% and this was increased to 55-75%. Instructor encouraged and helped participants to raise the exercise intensity in order to maintain their heart rate within the target zone. After the therapy, the obese participants with metabolic syndrome showed significant reduction in the total body mass, BMI, waist circumference, % of body fat, fat mass, and Resting heart Rate compared with the respective base line value.^[56]

Weight reducing exercise results in loss of body fat rather than loss of muscle.^[54] Maintaining lean body mass is essential for better blood glucose transport and fat metabolism. Reduction of fat mass helps in increasing adiponectin levels and improving cytokine profile. Alteration of adipokines and cytokine levels are associated with metabolic syndrome.^[55] Exercise also contributes protection against TNF- α induced insulin resistance.^[56] Exercise suppresses the TNF- α production by an IL-6 independent pathway.^[57] Petersen et al proves that IL-6 enhances lipid turnover and stimulates lipolysis as well as fat oxidation. IL-6 confers the anti obesity effect which confers better response for Mets.^[58]

Another study was carried on the evaluation of physical activity. It suggests that physical activity assessment is one of the effective way of surveillance the body weight. It has been observed that individuals who walk more than 9000 steps per day are more likely to be within the normal body weight range and those who walk less than

5000 steps per day are more likely to be classified as obese. Pedometer based programme can help to detect occupational activity across the all workplace. ^[59]

So, from above data it can be concluded that Aerobic exercise can be combined with a certain amount of strength training for better result. Regular exercise (Moderate intensity exercise, for e.g. brisk walk) for a minimum duration of 30-60minutes can be used as a therapy for metabolic syndrome. ^[60, 61]

3.7. Effect of nutrition on MetS:

Numerous studies have done on dietary intervention for the prevention of metabolic syndrome. One of them is **Mediterranean style diet** which contains of whole grains, fruits, vegetables, nuts and olive oil. That means, the diet consists in high amount of dietary fibre and omega 3 fatty acids. Mustard oil, fish oil, nuts are the good sources of omega 3 fatty acids. ^[62-65]

Another dietary intervention method is **DASH diet** (Dietary Approaches to stop Hypertension), which provides 500 kcal less than the subject's daily calorie needs, with increased consumption of fruits vegetables. It contains low fat dairy products, decreased amount of saturated fat, total fat, cholesterol and common salt or any other sodium containing foods. The daily salt intake should be less than 60mmol/day. This type of diet generally provides more potassium, Calcium, Magnesium, fibre, meat than the usual diet. ^[66]

Low fat complex carbohydrate diet (LF-CC) is also helpful for the prevention of metabolic syndrome. This is made up of low Glycemic Index (GI) foods like fruits (apple, orange, lime guava etc.), vegetables (leafy vegetables and other vegetables except potato). A classical study was found that an increased intake of soy protein (Approximately 45g/day or roughly 3servings) has been shown to reduce total cholesterol (9.3%), LDL (Low Density Lipoprotein) cholesterol (12.9%), and triglycerides (10.5%). Soy Products had a greatest lipid lowering effect in those with elevated lipid profile. ^[67]

Another type of dietary pattern is Paleolithic nutrition, which comprises vegetables (including root vegetables), fruits (including fruit oils, e.g., olive oil), nuts, fish, meat and eggs excluded dairy, grain-based foods, legumes, extra sugar, and nutritional products of industry (including refined fats and refined carbohydrates). It has been showed that following this dietary recommendation also improves the risks of MetS. ^[68]

3.8. Some Food components with beneficial effects on Mets:

- Flavonoids-Another study was given an idea on the anti-diabetic effect of flavonoids. There is an inverse association between dietary flavonoids and T2DM (Type 2 Diabetes Mellitus) incidence. This relation appears to be driven by a few selected flavonoids. Dietary anthocyanins and flavan-3-ols have an inverse relation with the occurrence T2DM. ^[69-72] Flavonols and isoflavones have an intermittent effect on risk reduction. These assertions are further supported by observational data that links those foods which are relatively high in these compounds, such as berries, tea, and chocolate that reduce the incidence of T2DM ^[73-82]. Dose-response meta-analyses have reported that 7.5 mg/day increment of dietary anthocyanin intake or 17 g/day berry intake could reduce the risk of T2DM by 5% and 3 cups of tea/day ^[83] or 1–6 servings of chocolate per week were related to significant risk reduction. ^[81]
- Some food bioactives potentially exert anti-obesity effects, like Anthocyanins, catechins, beta-glucan, considered as a functional foods (foods that have extra nutritional content) counteracting body weight gain. At present, clinical trials, reviews and meta-analyses addressing anti-obesity effects of various bioactive-rich foods, show contradictory results. Therefore representing an alternative therapy approaches for the treatment of the metabolic syndrome. ^[84]
- Certain amino acids including glutamine derivatives, alanine and arginine, may influence pancreatic β -cell function (eg, insulin secretion). Human studies showed that consumption of dairy products rich in branched-chain amino acids (BCAAs; leucine, isoleucine, and valine) or whey/casein protein is associated with improved diabetic parameters (eg, fasting insulin levels) among obese and T2DM individuals. ^[85]
- Dietary fibre reduces the risk of diabetes. Especially insoluble fibre has a beneficial role in controlling Type2 Diabetes, but it has negligible influence on postprandial glucose levels. On the other hand water soluble fibre is helpful for improving the glycemic control and insulin sensitivity for both Diabetic patient and healthy subjects. ^[86]
- It has been well documented that antioxidant rich food components like vitamin C, vitamin E, and β -carotene can positively modulate oxidative stress and potentially prevent health complications that are associated with oxidative damage. ^[87] In vitro and in vivo data suggested that vitamin A not only trigger our immune function, but can also reverse chronic inflammation by decreasing the level of adipocytokines. According to numerous epidemiological studies, diet rich in antioxidants have advantageous effects on glucose metabolism, thus prevents diabetes and are associated with a reduced risk of CVD, Cancer. ^[88]

- Vitamin D supplementation among high-risk individuals is proved to lower the incidence of T2DM, indicating a protective role against diabetes. Regular intake of vitamin D stimulates the pancreatic functions by enhancing insulin secretion. ^[88]
- Epidemiological data have reported folate deficiency to an increased risk and incidence of CVD. Therefore, serum folate levels appear to be lower among overweight or obese people, indicating an inverse relationship between folate status and adiposity. ^[89]
- Magnesium has a great role in the prevention of Type II Diabetes. Diabetic patients have higher chances to arise hypomagnesaemia than nondiabetics (14%–48% versus 3%–15%, respectively), ^[90] and an inverse correlation was observed between magnesium rich diet and occurrence of type II Diabetes. ^[91, 92]

3.9. List of some Food components which accelerate & protect from diseases risk:

Foods can make metabolic syndrome worse	Foods that can improve metabolic syndrome
<ol style="list-style-type: none"> 1. Sugary foods Glucose Dextrose Fructose Levulose Maltose Corn syrup Sweets (Candy, Chocolate bars) White bread, rice, flour Potato chips Crackers fruit juice Soda Sugary drinks 2. Artificial Sweeteners Aspartame Sucralose Saccharin 3. Trans Fats Deep fried foods Packaged biscuits and cookies Margarine Microwave popcorn with artificial butter Cracker Potato chips Frozen Pizza Frozen fries Pies & Pastries Vegetable shortening Cake mixes & frosting Frozen dinners Non-dairy creams 4. Sodium containing products Table salt, sea salt, Himalaya salt, kosher salt Potato chips Salted nuts Smoked & cured meat, fish Salted butter, margarine Soya sauce 	<ol style="list-style-type: none"> 1. Fibrous Foods Fresh fruit Dried fruit Fresh vegetables Oats Barley Dried beans Lentils Brown rice Quinoa Couscous Bran Whole-grain bread and Pasta Cinnamon powder 2. Potassium containing food Bananas Dates Orange Grapes Cantaloupe Collard greens Edamame beans Black beans Lentils Mushrooms Potato with skin Tomato Oat bran Yogurt 3. Omega 3 Fatty Acid Flax seeds Chia seeds Pumpkin seeds Olive oil Pine nuts Walnuts Almonds Navy beans Avocados Salmon Sardines

Canned soup Ketchup and mustard	Tuna Mackerel Trout
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4. CONCLUSION:

Metabolic syndrome is become a chronic disease around the world and it is more or less disbursed among all age groups. Mets affects roughly one out of five persons in western industrialised countries. It is a complex lifestyle dependent illness. So, lifestyle modification, incorporating behavioural, dietary, physical activity alteration are necessary to induce sharp weight loss that exerts beneficial effect on the various components related with the metabolic syndrome and improves overall survival rate. The holistic prevention should be the foundation to which pharmaceutical treatment is added only when required. Its solution is not much difficult to achieve, if it become a part of our everyday life.

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**EFFECT OF ANXIETY LEVEL AMONG PLAYERS OF SUPER LEAGUE
DIVISION AND 1ST DIVISION FOOTBALLER OF CHANDEL DISTRICT**

¹Ngamthen Serbum Moyon
Research Scholar, Department of Physical
Education and Sports Science,
Manipur University

²Dr. Ksh. Birbal Singh
Associate Professor
Department of Physical Education and Sports
Science, DMC, Science, Manipur University

Abstract:

The purpose of the study was to compare the anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur. For this study, total 22 (N=22) players, 11 from super league division players and 11 from 1st division players each between 18 to 25 years who have participated at the district level competitions were selected randomly. Sports Competition Anxiety Test Questionnaire by R. Martens, (1977) was administered to obtain the data. To find out the characteristics and mean difference among the two groups, descriptive analysis, independent t-test was employed and tested at 0.05 level of confidence. The finding of the data reveals that, there was no significant difference in the mean comparison among super league division and 1st division footballer of Chandel district, Manipur as the obtained value 't' = 0.51 were less than the tabulated 't' = 2.086 at 0.05 level of confidence.

Keywords: Anxiety, Football, Sports Competition Anxiety Test.

1. Introduction :

Today performance in sports not only demand systematic training to develop physical, physiological variables and technical aspects of sports, but also demands training and consideration of psychological characteristics for success in this field. The origin of anxiety may be either psychic of somatic or even both. The most point in each case in the intensity of a bating: that triggers off psycho-chemical reaction in the body and creates a vicious circle. Anxiety is an emotion that is difficult to define and even more to detract in performers. We would never want to be part of athletic environment. It is a condition in which the anxiety has become so great that the person with a complete control of himself and situation. The over anxious individual has a higher level of cerebral and emotional activity with a neuro-muscular tension, that may eventually lead the individual to the exhibition stage and perhaps the psychometric disorder. When an athlete gets anxious, the heart rate increases. The blood pressure becomes elevated. The breathing becomes more rapid and oxygen consumption increase. Anxiety is one of the most common determinates of good performance. Anxiety may be motivating force or it may interfere with successful athletic performance. The level of anxiety may differ from individual to in a game like football etc. the result of competition is also responsible for the level of anxiety experienced and its positive and negative effect on the performance.

2. Objective of the study:

The objective of the study was to investigate the effect of anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur.

3. Hypotheses :

It was hypothesized that there might be significant differences of anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur.

4. Methodology:

For this study, Twenty-two (N=22) Subject, 11 super league division players and 11 1st division football players each. The age of the subjects were ranged between 18 to 25 years were selected randomly as subjects of this study those were participated at the district level competitions. The pertaining data was collected by administering the

Sports Competition Anxiety Test (SCAT) Questionnaire by R. Martens, (1977). Descriptive, Independent 't' test statistical techniques were employed to find out the characteristics of data and significant differences of anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur. The level of significance was set at $P < 0.05$.

5. Results:

The pertaining data of anxiety level were treated by using the descriptive analysis to find out the means (M), standard deviations (SD) further, independent 't' test were employed to find out the significant difference of anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur as shown in table.

Comparison of mean difference between super league division and 1st division footballer of Chandel district on anxiety

Experimental Group	N	Mean	SD	df	t-value
Super League Division	11	13.63	3.32	20	0.51
1 st Division Players	11	16.81	16.07		

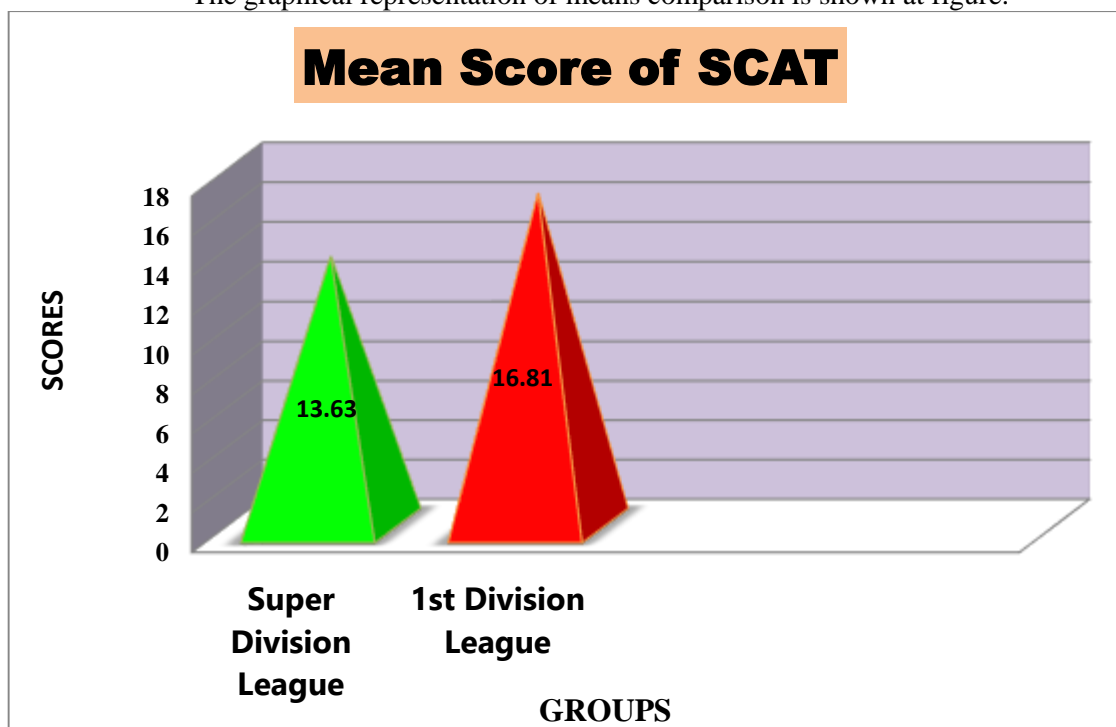
@Insignificant at 0.05 level of confidence, where, $t_{(0.05)}(20) = 2.086$

Tabulated value of 't' value at 0.05 level of significance with 20 df = 2.086

Tabulation $t_{0.05}$ for S.D df = 2.086

From the finding of the above table, Super league division football players mean is 13.63 and 1st Division players mean is 16.81 and standard deviation is 3.32 and 16.07 respectively. After analysis of data 't' ratio is not = 0.51 at 0.05 level of significance. Here there is no significant exists between super league division and 1st division footballer of Chandel district, Manipur.

The graphical representation of means comparison is shown at figure.



6. Discussion of Finding:

The finding of the study reveals that there is no significant difference in anxiety level among players of super league division and 1st division footballer of Chandel district, Manipur.

The significant difference was not found on this study because the age of all the players of super league division and 1st division footballer of Chandel district, Manipur for this study was range in between 18-25 ages. At these ages most of the people have thinking abilities and manage his/her situation.

7. Testing of Hypothesis

From the above finding of the study reveal that statistically there was no significant difference in state anxiety level between super league division and 1st division footballer of Chandel district, Manipur. Hence hypothesis stated earlier is rejected and null hypothesis is accepted.

8. Conclusion:

The results of the study indicated that there was insignificant in the state anxiety level of super league division and 1st division footballer of Chandel district, Manipur.

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All Round Development of Human Personality

30 – 31 July, 2020 at Department of Physical Education and sports Science,
 Fit India Campaign Committee and Fit India Club, Manipur University, India

**COMPARISON OF AGGRESSION BETWEEN PARAMILITARY
 FORCE SPORTS PERSON AND CIVILIAN SPORTS MAN**

¹Steven Chara ²Dr Kh Lojit Singh
¹Research scholar ²Associate Professor
^{1, 2}Physical Education & Sports Science
¹Manipur university, ²DMC University

Abstract:

The Primary aim of the study was to compare the Aggression between Paramilitary Force sportsperson and civilian sports man. For the purpose of this study, a total of 50 (fifty) male players 25 (N-25) each of Paramilitary force sportsperson and civilian sports man were selected. The age of the selected players ranges between 20 to 35 years. Out of the 50 (fifty) players 5 (five) players each from the game of Football, Basketball, Volleyball, Badminton and Judo were chosen for the study. To compare between the groups and obtain the data Sports Aggression Inventory questionnaire by **Anand Kumar** and **PS Shukla** was administered and independent **t-test** was used to analyse the data at 0.05 level of significance. The finding of the data reveals that there was a significant difference in mean score between Paramilitary force sports person and civilian sports man.

Key Words: Aggression, t -test, Paramilitary Force.

1. PURPOSE OF THE STUDY:

The purpose of the study is to compare the Aggression between Paramilitary Force sportsperson and civilian sports man.

2. INTRODUCTION:

Throughout the world the concept of Sports Psychology has changed, Today's athletes face acute and unique challenges the standard are higher and the competition is tougher. Psychological component is becoming far more important than ever before in today's elite competition. According to **Baron and Richardson (1994)** **Aggression** is behaviour and not a desire to or fantasy of harming someone. There must be intent to harm the victims either psychologically or physically. In order to achieve the sporting objective players, coaches, managers have emphasized more on psychological aspect to win or attend their goals. For example Sports Aggression comes from a variety of source and it is important to understand where these source stem from. Sports stressors allow us to understand what causes an athlete to become frustrated which lead to aggression and a decline in performance. In sports according to **Silva (1983)** aggression has been defined into two categories **Hostile aggression** and **instrumental aggression**.

- Hostile Aggression - Its main aim is to cause harm or injury to your opponent intentionally.
- Instrumental Aggression - Instrumental Aggression is when the aim is achieve a goal by using aggression. For example a rugby player using aggression to tackle his opponent to win the ball.

3. METHODOLOGY:

50 (fifty) male players 25 (twenty-five) each of Paramilitary Force sportsperson and civilian sports man who had least participated at inter university competition were chosen as subjects for this study. The data were obtained by administering Sports Aggression Inventory by **Anand Kumar** and **PS Shukla** to the subjects) the questionnaire consists of 25 items. For each item the score is 1, Maximum score is 25 and minimum is 0. To find out the significant differences between the two groups independent **t-test** was used at 0.05 level of significance.

4. RESULTS:

Variable	group	N	Mean	SD	df	t-value
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Paramilitary					
Force	25	12.20	2.48		
Aggression				48	0.722
Civilian	25	11.60	3.33		

* Significant at 0.05 level

Tab t.05 (48) = 1.671

From the above table, it reveals that t value is 0.722 which is not significant at 0.05 level with **df** = 48. As the value is much lesser than tabulated **t-value** 1.671. It may be said that there is no difference in relation to aggression among armed force sports person and civilian sports man.

5. DISCUSSION AND FINDING:

The study revealed that there was no significant difference on Aggression between Paramilitary Force sportsperson and civilian sports man. This clearly shows that the task of the Paramilitary Force does not differs from the civilian sports man, due to the reason that the nature of the Sports demand the same objective within Paramilitary force and civilian sports man. So, it's obvious that they were trained as tough as to tackle every kind of situation.

6. CONCLUSION:

On the basis of the finding the following conclusion are made

- The players of both the Paramilitary Force sports person and civilian sportsman have no significant difference in Aggression.
- It is also observed that to achieve better performance in sports strong instrumental aggression is required.
- Furthermore, both the Paramilitary Force Sportsperson and civilian sports man are highly motivated, more confidence in handling any given situation.

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**TEAM COHESIVENESS AMONG PROFESSIONAL FOOTBALL
PLAYERS IN GOA**

MICHAEL VICTOR DIAS

College Director of Physical Education,
S.S. Dempo College of Commerce & Economics, Cujira-Goa.

Email - michaeldias1213@yahoo.com.

Abstract:

Sports today has become the most profitable and professional venture not just for the business and marketing agencies but also for the athletes and coaches. However due to advances in technology their every action on and off the field is put under the scanner and microscope by everyone watching the sport. Besides helping them to be at their best all the time, it has also carried with it unnecessary and unavoidable pressure which they have to learn to handle. It's this present scenario which makes sports psychology to play a huge role in helping the athletes to stay focused, maintain their peak performance and also handle pressure. Goa is a tiny state in India which apparently has Football as its state game. So this study is a humble effort to know the player perception and team cohesiveness of the professional players in Goa. Stratified Sampling method was adopted targeting 80 professional players in the Goa professional League organised by GFA. The players belonged to the four reputed clubs namely, Dempo Sports Club, Salgaoncar Sports Club, FC Goa and Sporting Club de Goa. Group Environment Questionnaire (GEQ) by Carron, Widmeyer, & Brawley (1980) was administered. SPSS was used wherein Mean, ANOVA and Tukey Post-Hoc test were employed for analyzing data. The results indicate better player perception of personal involvement to team cohesiveness and also positive perception of team effort towards group task as well as team cohesiveness. FC Goa was the better team among the four clubs that were studied for cohesiveness. This study helps to understand the perception of the professional football players in Goa based on the clubs they represent. Besides helping the players, it is more useful to the coaches and managers to better understand the players and find out what makes the players less attracted to the team task and in turn provide better team goals to attract the players towards it.

Key Words: - Cohesive, Professional, team, task, etc.

1. INTRODUCTION:

Sports today have become the most popular form of amusement to the people all around the world. It has also become the most profitable and professional venture not just for the business and marketing agencies but also for the athletes and coaches. Advances in technology have helped to bring all the sporting action happening around the globe to the comfort of one's home through the television cables and the mobile internet. However, this has also brought added pressure on those involved in the actual play i.e. the players and the coaches. This is because their every action on and off the field is put under the scanner and microscope by everyone watching the sport. Besides helping them to be at their best all the time, it has also carried with it unnecessary and unavoidable pressure which they have to learn to handle. It's this present scenario which makes sports psychology to play a huge role in helping the athletes and coaches to better understand themselves, stay focused, maintain their peak performance and also handle pressure on and off the field. Soccer is sport which is played worldwide and undoubtedly the most favorite sport of the masses. It has a very rich history and has given us legends of the game such as Pele, Maradona, Zidane, Maldini, Ronaldinho, etc. While the present generation fans go crazy to watch Ronaldo and Messi weave their magic on the football field. Goa is a tiny state in India which apparently has Football as its state game. Goa has produced many national and international players. There are quite a few professional clubs in the state but the psychological aspect of the players is completely neglected. So this study is a humble effort to know the player perception and team cohesiveness of the professional players in Goa which can help the players and the team management to better understand the reasons for different actions of players and team as a whole and take the required steps to enhance the performance of the players on the field.

1.2. Objective: The study aims to know and understand the team cohesiveness of the professional football players in Goa on the basis of the player perceptions (GEQ) and their football clubs.

3. METHODOLOGY:

Stratified Sampling method was adopted targeting 80 professional players in the Goa professional League organised by GFA. The players belonged to the four reputed clubs namely, Dempo Sports Club, Salgaoncar Sports Club, FC Goa and Sporting Club de Goa. The Individual Clubs were contacted and sessions were booked with the clubs separately before their training sessions where they were briefed about the purpose of the research and given clear and detailed instructions regarding the questionnaires. The subjects were encouraged and prompted to give genuine responses by the investigator to the test statements. Group Environment Questionnaire (GEQ) by Carron, Widmeyer, & Brawley (1980) was administered. The GEQ is designed to measure individual members' perceptions of team cohesiveness. The four measures of cohesiveness that were evaluated through this questionnaire include the following subscales: -

3.1. INDIVIDUAL ATTRACTION TO GROUP-TASK (ATG-T):

It is a combined measure of individual team members' feeling about their personal involvement with the group task, output, goals and objectives. It consists of four statements.

3.2. INDIVIDUAL ATTRACTION TO GROUP-SOCIAL (ATG-S):

It is a collective measure of individual team members' sense about their personal involvement, desire to be accepted and social interaction with the group. This subscale includes five statements.

3.3. GROUP INTEGRATION TASK (GI-T):

It is a composite measure of individual team members' feeling about the resemblance, closeness, and bonding within the team as a whole around the group's task. This subscale consists of five statements.

3.4. GROUP INTEGRATION SOCIAL (GI-S):

It is a measure of the individual team members' feelings about the resemblance, closeness, and bonding within the team as whole around the group as social unit. Descriptive statistics, mean, standard deviation and ANOVA was used to analyze data through SPSS.

4. RESULTS AND FINDINGS:

Descriptive statistics of the players on the variable of Achievement level

Table 1

Achievement	Category
	Professional
International	18
National	24
National league	14
State Professional league	24
Total	80

Distribution of Players belonging to the four Professional Football Clubs

Table 2

	Total	Salgaoncar	Dempo	Sporting	FC Goa
Professional Players	80	25	20	19	16

Descriptive analysis of GEQ of professional players in relation to the Clubs.

Table 3. Mean scores of the four clubs for the Subscales of GEQ

Subscales of GEQ	Club			
	Salgaoncar	Dempo	Sporting	FC Goa
	Mean	Mean	Mean	Mean
ATGS	5.43	5.34	4.67	5.60
ATGT	3.28	3.78	3.69	4.80
GIS	4.49	4.93	5.19	5.62
GIT	6.00	6.27	6.15	6.02

Table 3 puts on view the mean scores of the four football clubs for the four subscales of GEQ. The mean scores range from a low of one to a high of nine. It is evident from the above table that all the four football clubs had low mean score for the subscale Individual Attraction to Group Task (ATGT) of GEQ. While it is noteworthy that for the subscale of Group Attraction to Team Task (GIT) the same four clubs had a high score of six and above.

Table 4

Summary of Analysis of Variance on the Subscales of GEQ

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
ATGS	Between Groups	20.456	3	6.819	3.630	.014
	Within Groups	321.211	171	1.878		
	Total	341.667	174			
ATGT	Between Groups	62.957	3	20.986	7.252	.000
	Within Groups	494.851	171	2.894		
	Total	557.809	174			
GIS	Between Groups	33.015	3	11.005	5.218	.002
	Within Groups	360.615	171	2.109		
	Total	393.630	174			
GIT	Between Groups	2.054	3	.685	.419	.740
	Within Groups	279.615	171	1.635		
	Total	281.669	174			

Table 4 reveals that there was significant difference in the mean scores of the four clubs for the three subscales of GEQ, namely ATGS (.014), ATGT (.000) and GIS (.002) at .05 level of significance. Hence Post-Hoc test was employed for doing the multiple comparisons on the dependent variables.

Multiple Comparison Value on ATGS, ATGT and GIS Variable

Table 5

Multiple Comparisons- Tukey HSD					
Dependent Variable	(I) Club	(J) Club	Mean Difference (I-J)	Std. Error	Sig.
ATGS	Salgaoncar	Dempo	.08924	.30045	.991
		Sporting	.75240	.30045	.063
		FC Goa	-.17391	.27618	.922
	Dempo	Salgaoncar	-.08924	.30045	.991
		Sporting	.66316	.31443	.154
		FC Goa	-.26316	.29133	.803
	Sporting	Salgaoncar	-.75240	.30045	.063
		Dempo	-.66316	.31443	.154
		FC Goa	-.92632*	.29133	.009
	FC Goa	Salgaoncar	.17391	.27618	.922
		Dempo	.26316	.29133	.803
		Sporting	.92632*	.29133	.009
ATGT	Salgaoncar	Dempo	-.49914	.37291	.540
		Sporting	-.41362	.37291	.684
		FC Goa	-1.52471*	.34280	.000
	Dempo	Salgaoncar	.49914	.37291	.540
		Sporting	.08553	.39027	.996
		FC Goa	-1.02557*	.36160	.026
	Sporting	Salgaoncar	.41362	.37291	.684
		Dempo	-.08553	.39027	.996
		FC Goa	-1.11110*	.36160	.013
	FC Goa	Salgaoncar	1.52471*	.34280	.000
		Dempo	1.02557*	.36160	.026
		Sporting	1.11110*	.36160	.013
GIS	Salgaoncar	Dempo	-.43850	.31834	.515
		Sporting	-.70166	.31834	.126
		FC Goa	-1.13351*	.29263	.001
	Dempo	Salgaoncar	.43850	.31834	.515
		Sporting	-.26316	.33316	.859
		FC Goa	-.69501	.30868	.114
	Sporting	Salgaoncar	.70166	.31834	.126

		Dempo	.26316	.33316	.859
		FC Goa	-.43185	.30868	.502
	FC Goa	Salgaoncar	1.13351*	.29263	.001
		Dempo	.69501	.30868	.114
		Sporting	.43185	.30868	.502

The results of the multiple comparisons that were done to analyze the difference in the mean scores among the four football clubs for the three sub scales of GEQ where the difference was found to be significant at .05 level is shown in table 5. Tukey's Post Hoc test makes it clear that in the sub scale of ATGS the mean score difference was significant between FC Goa and Sporting club de Goa which was .92632. While for the subscale of ATGT the mean score difference was significant between FC Goa and Salgaoncar Sports club which was 1.52471, FC Goa and Dempo Sports Club (1.02557), and between FC Goa and Sporting club de Goa (1.11110). However in the sub scale of GIS the significant mean score difference was among FC Goa and Salgaoncar Sports club (1.13351).

5. CONCLUSION:

The study indicates better player perception of personal involvement to team cohesiveness and also positive perception of team effort towards group task as well as team cohesiveness. They however as individuals feel they were not much attracted to the team task. This study helps to understand the perception of the professional football players in Goa based on the clubs they represent. Besides helping the players, it is more useful to the coaches and managers to better understand the players and find out what makes the players less attracted to the team task and in turn provide better team goals to attract the players to work towards it.

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**THE EFFECT OF COMPETITIVE STATE ANXIETY ON SPORT
PERFORMANCE AMONG MALLAKHAMB PLAYERS**

¹Gujar Tushar, ²Jondhale, Suresh, ³Shendkar, Deepak

1Director of Physical Education, Marathwada Mitra Mandal's College of Engineering, Karvenagar, Pune.

2Director of Physical Education, Saraswati Sangit Kala College, Latur

3Director of Physical Education, Modern College of Arts, Science and Commerce, Ganeshkhind, Pune.

Email- ¹tushargujar20@gmail.com, ²jondhale.suresh1971@gmail.com ³deepakshendkar@moderncollegegk.org

Abstract:

Sports psychologists have long believed that high levels of competitive state anxiety during competition is harmful and main cause of worsening performance. The main purpose of the study was to find out competitive state anxiety of Inter University Mallakhamb players participated in All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018. Competitive State Anxiety Inventory-2 was utilized for data collection which was administered during Data collected from 64 male Mallakhamb players. The results indicate that there was no statistically significant correlation between performance and cognitive factor ($r = -.113$, $p=0.375$), Somatic ($r = 0.109$, $p=0.0392$) and Self Confidence ($r = .221$, $p=0.08$).

Key Words: Mallakhamb, Anxiety, Inter-University Players, CSAI-2, Performance

1. INTRODUCTION:

Mallakhamb is a pure ancient Indian sport. The word Mallakhamb is composed of Malla which denotes a wrestler and Khamb which means a pole. Mallakhamb can therefore translated in English as wrestlers' pole in ancient India Malla means wrestler practices the Mallakhamb to improve their wrestling techniques. Mallakhamb was originated in Maharashtra around 200 years ago in 17 century Guru Balambhatt Dada Deodhar is known as founder of Mallakhamb he is a physical instructor of King Bajirao Peshwa II. The earliest mention of Mallakhamb can back to the 12th century it is mentioned in the Classic "MANASOLHAS" (1135 A.D) competitive Mallakhamb at the national level first made its appearance at the national gymnastics competition held at Paharganj Stadium New Delhi India in the year 1958. The first national Mallakhamb Championship was held at Gwalior Madhya Pradesh India in the year 1962 as a part of national gymnastics Championship they were continuously organized by Gymnastics Federation of India until 1976 when they are associated from the Gymnastics Federation of India from 1977 to 1980. Mallakhamb was introduced in the All India Inter University gymnastics Championship in 1968 – 1969. Mallakhamb includes various exercises that improve strength, flexibility, coordination and agility, Mallakhamb also requires speed and concentration.

High anxiety often causes people to perform well below their usual standard in any performance domain. For many athletes, anxiety manifests as an all-too-familiar feeling of worry, tension, apprehension, and fear. In reality, anxiety is not tangible; it simply involves a perceived imbalance between the skills you have and the demands of a particular sporting situation. The precise impact of anxiety on your sporting performance depends on how you interpret it. If you accept anxiety as a normal psychological reaction to competition, it will be less likely to disrupt your performance. Most research suggests that athletes who are predisposed to feel anxious (high trait anxiety) are not necessarily precluded from becoming champions, although clearly they do have a greater need to develop ways to avoid the negative effects of anxiety during performance. Research has also shown that more experienced athletes generally have less anxiety about competition. There are two plausible explanations for this either sportspeople learn to cope effectively with the stresses of competition, or highly anxious athletes drop out of sport because competition is too unpleasant for them. Perhaps older and more experienced athletes are less anxious by virtue of their greater maturity and self-knowledge.

Competitive anxiety is one of the factors to decrease athletes' performance (Esfahani Soflu., 2010). Feelings of tension, thinking of upcoming events in their mind, nervousness, worry and involved in physiological changes such as

increased in heart rate response are common response for the athletes prior to the competition (Hackfort & Spielberger, 1989). Some athletes are also involved with the feelings of fear, unhappiness, guilt, discouragement, and focus distraction (Cerin, 2003; Kais & Raudsepp, 2005). Anxiety is a negative emotional state in which feeling of fear, nervousness, uneasiness and apprehension is associated with activation or arousal of the body (Weinberg and Gould, 2007). Competitive state anxiety is higher for amateur athletes in individual sports compared with athletes in team sports (Simon & Martens, 1979). Our ability to obtain independent measures of cognitive and somatic state anxiety has greatly improved our knowledge about the athletic situation. The factor which significantly influences the qualities of the athletic experience is the level of state anxiety during the time leading up to competition. Pre competitive anxiety starts relatively high and remains high and stable as the time of the event approaches (Richard, H. Cox, 2007). The main purpose of the study was to find out the competitive state anxiety of Inter University Male Mallakhamb players participating in the All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018.

2. METHODOLOGY:

Subjects:

Total Sixty Four (N=64) Mallakhamb male players were randomly selected from the All India Inter University Mallakhamb competition held at Punjab University Chandigarh in November 2018. All the subjects age ranging from 17-25 years.

3. DATA COLLECTION:

To measure competitive anxiety level researcher used the competitive state anxiety inventory-2 (CSAI-2) questionnaire prepared by Martens et.al (1990) this questionnaire consist of 27 items full-scale comprised of three items sub scales measuring cognitive anxiety somatic anxiety and self-confidence and each subscale were scored on a 4 point Likert type scale ranging from (1) " Not at all" to (4) " Very much so" higher score on each subscale indicate higher level of anxiety the score for each will range from 9 to 36: 9 indicating low state anxiety and 36 indicated high state anxiety.

The data is presented in table 1 and 2.

Table1
Descriptive Statistics

	Mean	Std. Deviation	N
Performance	5.2391	2.09418	64
Cognitive	16.625	5.1378	64
Somatic	16.422	5.1449	64
Self Confidence	25.984	5.2840	64

Table2
Correlations Between Performance and Cognitive, Somatic and Self Confidence

	Performance	Cognitive	Somatic	Self Confidence
Performance Pearson Correlation	1	-.113	.109	.221
Sig. (2-tailed)		.375	.392	.080
N	64	64	64	64

*. Correlation is significant at the 0.05 level (2-tailed).

4. RESULTS:

Pearson Correlation coefficient was calculated between Competition Performance i.e. score of the competition and Cognitive, Somatic and Self confidence factors of the competitive state anxiety inventory-2 (CSAI-2). Analysis reveals that there was no statistically significant correlation between performance and cognitive factor ($r = -.113$, $p = 0.375$), Somatic ($r = 0.109$, $p = 0.392$) and Self Confidence ($r = .221$, $p = 0.08$).

5. DISCUSSION:

The aim of the present study was to analyze whether anxiety was related to male Mallakhamb players participated in the All India Inter University Competition. According to Mahoney and Meyers (1989) and Zajonc (in Lloyd and Mayes 1999), athletes of different levels of skill show different levels of competitive anxiety. Most psychologists believe that the highest level of competitive anxiety will lower the athlete's performance in sport (Martens, Vealey and Burton, 1990; Cox, Qiu and Liu, 1993; Weinberg and Gould, 1999; LeUnes and Nation 2002;

Ortiz, 2006, Hardy, 1999, Montgomery and Morris, 1994). On the other hand a lower level of anxiety was found to have increased the performance of athletes (Martens et al., 1990; Krane and Williams, 1994). On the other hand, athletes with low levels of skill, like those whose highest achievement is taking part in school or university competitions, normally experience higher levels of competitive anxiety. Athletes whose highest achievement is taking part in national or state level competitions, experienced low levels of anxiety. In the present study it was found that there was very little or no correlation between the performance and anxiety factor like Cognitive, Somatic and Self-confidence. The findings by Parnabas,V., Parnabas,J., and Parnabas, A.M. (2015), concluded negative correlation between somatic anxiety and sport performance among running players. It was also found that none of the variables except trait anxiety scores showed significant difference between individual and team sport athletes (Radzi,J.A., Yusof,S.M. and Zakaria,A.A). Parnabas,V. (2015) in his study on Sepak Takraw players showed that there exists a negative correlation between competitive state anxiety and sport performance among.

6. CONCLUSION:

On the basis of analysis and discussion this study concludes that at All India Inter University level in Mallakhamb, there was no effect of anxiety factors like Cognitive, Somatic and Self-confidence on the performance in Mallakhamb.

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IMPACT OF INTERNET/SOCIAL MEDIA ON PHYSICAL ACTIVITIES OF ADOLSCENT STUDENTS: A CASE STUDY

Wangkheirakpam Radhapiyari Devi

DM College of Teacher Education, Imphal-795001, Manipur, India

Corresponding author Email: radhawang@gmail.com

Abstract:

In the present 21st century, people of all age groups and in particular the adolescent use media as an important source of information. The study adopted various approach at determining the co-occurrence of physical activity and media use behaviours by identifying clusters of adolescents with specific behaviour patterns including physical activity in various settings (school, sports club, leisure time) and different types of media use (watching TV, playing console games, using PC / Internet). The data were conducted on 500 adolescent students in higher education. The data were collected with the help of a questionnaire designed for gathering the students' opinions. The means, standard deviations and independent-samples t-test of female and male students' values were calculated. Physical activity and media use were self-reported. The paper highlighted that digital technologies and social networking sites had negative impact on studies and habits in adolescent students. Study revealed a very high media use occurred with low physical activity behaviour, at the same time very high activity levels co-occurred with considerable amounts of time using any media.

Key Words: Adolescent, physical activity, media, questionnaire

1. INTRODUCTION:

The incessant expansion of science and the raising level of science and technology is the era progress of the media in the 21st century. The broadcasting is current to make progress, following the newspapers, periodicals, radio, television and the Internet, have acted in people's lives, that tends to be more spread, and have more impact on the development of human society. Mass media as well as have the freedom and amusement functions to provide the public as divine sustenance. Radio, television, newspapers and magazines, online communication have become the most important and indispensable part in the civic diurnal entertainment being. Broadcasting a variety of exciting sporting events, sports coverage, news, people's comments as well as a wide range of sports and leisure entertainment through the mass media, not only to meet the needs of the public sports recreational, and has played an important role in public health awareness, the cultivation of awareness and sport exercise. Sports has a durable charm and appeal a lot of young people watching sports events in the orientation of the mass media, and then physical exercise, to enter into the sports industry. The mass media has gradually mature, and focus on its significant impact on young people, their way of reporting and the reported content in the future is to help young people correctly understand the nature and spirit of the sport, train young people to form a positive attitude towards fitness and physical fitness habits, create an environment which conducive to the healthy growth of young people (Gok, 2016; Xiao-jian et al., 2013). Many health and social benefits for children, including healthy body weight, and greater bone density, fitness and self-esteem are associated to physical activity. Physically active protect chronic diseases. In compare, high media use growths the hazard of overweight in children and adolescents. Physically active and media use in young people are associated with adult behaviour because physical activity and media-based inactivity track from adolescence into later life (Trost, 2004; Hallal et al., 2006; Warburton et al., 2006; Hancox & Poulton, 2006; Spengler et al., 2014; 2015; Marshall et al., 2004; Craigie et al., 2011; Carroll & Kirkpatrick, 2011) Desk conduct (playing digital games, using a computer and watching TV) races with physical activity in children and adolescents. Especially physical activity in sports clubs may respond the hostile effect of sedentary behaviour on certain health limitations showed by the relationship between physical activity, media use and health outcomes (Ekelund et al., 2012; Gracia-Marco et al., 2012), whereas another finding highlighted that physical activity did not decrease the obesity risk of TV watching in youth (Rey-Lopez et al., 2012).

2. METHODOLOGY:

Survey methodology was adopted. The data were conducted on 250 each of male and females adolescent students within the age groups of 16-18 years in higher secondary education studying in the Greater Imphal, Manipur. The data were collected by the questionnaire designed for gathering the students' opinions on physical activity in the settings school, sports club and leisure time and watching TV, playing console games and PC/Internet and habits of studying of the female and male students. The reliability and validity of the questionnaire were not analysed for the research. The means, standard deviations and independent-samples t-test of female and male students' values were used at the significance level of 0.5. Using SPSS all the tests were analysed.

3. RESULTS AND DISCUSSION:

Physical activity and media use were self-reported. The data were analysed.

Table 1. Physical activity/media on a day spent by the adolescents in Mean \pm SD number of hour/month

Sex (500)	Voluntary Physical activity school	Physical activity sports club	Physical activity leisure time	TV	Console games	PC / Internet
Male (250)	16 \pm 1.0	8.4 \pm 2.2	5.6 \pm 2.4	9.2 \pm 1.2	18.8 \pm 1.0	20.1 \pm 1.3
Female (250)	12 \pm 0.9	7.2 \pm 2.3	3.6 \pm 1.7	10.1 \pm 1.6	6.8 \pm 0.5	20.0 \pm 1.2
Total	14 \pm 0.95	7.8 \pm 2.25	4.6 \pm 2.07	9.63 \pm 1.4	12.8 \pm 0.75	20.05 \pm 1.25
t-test	1.323					

The adolescents' physical activity and media use by specific behaviour designs including physical activity in the settings school, sports club and leisure time and watching TV, playing console games and PC/Internet were analysed. From the table 1, Males consumed more period on physical activity in the settings school, sports club and leisure time and playing console games and Internet and media use than females while females used more period on watching TV than males. Adolescents were engaged in both behaviours, but either physical activity or media use predominates. Here, specific patterns of boys and girls will be discussed separately and compared with each other.



Figure 1. The spending time of the students for studying in a day

From the figure 1 showed that female adolescents were spent more time in studying than males. Independent samples t-test. Independent-samples t-test was conducted to determine the statistical difference of means between genders for identifying the students' spending time for studying major courses and was found that the difference in the values between genders was not statistically significant [$t = 1.323$, $p > 0.05$].

4. CONCLUSION:

The digital technologies and social networking sites had destructive impact on studies and habits in adolescent students. Study revealed a very high media use occurred with low physical activity behaviour, at the same time very high activity levels co-occurred with considerable amounts of time using any media.

5. RECOMMENDATIONS:

Some recommendation could be presented as follow: a) the effects of social media on the all students from lower to highest education, parents; b) the usage of technology devices should be limited.

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**RELATIONSHIP OF STRENGTH ENDURANCE TO GOAL SHOOTING
ABILITY OF INTERCOLLEGIATE HANDBALL PLAYERS**

SHASHANKA G P, Physical Education Director
Seshadripuram Academy of Business Studies, Kengeri, Bangalore 560060.
Mob.8495987114, Email.shashankurs7114@gmail.com

Dr. PASHUPATHI, Physical Education Director
Government First Grade College, Bilikere, Hunsur Taluk, Mysore District 571103.
Mob.9845436112, Email. Deepu.pashu@gmail.com

ABSTRACT:

Objective: - The investigation examined inter collegiate handball players strength endurance to goal shooting ability.

Methods: - The investigation was measured the strength endurance through pushups test to intercollegiate handball players.

Result: - Results of the study suggest that there is a low degree negative correlation between strength endurance to goal shooting ability.

Conclusion: - Based on the result, the researcher conclude that strength endurance ability and goal shooting ability are not significantly correlated in Handball game. But is cannot be over ruled the requirements of strength abilities on handball goal shooting, directly or indirectly the strength is needed to perform skills in handball.

1. PROPOSE:

The present study was to determine the Relationship of strength endurance ability to goal shooting ability of Intercollegiate handball players.

2. INTRODUCTION

The handball is an international team sport in which two teams of seven players each (goalkeeper and six outfield players) try to shoot the ball into goal of the other team. The sport is played at club, regional and International levels, on a field of 20m*40m, and the team with the most goals after two periods of 30 minutes wins. A variety of technical skills (such as shooting and passing) and fitness components (e.g acceleration, jumping and tackling) are necessary to perform at the highest level within team handball.

Previous studies on male handball players Jorgen Ingebrigtsen and Ian Jeffrey was revealed that have indicated that strength ability is importantly influence the University handball players performance.

Consequently, the purpose of present study was to determine the relationship of strength endurance ability to goal shooting ability of intercollegiate male handball players.

3. METHODS

The purpose of present investigation was to “Relationship of strength endurance ability to goal shooting ability of intercollegiate male handball players”. To facilitate the study of strength endurance was selected. The participants received a written and verbal presentation of the study with its test and testing procedures. Having agreed to participate, they were tested within morning session.

4. SUBJECTS

The subject for the present study were male handball player who were drawn from the different handball teams of intercollegiate in University of Mysore. Who were inconstant touch with the sport and who had received regular practice before serving as subjects for the present investigation, the subjects were regular participants in various college handball teams at degree college, state level and National level handball players.

5. PROCEDURE OF TEST AND SCORING

Procedure: - From the straight arm front leaning rest position, the performer lowers the body until the chest touches the mat or floor and then pushes upward to the straight arm support. The exercise continued for as many repetitions as possible without rest. The body must not sag or pike upward but maintain a straight line throughout the exercise.

Scoring: - The score is the number of correct pushups executed.

STATISTICAL ANALYSIS

Symmetric Measures					
		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.331	.069	3.468	.001 ^c
Ordinal by Ordinal	Spearman Correlation	.324	.085	3.386	.001 ^c
N of Valid Cases		100			

Raw data were transferred to SPSS package for analysis. Negative Correlation was determined by using Spearman's Rank Correlation was computed to observe the relationships between strength endurance ability and goal shooting ability of intercollegiate handball players.

6. RESULTS

Results of the study suggest that, there is a low degree negative correlation between strength endurance to goal shooting ability.

7. DISCUSSION

The strength endurance ability in the study shows negative relationship with the goal shooting ability of handball players. A study conducted on elite handball players by Jorgen Ingebrigtsen and Ian Jeffrey shows positive relationship of strength endurance ability to goal shooting skill.

To shoot a goal repeatedly in handball we need more endurance of strength. The contradictory result of present study suggests further study on this aspect. The reason for negative relationship may the age, training age and training methods, would have affected on the collected data.

The researcher strongly recommended a detailed study on a larger sample to test this finding.

8. MAJOR FINDINGS

Strength endurance is slightly related to goal shooting ability.

9. CONCLUSION

Based on the result, the researchers conclude that strength endurance ability and goal shooting ability are not significantly correlated in Handball game. But it cannot be over ruled the requirements of strength abilities on handball goal shooting ability, directly or indirectly the strength is needed to perform skills in handball.

References: From own Academy/College Study.

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30 – 31 July, 2020 at Department of Physical Education and sports Science,
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**A COMPARATIVE STUDY OF MENTAL TOUGHNESS BETWEEN
B.P.Ed AND M.P.Ed STUDENTS OF VSSD COLLEGE KANPUR**

¹Dr. Anand Bhatt, ²Rahul Trivedi,

¹HoD Sports, ²Research Scholar

¹Adarsh College, Hingoli

²School of Education Sciences, SRTMU, Nanded

Abstract:

The purpose of the study was to compare the mental toughness of B.P.Ed and M.P.Ed students of V.S.S.D College Kanpur. For the purpose 32 subjects were selected which were divided into two groups 16 B.P.Ed and 16 M.P.Ed students, aged between 18 to 24 yrs were selected using random sampling technique. The collected data was analyzed using Independent sample 't' test. The mental toughness questionnaire developed by Goldberg (1998) was administered which consists of 30 items with five subscales viz. (a) Rebound ability (b) Ability to Handle Pressure (c) Concentration (d) Confidence (e) Motivation. T-tests were used to compare the mean difference and the level of significance was set at 0.05. Result showed that there was no significant difference in relation to Rebound ability, Ability to Handle Pressure, Concentration, Confidence, Motivation and Overall Mental Toughness.

Key Words: Mental Toughness, B.P.Ed & M.P.Ed.

1. INTRODUCTION:

Mental toughness is a measure of individual resilience and confidence that may predict success in sport, education and the workplace. As a broad concept, it emerged in the context of sports training, in the context of a set of attributes that allow a person to become a better athlete and able to cope with difficult training and difficult competitive situations and emerge without losing confidence. In recent decades, the term has been commonly used by coaches, sport psychologists, sports commentators, and business leaders. There are several factors as to why a positive mentality or mental toughness is a benefactor to success. An elite athlete must be able to handle pressure, have self-belief and avoid lifestyle distractions. They must have that urge to win and know that they have all the capabilities to do anything they desire. This separates good athletes from the elite athletes (Jones et al., 2002).

B.P.Ed. or Bachelor of Physical Education is an undergraduate academic course dealing with the development and care for the human body. It is also referred as B.P.E. which is an abbreviated form of the Bachelor of Physical Education degree course. It can be pursuing as a full-time course or part time course (correspondence). Physical Education course is largely suited for sports persons or those who have a passion for sports and related activities. Non-sports person need to be energetic, enthusiastic and physically fit. All professionals in this field must be absolutely committed to the profession and the game. The All India Council of Physical Education, an apex body of physical education constituted as per the Rajya Sabha (Upper House) of Indian Parliament looks after the Physical Education programmes in the country.

M.P.Ed (Master of Physical Education) is a two-year duration postgraduate course in physical education. Physical education is a domain concerned with sports-related activities and deals with subjects such as sports science, sports psychology, sports research methodology, sports medicine, exercise physiology, etc. The postgraduate programme in physical education acquaints students with the dynamics of sports activities and offers them professional training as well as knowledge about fitness in sports. The course also enables students enhance their skills in the respective field. Admission to MPED course is provided on the basis of candidates' performance in the written entrance exam followed by a practical/ physical fitness test conducted by different universities and colleges. It may be noted that some institutions also provide direct admission to candidates on the basis of merit determined through their score in the qualifying exam.

2. MATERIALS AND METHODS:

2.1 Method:

For the present study descriptive comparative method was used to compare Mental Toughness between B.P.Ed and M.P.Ed course students of V.S.S.D College Kanpur. 32 subjects were selected which were divided into two groups 16 B.P.Ed and 16 M.P.Ed students, aged between 18 to 24 yrs were selected using random sampling technique. The collected data was analyzed using Independent sample 't' test. The mental toughness questionnaire developed by Goldberg (1998) was administrated which consists of 30 items with five subscales viz. (a) Rebound ability (b) Ability to Handle Pressure (c) Concentration (d) Confidence (e) Motivation. T-tests were used to compare the mean difference and the level of significance was set at 0.05. Result showed that there was no significant difference in relation to Rebound ability, Ability to Handle Pressure, Concentration, Confidence, Motivation and Overall Mental Toughness.

2.2 Sampling Technique:

For the present study the researcher used random sampling technique to select the sample from the population.

2.3 Population:

All the B.P.Ed and M.P.Ed students aged between 18 to 24 years of 2019-2020 batch V.S.S.D College Kanpur.

2.4 Sample:

From the population total 32 subjects (16 B.P.Ed and 16 M.P.Ed) students aged between 18 to 24 yrs were selected using random sampling technique for the study.

2.5 Statistical Tools:

To compare Mental Toughness descriptive statistics were used. To compare Mental Toughness between B.P.Ed and M.P.Ed course students 't' test was used. To test the hypotheses, the level of significance was set at 0.05.

3. RESULTS:

3.1 Descriptive Statistic:

Table 1 shows Mean Values, Standard Deviation and T- Test Statistic of Mental toughness.

Groups	N	Mean	SD	t-value
B.P.Ed	16	18.937	1.878	0.7009
M.P.Ed	16	19.5	2.607	

Significant at .05 level of significance, $t = 2.042$

Table 1 shows that the mean of mental toughness of B.P.Ed and M.P.Ed course students was 18.937 and 19.5 respectively, whereas the standard deviation (SD) of mental toughness of B.P.Ed and M.P.Ed course students was 1.878 and 2.607 respectively. So the above data indicates that there is no significant difference between B.P.Ed and M.P.Ed course students in regard to Mental toughness.

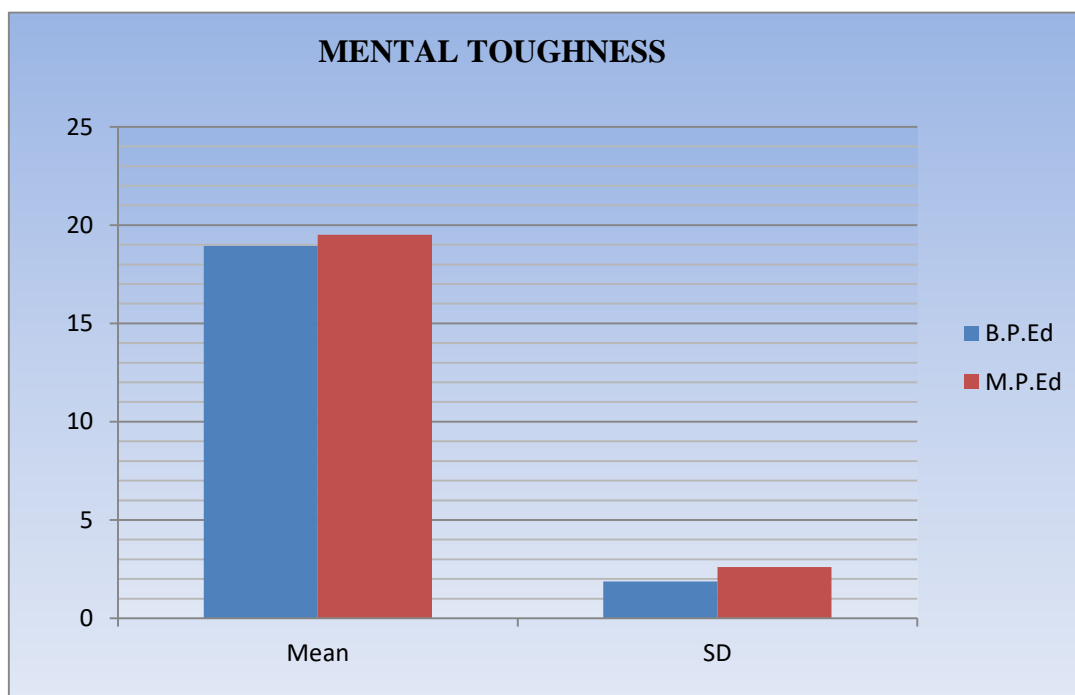


FIGURE 1. Graph of mean and standard deviation values of Mental Toughness

4. DISCUSSION AND CONCLUSION:

This study of comparison of mental toughness of B.P.Ed and M.P.Ed students of V.S.S.D College Kanpur was undertaken to find the difference between the mental toughness of B.P.Ed and M.P.Ed course students. For the present study the researcher used Random sampling technique to select the sample from the population. After analyzing the collected data it was found that there was no significant difference between the two groups in respect to overall mental toughness.

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LITERATURE REVIEW: MACHINE TRANSLATION AND ITS COMPONENTS

¹Mayanglambam Premi Devi, ²Dr. Haobam Mamata Devi

^{1,2}Department of Computer Science, Manipur University

Abstract:

Machine Translation (MT) is the automatic translation of one natural language into another language maintaining the meaning of the source sentence. MT is one of the most important applications of Natural Language Processing (NLP). This paper presents review of the work that has been done on MT in Indian language perspective and its components like machine transliteration, part-of-speech (POS) tagging, parsing and morphological analyser and generator (MAG) required in the development of MT system.

Key Words: *Machine Translation, machine transliteration, morphological analyzer and generator, part-of-speech tagging, parsing.*

1. INTRODUCTION:

Translation is of two types: manual translation and machine translation. Manual translation is the translation from one language to another language by humans. Machine Translation is the process of translation from one language to another language by machine. The language to be translated is called the source language and the translated language is called the target language. The components of MT like Morphological Analyser and Generator, Name Entity Recognition (NER), Part-of-speech tagging, parser, etc are playing key roles in the development of a machine translation system. MT is used in the activities like learning in local language, business, Language Service Providers, translation of newspapers, documents, etc. Language barrier can be eliminated using MT system. The use of MT system lessens the funding on human translators. Most of the developed MT systems so far have many limitation regarding translation rules, dictionary and methodology that additional effort is required to build a comprehensible translations. This paper is organized as follows: Section II describes approaches of machine translation. Section III presents various Machine Translation systems from English to Indian languages. Section IV describes important components for developing machine translation system. The conclusion is given in section V.

2. APPROACHES OF MACHINE TRANSLATION:

The process of Machine Translation can be broadly classified into three types. They are i) Ruled-Based approach ii) Corpus-Based approach and iii) Hybrid approach.

A. Rule-based approach

Rule-based Machine Translation (RBMT) is based on linguistic information like morphology, syntax and semantic information about the source and target language. The development of an RBMT system requires contrastive knowledge and bilingual or multilingual dictionaries for the language pairs. Rule Based Machine Translation System has three different methods: i) Direct method ii) Transfer method and iii) Interlingua method.

In the direct machine translation system, translation is implemented using a bilingual dictionary of the language pair succeeded by some syntactic rearrangement. A transfer machine translation system required three phases, analysis phase, transfer phase and generation phase. Analysis phase analyzes the source sentence in terms of morphology, syntax and semantic. Transfer phase transfers source sentence into target sentence representation using translation rules of the target language. And generation phase generates the target language text. In the Interlingua method source sentence is converted into an intermediate language (IL) from which texts are generated into more than one target language [1].

B. Corpus based approach

The Corpus based approach is categorized into two approaches: Statistical machine translation (SMT) approach and Example based machine translation (EBMT) approach. The Statistical Machine Translation approach requires a large parallel corpus. SMT consists of three components: language model, translation model and decoding.

Language model gives the probability of a sentence. This probability can be calculated using the n-gram model. Translation model assists in calculating conditional probability. It is trained from a parallel corpus. If the corpus size is small that the calculation of translation model probabilities at sentence level is not possible, this process is broken into words or phrases and learns their probability. Example-Based Machine Translation system uses a database of previous translation examples to give translation for a given input sentence. This system maintained a database comprising of translation examples between the language pair. When a source language sentence is given to the system, the system retrieves a similar sentence with the input and its translated sentence from the database. The main idea behind the EBMT system is that similar sentences will have similar translations. An EBMT system has two main modules: retrieval and adaptation.

C. Hybrid based Machine Translation

Hybrid based machine translation is a translation system which uses more than one approach[1].

3. MACHINE TRANSLATION:

The various Machine Translation systems from English to Indian languages with their language pair and approach are shown in Table I.

Table I : Review on MT

Ref.	MT System	Year	Authors	Approach
[2]	ANGLAHINDI (English to Hindi)	2003	R.M.K Sinha and A.Jain	<i>Hybrid approach:</i> pseudo-interlingual rule based approach, example-based approach and statistics
[3]	EB-ANUBAD (English to Bangla)	2005	Saha Goutam Kumar	<i>Hybrid approach:</i> rule-based and transformer architecture
[4,5,6]	English to Kannada	2006	K. Narayana Murthy	<i>Transfer-based approach,</i> Universal Clause Structure Grammar (UCSG)
[7]	MATRA (English to Hindi)	2006	CDAC-Mumbai	<i>Interlingua approach,</i> Intermediate structured representation
[8]	English to Malayalam	2009	Cochin University of science and Technology	<i>Statistical approach</i>
[9]	English-Oriya	Not Available	Prof. Sanghamitra Mohanty	Oriya morphological analyser, parser, word sense disambiguation etc.
[6,9]	ANUBAAD (English news to Bengali)	2004	Jadavpur University	<i>Example-based approach</i>
[5,10]	ANUVADAKSH (English to Tamil, Oriya, Bengali, Bodo, Gujarati, Hindi, Marathi and Urdu)	Not Available	13 Institutions which is led by CDAC Pune	<i>Hybrid approach:</i> Rule-based approach, Statistical based approach, Tree-Adjoining Grammar (TAG) and Example-based approach
[11]	English to Tamil	2012	Lakshmana Pandian S and Kumanan Kadhivelu	<i>Hybrid approach:</i> Rule Based approach, Statistical approach
[12]	ANGLABHARTI (English to Indian languages)	2001	R.M.K Sinha, Jain R, Jain A	<i>Pseudo-interlingua approach</i>
[13]	Transmuter (English to Marathi)	2014	G V Garje, G K Kharate and Harshad Kulkarni	<i>Rule based approach</i>
[14]	English-Hindi	2014	Pratik Desai, Amit Sangodkar	<i>Rule based approach</i>

			and Om P. Damani	
[15]	English to Tamil	2017	Kavirajan B, Anand Kumar M, Soman K.P, Rajendran S and Vaithehi S	Rule based approach
[4,16]	Shiva and Shakti (English to Hindi)	2004	Indian Institute of Technology, Hyderabad, Indian Institute of Science, Bangalore and Carnegie Mellon University, USA	Example-base approach Hybrid based approach : rule-based approach and corpus based approach
[17]	MIDAS (English-Tamil)	2018	Himangshu Choudhary, Aditya Kumar Pathak, Rajiv Ratn Shah and Ponnuram Kumaraguru	Neural Machine Translation (NMT)
[18]	English-Hindi	2018	Sandeep Saini and Vineet Sahula	Neural Machine Translation (NMT)
[19]	English news headlines in Hindi	2013	Aditya Joshi, Kashyap Popat, Shubham Gautam and Pushpak Bhattacharyya	Hybrid approach : phrase-based, factor-based machine translation models
[20]	MANTRA (English to Hindi)	1999	Hemant Darbari and Mahendra Kumar Pandey	Transfer-based approach, Tree Adjoining Grammar

4. COMPONENTS OF MACHINE TRANSLATION

The most important components for developing machine translation systems are machine transliteration, Morphological Analyzer and Generator, Name Entity Recognition, Part-of-Speech tagging, Parsing and word sense disambiguation. This section presents a survey of some components of the machine translation system that have been developed for Indian languages.

4.1. Machine Transliteration

Machine Transliteration is the process of changing one script to another script. Name Entities and out-of-vocabulary (OOV) words are transliterated in the process of MT. Table II shows various developments on English to Indian language, Indian Language to English and Indian Language to Indian Language Machine Transliteration systems.

Table 2 .Review on Machine Transliteration

Ref.	Language Pair and year	Authors	Approach	Accuracy
[21]	Eng to Tamil (2009)	Vijaya MS, Ajith VP, Shivapratap G, and Soman KP	C4.5 decision tree using WEKA	84.82%
[22]	Eng to Urdu (2009)	Abbas Raza Ali and Madiha Ijaz	Arpabet based English pronunciation database, Statistical techniques, Urdu syllabification	96%
[23]	Punjabi to Hindi (2010)	G.S Josan and G.S Lehal	Character mapping approach, rule based approach and Soundex based approach.	73.13%
[24]	Transliteration system among Indian languages (2010)	Rohit Gupta, Pulkit Goyal and Sapan Diwakar	WX notation	Not Available
[25]	Manipuri (Meitei Mayek) script to English (2010)	Kishorjit Nongmeikapam, Herojit Ningombam, Sonia Thoudam, Shinghajit Khuraijam and Sivaji Bandhyopadhyay	Rule based approach	81.78%

[26]	English to Punjabi (2011)	Jasleen Kaur and Gurpreet Singh Josan	Statistical approach	63.31%
[27]	Bengali to Meitei Mayek (2011)	Kishorjit Nongmeikapam, Ningombam Herojit Singh, Sonia Thoudam and Sivaji Bandyopadhyay	Rule based approach	86.28%
[28]	Bidirectional Bengali Script and Meitei Mayek (2012)	Thoudam Doren Singh	Rule-based approach	Not Available
[29]	English to Manipuri (2012)	Shantikumar Ningombam, Sagolsem Poireiton Meitei and Dr. Bipul Shyam Purkayastha	Sequence labeling approach, Support Vector Machine	82%
[30]	English to Punjabi (2013)	Deepti Bhalla, Nisheeth Joshi and Iti Mathur	Rule based approach, MOSES	88.19%
[31]	Hindi Script to Meitei Mayek (2013)	Santoshi Watham and V.R.Vimal	Rule based approach	86.28%
[32]	Marathi to English (2014)	Arti P. Khadtare, Dr. Suhas Raut and M. S. Otari	A list of Marathi and English words	Not Available
[33]	Hindi to English (2014)	Veerpal Kaur, Amandeep kaur Sarao and Jagtar Singh	Hybrid approach	Not Available
[34]	Bengali to English (2015)	Debashis Sen and Kamal Deep Garg	Rule based approach	Not Available
[35]	Dogri to English (2016)	Tejpal S. Sasan, Dr. Shubhnandan and S. Jamwal	Rule based approach, name dictionary, sport dictionary, etc	90%

B. Morphological Analyzer and Generator

Morphological Analyzer (MA) is a program that analyzes the internal structure of a given word. Morphological Generator (MG) is the reverse process of MA. Table III shows development on Morphological Analyzer and Generator (MAG) of Indian languages.

Table 3. Review on MAG

Ref.	MAG and year	Authors	Approach	Accuracy
[36]	MA for Bengali, Bodo, Assamese and Oriya (2011)	Mona Parakh and Rajesha N	Rule based suffix stripping approach	Not Available
[37]	MA for Tamil (2009)	Anand Kumar M and Danalakshmi KP	Sequence labelling approach	95.65%
[38]	MA for Tamil (2016)	T. Moganarangan, T. Pranavan, U. Megala, N. Nilusija, G. Dias, S. Jayasena and S. Ranthunga	Grammatical features, annotated corpus and SVM	98.73%
[39]	MA for Malayalam (2017)	Vinod PM, Jayan V and Bhadrar VK	Hybrid approach	83.6%
[40]	MA for Malayalam (2015)	Jancy Joseph and Dr. Babu Auto	Rule-based approach, suffix stripping approach, sandhi rules and root words dictionary.	89.5%
[41]	MA for Kannada (2016)	Prathiba RJ and Padma MC	Hybrid approach (suffix stripping approach, rule based method, paradigm based approach and questionnaire based approach)	90%

[42]	MAG for Hindi (2008)	Vishal Goyal and Gurpreet Singh Lehal	Paradigm approach	Not Available
[43]	MA for Hindi (2013)	Deepak Kumar Malladi and Prashanth Mannem	Statistical method	84.16%
[44]	MA for Hindi (2014)	Ankita Agarwal, Pramila, Shashi Pal Singh, Ajai Kumar and Hemant Darbari	Rule-based approach	Not Available
[45]	MG for Manipuri (2015)	H. Mamata Devi, Kishorchand Singh and N. Pramodini Devi	FST, orthographic rules and lexicon	Not Available
[46]	MA for Manipuri (2005)	Thoudam Doren Singh and Sivaji Bandhyopadhyay	Suffix stripping approach and matching technique	Not Available
[47]	MA for Manipuri (2017)	Yumnam Bablu, Ch. Yashawanta and Nameirakpam Amit Singh	FST approach	80%

C. Part-of-Speech Tagging

Part-of-speech tagging is the process of assigning part-of-speech to the word in a given text. Table IV shows various POS tagging of Indian languages.

Table 4. Review on POS tagging

Ref	POS Tagging and year	Authors	Approach	Accuracy
[48]	Manipuri (2006)	Thoudam Doren Singh, Asif Ekbal and Shivaji Bandyopadhyay	SVM and CRF	CRF=72.04% and SVM=74.38%
[49]	Manipuri (2008)	Thoudam Doren Singh and Shivaji Bandyopadhyay	Morphology driven system, root words, and affixes lexicons are used	69%
[50]	Hindi (2008)	Manish Shrivastava and Pushpak Bhattacharya	Naive stemmer	93.12%
[51]	Kannada (2012)	Shambhavi BR and Ramakanth Kumar P have developed a	HMM and CRF machine learning algorithms	HMM=79.9% and CRF=84.58%.
[52]	Manipuri (2012)	Kh. Raju Singha, Bipul Shyam Purkayastha and Kh.Dhiren Singha	HMM	92%
[53]	Malayalam POS tagger and Chunker	Jisha P Jayan and Rajeev RR	Statistical approach with HMM	92%
[54]	Hindi (2016)	Deepa Modi and Neeta Nain	Rule-based approach	85.45%
[55]	Malayalam (2015)	D. Muhamad Noorul Mubarak, Sareesh Madhu and SA Shanavas	Hybrid approach	Not Available
[56]	Hindi (2013)	Nisheeth Joshi, Hemant Darbari and Iti Mathur	HMM	92.13%

D. Parsing

Parsing is the process of analysing a sentence according to its syntactic structure. Table 5, shows reviews on the work done in Indian language perspective.

Table 5: Review on Parsing

Ref	Parsing	Authors	Approach	Accuracy
[57]	Hindi	Nitin Hambir and Ambrish Srivastav	Cocke-Kasami-Younger (CKY)	Not Available
[58]	Kannada (2017)	Prathiba RJ and Padma MC	Statistical approach-CRF model	92.77% on novels and 93.28% on stories
[59]	Malayalam (2016)	Devadath VV	Hybrid approach: Naive Bayes Classifier and hand written rules	Not Available
[60]	bidirectional dependency parser for Indian languages (2010)	Aswarth Abhilash and Prashanth Mannem	Dependency tree, SVM classifier	Hindi=83.12%, Telegu=65.9%, Bangla=67.45%
[61]	Indian languages (2009)	Jaokim Nivre	MaltParser	Bangla and Hindi=90%, Telegu=85%
[62]	Indian languages (2009)	Akshar Bharti, Mridul Gupta, Vineet Yadav, Karthik Gali and Dipti Misra Sharma	Grammar based approach	Not Available

5. CONCLUSION:

In this paper, we discussed various Machine Translation systems and its components in Indian language perspective. We also discussed approaches that are used for developing a machine translation system. From the study, we observed that various MT systems have used different approaches best suited to their language pairs. Direct translation is suitable for language pairs which are structurally similar. Transfer based systems are adjustable and it can be extended to multilingual MT systems. The interlingua approach can be used for multilingual MT systems. Corpus based approach (SMT and EBMT) is used in such language pairs where a huge bilingual parallel corpus is available. Hybrid approach gives better performance than other approaches. Most of the English to Indian language MT systems developed so far used rule based approach as it gives better performance if the set of translation rules is large enough. But collection of large rules is a difficult task as the Indian languages are morphologically rich and agglutinative in nature. So, hybrid approaches with the combination of rule based and corpus based are applied to give better performance. Nowadays, the Neural Machine Translation approach is becoming latest MT trend used by many researchers in developing MT systems. MIDAS (English-Tamil) [16] and English-Hindi [17] uses NMT approach. MAG, POS tagging, Machine Transliteration system and parsing have been developed using different approaches but rule-based approaches are commonly used in most of the systems.

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**GRAPHICAL REPRESENTATION AND ANALYSIS OF SELECTED
FACTORS THROUGH FEEDBACKS FROM SEVERAL EDITIONS OF
AMATEUR LEVEL FOOTBALL TOURNAMENT**

¹Pritish Khare, ²Dr. Samiran Chakraborty, ³GeetaNegi

^{1,3}Ph.D. Scholar, DPESS, University of Delhi

²Associate Professor, IGIPES, University of Delhi

Abstract:

The purpose of the study was to graphically represent and analyze the selected parameters through feedbacks from several editions of amateur level football tournament. For this study, feedbacks collected from the participating teams from six events of an amateur football tournament were used as data. Every participating team filled the Feedback format the competition, later that data was analyzed statistically to see, how factors like: hospitality & volunteerism, technical and management & coordination affected the overall ratings of the tournament. Each factor had multiple questions in it. Results indicated that Technical Factor's rating (M-84.4%) underperformed when compared to mean of all tournaments overall rating (M-87.4%). While mean of Hospitality & Volunteerism (M-89.1%) and Management & Coordination (M-88.9%) factors both outperformed the mean of all tournaments overall rating (M-87.4%). Although a successful tournament is based on all the factors working in sync but the result from the feedback shows us that the Technical factor of the event is more critically analysed than other factors.

1. BACKGROUND OF THE PAPER

This research paper aims at finding out the importance of different factors involved in the success of any amateur sports event. In this paper the author has collected feedbacks filled by the participants and the coaches in each of the six edition of amateur football tournament considered in this research. Feedback form has been sorted into three major factors Hospitality & Volunteerism; Technical; and Management & Coordination. Each factor's rating have been calculated and then compared with overall rating of that respective event to find out its performance in the success of that particular event. Also, the six events are divided into two age categories: Under-15 and Above-18, where it is attempted to find out the difference of each factors perspective in two different age categories.

2. AMATEUR SPORTS:

Amateur sports are sports in which participants engage largely or entirely without remuneration. The distinction is made between amateur sporting participants and professional sporting participants, who are paid for the time they spend competing and training. In the majority of sports which feature professional players, the professionals will participate at a higher standard of play than amateur competitors, as they can train full-time without the stress of having another job. The majority of worldwide sporting participants are amateurs.

3. IMPACT OF AMATEUR SPORTS ON COMMUNITY:

All over the World the ratio of Amateur Sportsperson to Professional Sportsperson is very low. Hence, Sports has a bigger responsibility and meaning towards amateur sportsperson too. In addition, the impact of Amateur sports is huge on the community, and gives a gift to connect a community through engaging them in Sports. Sports does have in numerous advantages in a person's life, he learns to be discipline, he learns about team spirit, learns about team work leads to dream work, learns to work in a group to make it successful. However, in a community it plays a big responsibility to connect people, build health by engaging them in healthy sports. Positively impact the health of the mind too. Financially too, it uplifts the society by organizing an event where businesses find an opportunity to reach out to its customer through these community sports events.

4. OBJECTIVES OF THE PAPER:

- Graphical representation of three major factors involved in successful organization of Amateur level Football Tournament.

- Finding out the importance of each factor and its impact on the overall success of the tournament
- Analysis of two different age categories and the difference in ratings of factors constituting overall success of the tournament.

5. SELECTION OF VARIABLES:

For this study, three factors selected are:

1. Hospitality & Volunteerism
2. Technical
3. Management & Coordination

Each factor is consisted of few questions from the feedback form made to fill by the participant in each of the events covered.

Questions included in our selected factors are:

- a) Hospitality & Volunteerism
 - Q1. How was the hospitality of Volunteers?
 - Q2. How was the Refreshment?
- b) Technical
 - Q1. Quality of Playing Fields?
 - Q2. How was the Officiating and Judgement?
- c) Management and Coordination
 - Q1. Information prior to the event?
 - Q2. Communication and Coordination?
 - Q3. Overall Management of the Tournament?

6. RESULT AND DISCUSSION:

SELECTION OF EVENT AND POPULATION

For this research, we have selected a successful and popular amateur level football tournament in Delhi-NCR. Only Male Football players were selected from two different age categories i.e. Under-15 and Above 18. Every event that has been chosen has an overall event rating of minimum 4 stars out of 5 stars.

COLLECTION OF DATA

A standard feedback questionnaire was prepared and then data was collected from the Teams (either captain or Coach) from all the editions of the football tournament. The data was then analysed on the basis of which the result has been concluded below.

Factors \ Editions	1st (46)	2nd (21)	3 rd (22)	Event (1-2-3) (Under-15)	4th (46)	5th (42)	6th (47)	Event (4-5-6) (under-18)	Total (All six editions)
Hospitality & Volunteerism	4.49 89.9%	4.42, 88.5%	4.59, 91.8%	4.5, 90%	4.26, 85.2%	4.47 , 89.4%	4.50, 90.1%	4.41, 88.2%	4.45, 89.1%
Technical	4.55, 91.1%	4.05, 81%	4.24, 84.9%	4.28, 85.6%	3.97, 79.5%	4.35 , 87%	4.18, 83.7%	4.16, 83.2%	4.22, 84.4%
Management & Coordination	4.77, 95.5%	4.25, 85%	4.48, 89.6%	4.5, 90%	4.29, 85.8%	4.38, 87.7%	4.51, 90.2%	4.39, 87.8%	4.44, 88.9%
TOTAL	4.60, 92%	4.24, 84.8%	4.43, 88.7%	4.42, 88.5%	4.17, 83.4%	4.4, 88%	4.39, 87.9%	4.32, 86.4%	4.37, 87.4%

Table No. 1, shows the Mean score and percentage distribution of variables in overall rating, Hospitality & Volunteerism, Technical and Management & Coordination of six different editions of an Amateur level football tournament. Mean score of Hospitality & Volunteerism factor in all editions of Amateur football tournament are 4.49, 4.42, 4.59, 4.26, 4.47 & 4.50 respectively and the combined mean value is 4.45 (89.1%). Moreover, mean score of Technical factor in all editions of Amateur level football tournament are 4.55, 4.05, 4.24, 3.97, 4.35 and 4.18 respectively and combined mean value is 4.22 (84.4%). The mean score of Management & Coordination factor in all

the editions of Amateur football tournament are 4.77, 4.25, 4.48, 4.29, 4.38 and 4.51 respectively and combined mean value is 4.44 (88.9%).

Mean Score of Hospitality & Volunteerism factor in Under-15 age category is 4.5 (90%) whereas in Under-18 age category is 4.41 (88.2%). Mean Score of Technical Factor in Under-15 age category is 4.28 (85.6%) whereas in Under-18 age category is 4.16 (83.2%). Mean Score of Management & Coordination in Under-15 age category is 4.5 (90%) whereas in Under-18 age category is 4.39 (87.8%)

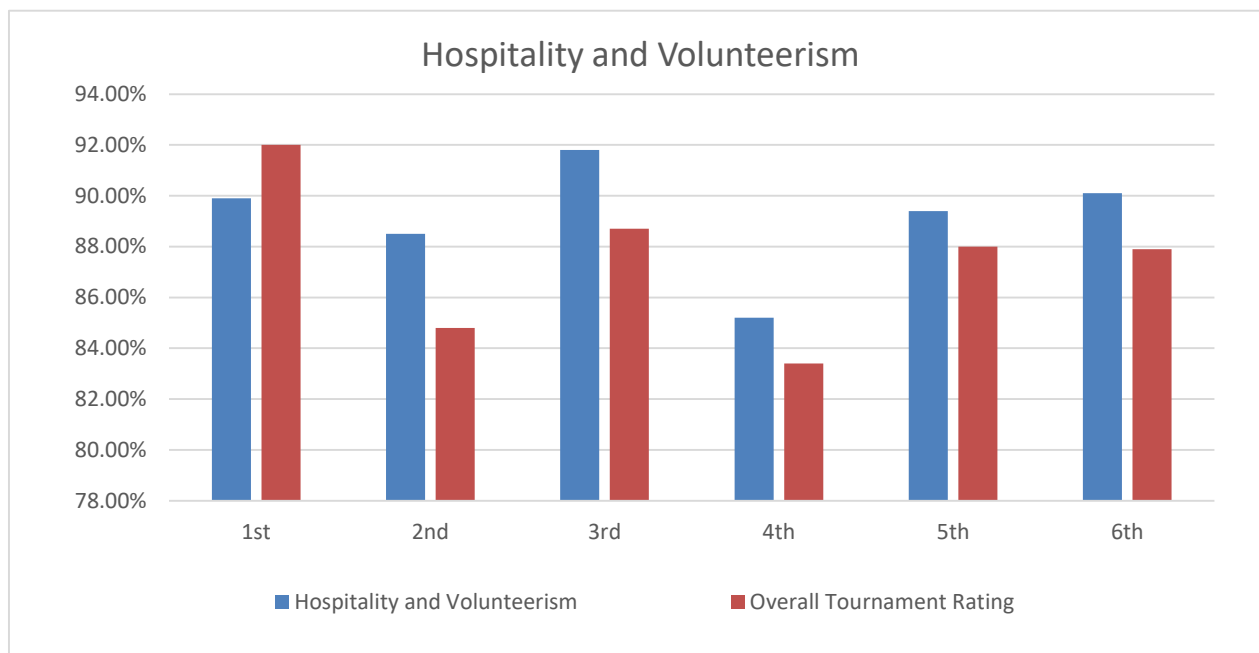


Figure 1: Comparison between mean scores of Hospitality & volunteerism and Overall Tournament Rating throughout the editions

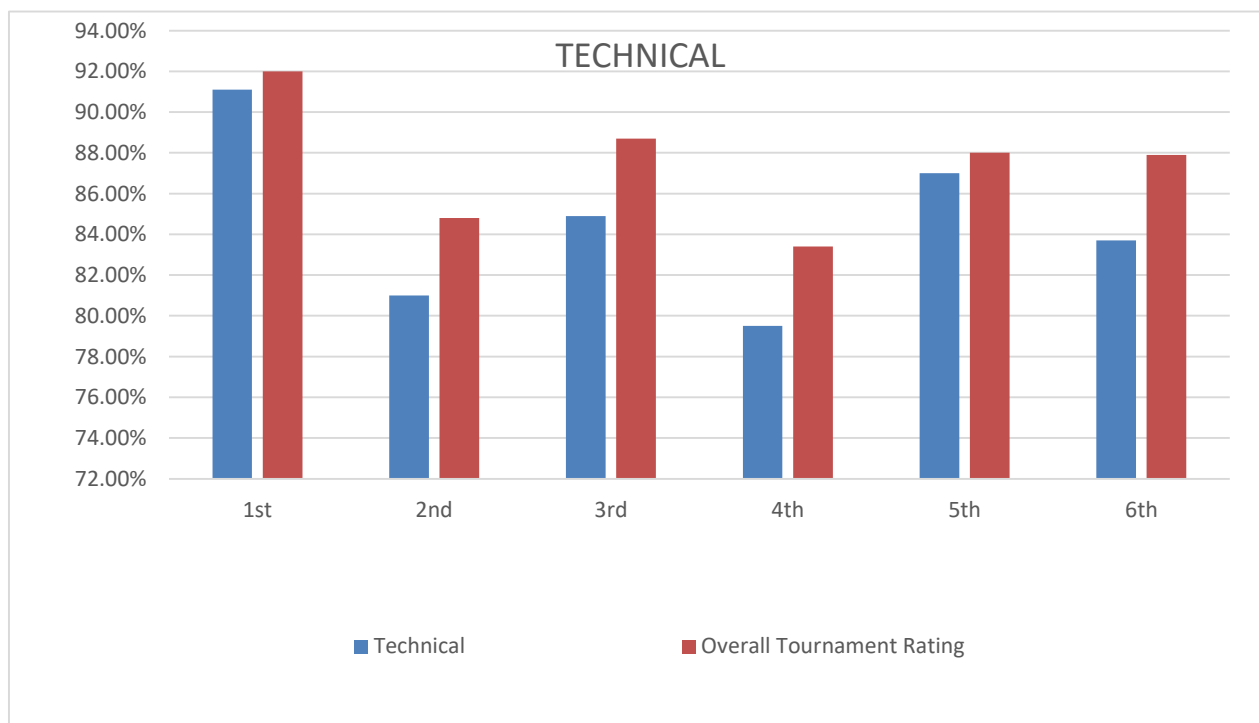


Figure 2: Comparison between mean scores of Technical and Overall Tournament Rating throughout the editions

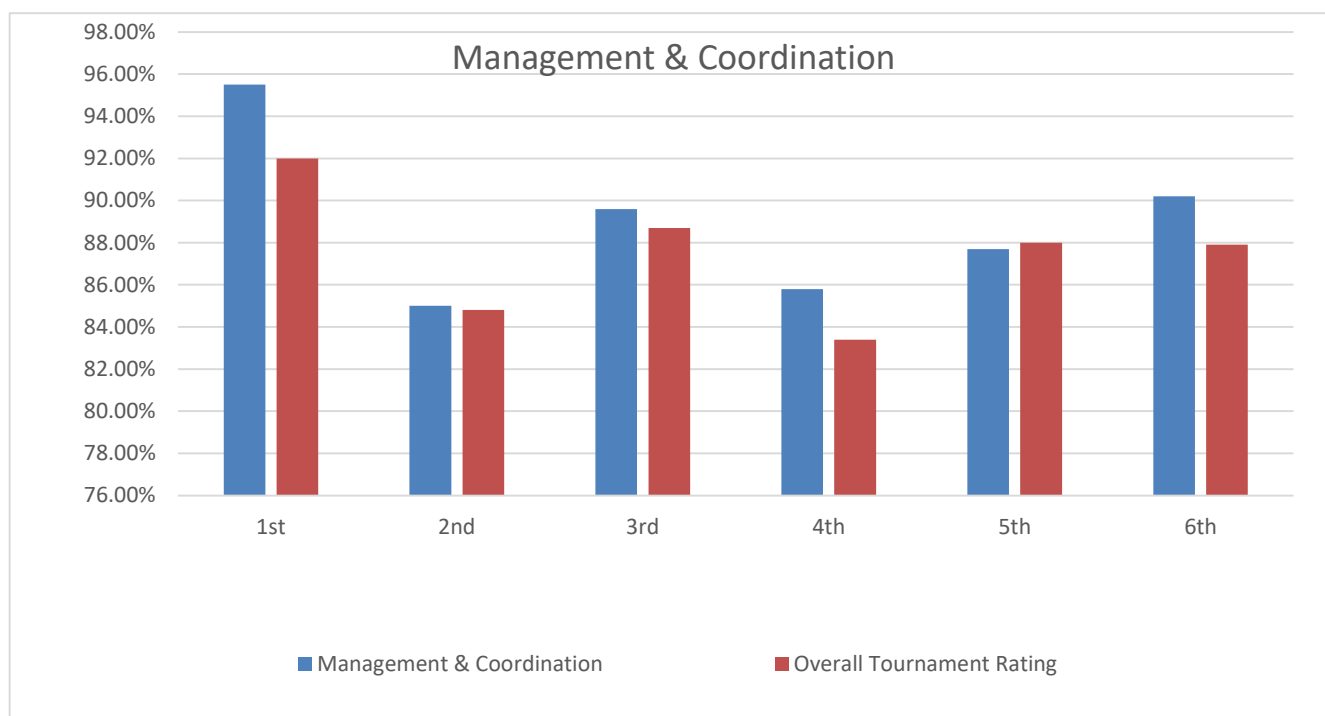


Figure 3: Comparison between mean scores of Management & Coordination and Tournament Rating throughout the editions

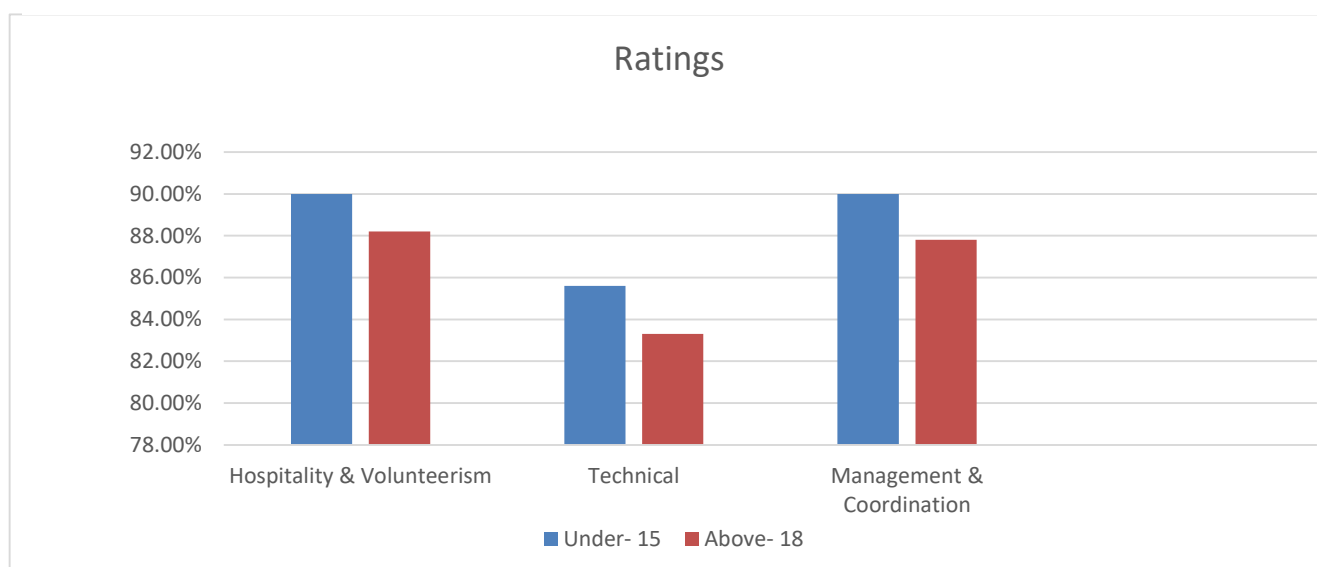


Figure 4: Comparison of Percent distribution of variables Hospitality & Volunteerism, Technical and Management & Coordination in Between Under- 15 and Above- 18 Age category Tournament

7. DISCUSSION ON FINDINGS:

Studying six editions of an amateur football tournament and identifying patterns from it we find that:

- In five of the six editions, the Hospitality & Volunteerism factor has outperformed their respective tournaments overall rating. The overall mean score of Hospitality & Volunteerism factor comes out to be 4.45 (89.1%) which outperforms the mean of overall rating of all the events combined (with all the factors) i.e. 4.37 (87.4%).
- In all the editions, the Technical Factor has underperformed their respective tournament's overall rating. The overall mean score of Technical factor comes out to be 4.16 (83.2%) which underperforms the mean of overall rating of all the events combined (with all the factors) i.e. 4.37 (87.4%).
- In five of the six editions, Management & Coordination factor has outperformed their respective tournament's overall rating. The overall mean score of Management & Coordination factor comes out to be 4.16 (88.9%)

which out performs the mean of overall rating of all the events combined (with all the factors) i.e. 4.37 (87.4%).

- Also, when we categorize the events into two different age groups, we find that in Under-15 age category, the ratings of all the three factors are more as compared with the ratings of factors of above-18 age category tournament. In Hospitality & Volunteerism factor the mean score of Under-15 age category is 4.5(90%) where as in Above-18 age category it is 4.41(88.2%). In Technical factor the mean score of Under-15 age category is 4.28(85.6%) where as in Above-18 age category it is 4.16(83.2%). In Management and Coordination factor the mean score of Under-15 age category is 4.5(90%) where as in Above-18 age category it is 4.39(87.8%).

8. CONCLUSION AND RECOMMENDATIONS:

After analyzing the data, we conclude that:

- Technical Factor has underperformed in all the six editions when compared to rating of overall tournament and one reason could be that, technical factors are the ones that are most critically analyzed of all. As the quality of ball, field and the quality of Officiating is one prime thing sports person are participating for. Hence, this factor is once crucial factor for amplifying the overall success of the tournament. Also this factor can be improved if the finances can be diverted here, so that more experienced and qualified Officials could be hired, it will definitely help in improving the rating of Technical factor and eventually contribute in making the overall event even a greater success.
- Hospitality & Volunteerism factor has outperformed in five editions out of six editions of football tournament, it is one factor that is not given proper during the build-up of an event or you may say it is ignored if compared with other factors. Hence, it may be concluded that, an event with structured Volunteer and a strong Hospitality dept. (to the players), an event's likability or overall rating can be improved significantly.
- Management & Coordination factor has outperformed in five out of six editions of football tournament, this indicates that management has been sound and well-structured in this Amateur football tournament. As poor management can affect other factors related to the event too. In addition, even with a solid management it is likely to impact an event's overall likability.
- This may be because above 18 age participants or sportsperson are more critical during analyzing the different factors while giving the feedback. May be because they have more training age and more experience of participating in Amateur sports tournament.

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**30 – 31 July, 2020 at Department of Physical Education and Sports Science,
 Fit India Campaign Committee and Fit India Club, Manipur University, India**

**MENTAL HEALTH AND LIFE SATISFACTION AMONG THE
 STUDENTS WITH SPECIAL REFERENCE TO SPORTS
 PARTICIPANTS AND NON-SPORTS PARTICIPANTS**

¹Mr. Mondeep Chetia, ²Miss Kukumoni Patir, ³Mr. Sumit Kr. Thapa

¹Lecturer - PSTE - Physical Education. District Institute of Education and Training (DIET), Sivsagar, Sonari, Assam, India

²Research Scholar, Department of Physical Education and Sports Science, Manipur University, Canchipur, India

³Lecturer - PSTE - Physical Education. District Institute of Education and Training (DIET), Jorhat, Titabar, Assam, India

Abstract:

The present study was to compare mental health and life satisfaction among the students with special reference to Sports participants and Non-sports Participants. For the study, The researchers selected total of sixty (60) subjects, (N₁=30) Sports participants, those who regularly participated in games and sports from North Lakhimpur College, Lakhimpur, Assam, and (N₂=30) Non-Sports participants those who didn't participate any games and sports. The ages of subjects were ranged between 18-24 years. The study was delimited to the assessment of Mental Health (MH) developed by Jagdish and Srivastava (1995) and Life Satisfaction (LS) questionnaire was developed by Diener, Emmons, Larsen and Griffen (1985). The Independent t-test was applied to assess the differences between the groups. The level of significance was set at 0.05 of confidence. Results revealed statistically not significant differences between the two groups of Mental Health ($t_{0.05}(58) = 0.44 < 1.64$) and Life Satisfaction ($t_{0.05}(58) = 0.34 < 1.64$).

Key Words: Mental health, Life Satisfaction, Sports Participants, Non-Sports Participants

1. INTRODUCTION:

According to the World Health Organization (WHO), Mental Health is “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community”(WHO,2004)⁴. Mental health refers to how people evaluate their lives and includes variables such as life satisfaction, lack of depression and anxiety, and positive moods and emotions (Diener and Diener, 1995)¹. The people who are free from mental health problems are more energetic, active, efficient in solving problems, happy and cope up with their daily stressors and enjoy their lives. Now a day's people are facing serious mental health problems. This is mainly due to multiple pressures such as work pressure, demands from the teacher, parents, guardian, and friends and also from the environment. Many studies showed that mental health has a positive effect on life satisfaction. Physical activity helps to build positive mental health and life satisfaction by various means in the general population. Aerobic exercises, including jogging, swimming, cycling, walking, gardening, and dancing, have been proved to reduce anxiety and depression (M.Guszkowska,2004)³. Exercise improves mental health by reducing anxiety, depression, and negative mood and by improving self-esteem and cognitive function (P.Callaghan, 2004)².

1.1. OBJECTIVES OF THE STUDY: The main objective of the study were to compare mental health and life satisfaction between sports participants and non-sports participants

1.2. HYPOTHESIS: It was hypothesized that there would be significant differences of mental health and life satisfaction between sports participants and non-sports participants

2. MATERIAL AND METHODS:

2.1. Subject: Total of sixty (60) subjects, (N₁=30) Sports participants, those who regularly participated in games and sports from North Lakhimpur College, Lakhimpur, Assam, and (N₂=30) Non-Sports participants those who didn't

participate any games and sports. The ages of subjects were ranged between 18-24 years. The purposive sampling technique was used to select subjects.

2.1. Statistical Technique: The Independent t-test was applied to assess the difference between the groups. The level of significance was set at 0.05

2.2. Tools: Mental Health (MH) developed by Jagdish and Srivastava (1995) and Life Satisfaction (LS) questionnaire was developed by Diener, Emmons, Larsen and Griffen (1985).

3. RESULT AND DISCUSSIONS:

Table 1. Comparison of Mean of the Mental Health among the students with special reference to Sports participant and non-sports Participants Mean, Standard Deviation, Mean Difference, Standard Errors, t-value

Variable	Sports-participants		Non- Sports-participants		Mean Differences	Standard Error	t-ratio
	Mean	SD	Mean	SD			
Mental health	169.76	17.78	167.56	20.74	2.20	4.98	0.44

*Significant at 0.05 level

Tabulated $t_{0.05}(58)=1.64$

From the above Table 1 it was revealed that there was not significant difference between Sports participant and non-sports Participants in Mental health as the $t_{0.05}(58)=1.64 > 0.44$

Table 2. Comparison of Mean of the Life satisfaction among the students with special reference to Sports participant and non-sports Participants Mean, Standard Deviation, Mean Difference, Standard Errors, t-value

Variable	Sports-participants		Non- Sports-participants		Mean Differences	Standard Error	t-ratio
	Mean	SD	Mean	SD			
Life satisfaction	22.73	4.59	22.16	4.74	0.57	1.64	0.34

*Significant at 0.05 level

Tabulated $t_{0.05}(58)=1.64$

From the above Table II it was revealed that there was not significant difference between Sports participant and non-sports Participants in life satisfaction as the $t_{0.05}(58)=1.64 > 0.34$

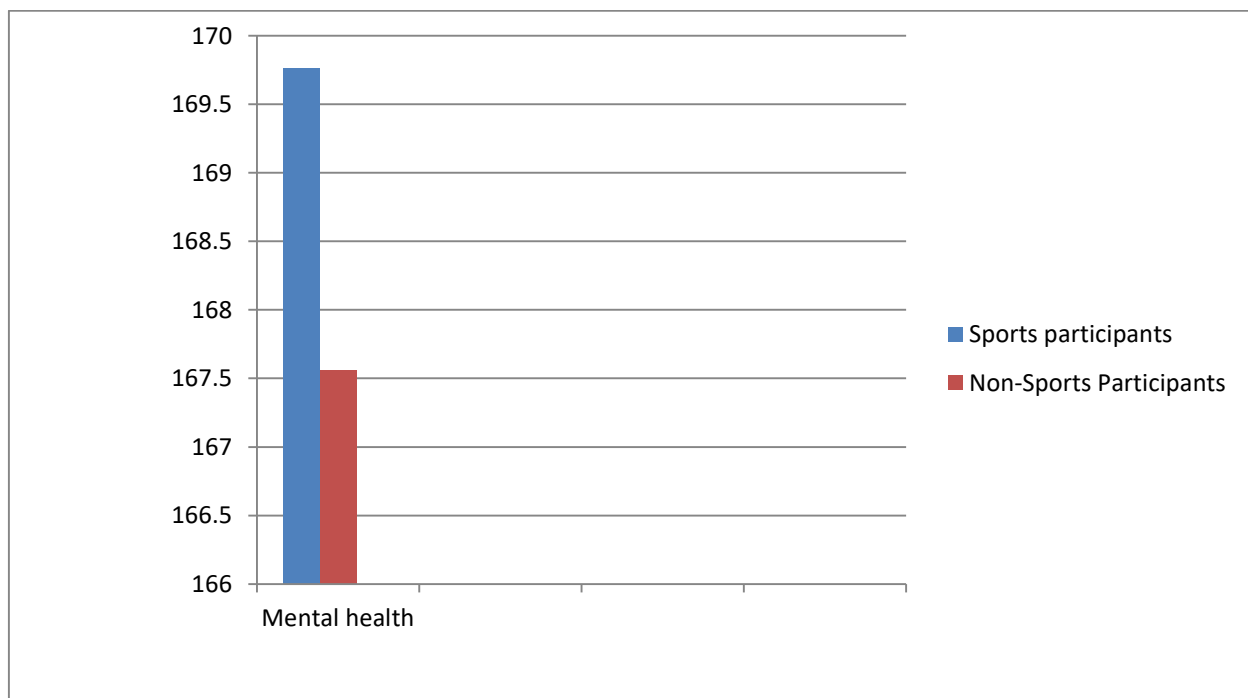


Figure 1. Graphical representation of Mean of the Mental Health between Sports participants and non-sports Participants.

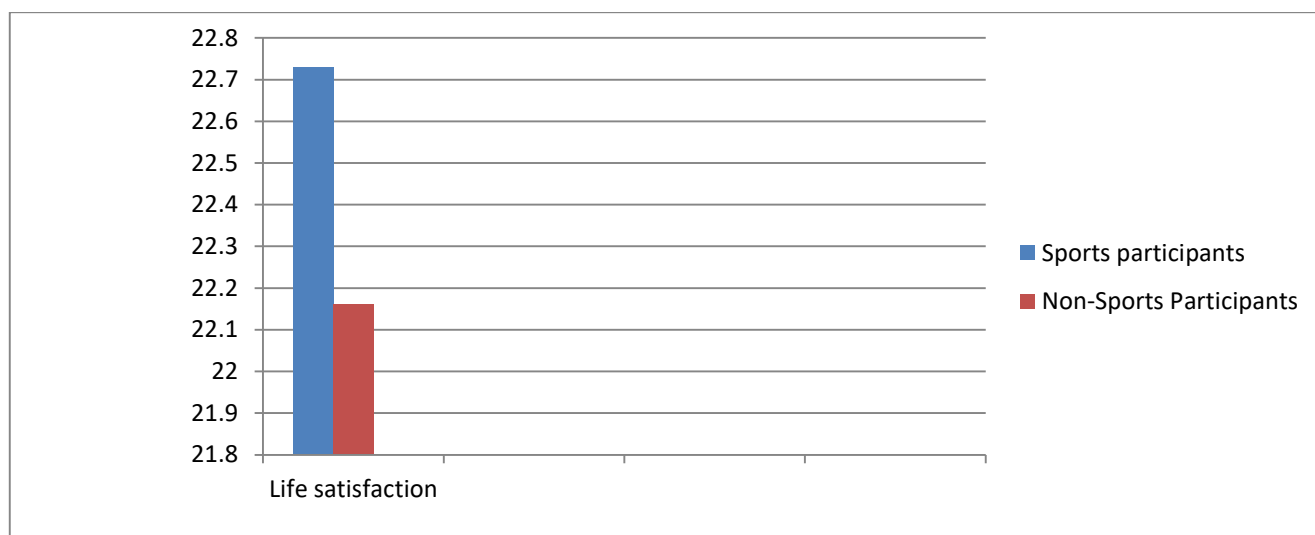


Figure 2: Graphical representation of Mean of the Life satisfaction between Sports participants and non-sports Participants.

4. DISCUSSION ON FINDINGS:

The objectives of the study were to compare Mental Health and Life satisfaction between Sports participants and Non-Sports participants. The findings of the study reveal that there is not a significant difference between the two groups of Mental Health and Life satisfaction. But when compared Mean values of the sports participants and Non-sports participants regarding Mental Health and life satisfaction, Sports participants are shown higher mean value than Non- Sports Persons ($M=169.76 > 167.56$), ($M=22.73 > 22.16$) respectively. At the beginning of the study, it was hypothesized that there would be a significant difference of Mental Health and life satisfaction between the groups. But the result reveals that there is not a significant difference between the two groups. Hence, the earlier hypothesis is rejected at 0.05 level of confidence and the null hypothesis is accepted.

5. CONCLUSION:

On the basis of statistical findings of the study it is concluded that there is not significant differences of Mental Health and Life satisfaction between the two groups.

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ASSOCIATION OF KINEMATIC VARIABLES WITH PERFORMANCE OF ELITE WEIGHT LIFTERS

¹Ms Gaganpreet Kaur, ²Dr Manohar Lal

¹Research Scholar, Lovely Professional University, Phagwara (Punjab)

²Professor, G.H.G. Khalsa College, Gurusar Sadhar, Ludhiana (Punjab)

Abstract:

*The purpose of this study was to assess the association of kinematic variables with performance of elite weightlifters in Snatch skill. Seven (7) female weightlifters of elite level were selected as the subjects for the study. The subjects for the study were selected from the India camp at Netaji Subhash National Institute of Sports (NIS) Patiala. Kinematic variables were selected as angular kinematics- ankle joint angle, knee joint angle, hip joint angle, shoulder joint angle, elbow joint angle and linear kinematics of barbell were- **height of barbell at the end of the first pull, height of barbell at the end of the second pull, maximum height of barbell, barbell maximum vertical velocity in the first pull and the barbell maximum vertical velocity in the second pull.** 85% of 1 rap maximum was considered as a performance for analysis. The subject's snatch movement was recorded using CASIO EXILIM (High speed, 1200/fps) camera in a field/arena setting. To analyse the recorded videos Kinovea-0.8.25-x64 trail version software was used. In order to examine the association of kinematic variables with performance a correlation method was used. Results shows that shoulder joint angle have significantly and negatively affects the performance of the elite weight lifters during the first pull of snatch and the transition phase of snatch. However, elbow joint angle have significantly and positively affects the lifting performance during the transition phase of snatch. It has been also found that knee joint angle negatively and significantly affects the lifting performance during the second pull of snatch among the elite weight lifters. it has been noticed that velocity during first pull of snatch have significantly and negatively affects the competition performance and during second pull it has positively and significantly affects the competition performance among the elite weightlifters*

Key Words: Weightlifting, Snatch skill, Kinematic variables & Performance

1. INTRODUCTION:

Today like never before it is vital for Physical teachers, mentors, coaches and health specialists to perceive the essential part science plays in the effective direct of Physical instruction, Sports, Games and Activity programs. Weightlifting has been a piece of the Olympic Games since 1896. The logical determination of athletes at their young age may expand the quantity of investment in different games. Two lifts in the weightlifting is the Snatch, and clean and jerk. A few weightlifters can accomplish an effective Snatch lift with a heap equivalent to or more prominent than a formerly ineffective lift. As such, an ineffective lift happens not just when the lifted weight surpasses the lifters' weight most extreme, yet when specialized components are at play. The kinematics is that part of biomechanics, which is worried about portrayal of the developments of sections of the body regardless of the powers and cause because of the development happened. The uniqueness of biomechanics as a zone of study develops not from an interesting assemblage of information, however from the inquiries that are posed generally to comprehend human movements (Bates, 1991). A biomechanical investigation assesses the movement of a living being and the impact of powers on it. The biomechanical way to deal with the development examination can be Qualitative, with development watched and depicted, implying that some part of the development estimated. Therefore much new information managing how best to prepare Athlete or player and groups and to create readiness for wellbeing has showed up in the scientific literature (D.C.Lal.,2006).

2. METHODOLOGY:

Purpose of the study was to assess the association of kinematic variables with performance of elite weightlifters in Snatch skill. Seven (7) female weightlifters of elite level were selected as the subject for the study. The subjects for the study were selected from the India camp at Netaji Subhash National Institute of Sports (NIS) Patiala.

The Purposive sampling technique was applied for selection of the subjects. The data was collected during the Trails of Youth world 2017 on 20-2-2017. To identify the frame of snatch movements for analysis was divided in to five phases: Phase-I (The first phase), Phase-II (the first pull), Phase-III (the transition phase), Phase-IV (the second pull), Phase-V (turnover under the barbell), Phase-VI (the catch/hold phase). The selected angular kinematics variables were; ankle joint angle, knee joint angle, hip joint angle, shoulder joint angle, elbow joint angle and linear kinematics of barbell were - **height of barbell at the end of the first pull, height of barbell at the end of the second pull, maximum height of barbell, barbell maximum vertical velocity in the first pull and the barbell maximum vertical velocity in the second pull.** 85% of 1 rap maximum was considered as a performance for analysis. The subject's snatch movements was recorded using CASIO EXILIM (High speed, 1200/fps) camera in a field/arena setting. To analyse the recorded videos Kinovea-0.8.25-x64 trail version software was used. In order to examine the association of kinematic variables with performance a correlation method was used.

3. RESULTS:

Table-1: Relationship of angular kinematic variables with competition performance at first phase of snatch (N=7)

Sr. No	Variable correlated with competition performance		Co-efficient of correlation
1	Competition Performance	Ankle joint angle	.151
2		Knee joint angle	.654
3		Hip joint angle	.217
4		Shoulder joint angle	.625
5		Elbow joint angle	-.744

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-1 depicts insignificant and positive correlation of competition performance with ankle joint angle ($r=.151$), knee joint angle ($r=.654$), hip joint angle ($r=.217$), shoulder joint angle ($r=.625$) among elite weightlifters during the first phase of snatch. However, negative insignificant correlation was also exist between competition performance elbow joint angle ($r=-.744$) among elite weightlifters during the first phase of snatch.

Table-2: Relationship of angular kinematic variables with competition performance at first pull of snatch (N=7)

Sr. No	Variable correlated with competition performance		Co-efficient of correlation
1	Competition Performance	Ankle joint angle	-.580
2		Knee joint angle	.054
3		Hip joint angle	.282
4		Shoulder joint angle	-.826*
5		Elbow joint angle	.588

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-2 depicts insignificant and positive correlation of competition performance with knee joint angle ($r=.054$), hip joint angle ($r=.282$) and elbow joint angle ($r=.588$) among elite weightlifters during the first pull of snatch. Negative significant correlation was exist between competition performance and shoulder joint angle ($r=-.826$, $p < .05$) among elite weightlifters during the first pull of snatch. However, negative insignificant correlation was also

exist between competition performance and ankle joint angle ($r=-.580$) among elite weightlifters during the first pull of snatch.

Table-3: Relationship of kinematic variables with competition performance at transition phase of snatch (N=7)

Sr. No	Variable correlated with competition performance		Co-efficient of correlation
1	Competition Performance	Ankle joint angle	-.016
2		Knee joint angle	.462
3		Hip joint angle	-.078
4		Shoulder joint angle	-.814*
5		Elbow joint angle	.759*

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-3 depicts significant and positive correlation between competition performance and elbow joint angle ($r=.759$) among elite weightlifters during the transition phase of snatch. However, insignificant and positive correlation was also exist between competition performance and knee joint angle ($r=.462$) among elite weightlifters during the transition phase of snatch. Negative insignificant correlation was exist between competition performance and shoulder joint angle ($r=-.814$, $p < .05$) among elite weightlifters during the transition phase of snatch. However, negative insignificant correlation were also exist of competition performance with ankle joint angle ($r=-.016$) and hip joint angle ($r=-.078$) among elite weightlifters during the transition phase of snatch.

Table-4: Relationship of kinematic variables with competition performance at second pull of snatch (N=7)

Sr. No	Variable correlated with competition performance		Co-efficient of correlation
1	Competition Performance	Ankle joint angle	.212
2		Knee joint angle	-.785*
3		Hip joint angle	.090
4		Shoulder joint angle	-.426
5		Elbow joint angle	.126

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-4 depicts insignificant and positive correlation of competition performance with ankle joint angle ($r=.212$), hip joint angle ($r=.090$) and elbow joint angle ($r=.126$) among elite weightlifters during the second pull of snatch. Negative significant correlation was exist between competition performance and knee joint angle ($r=-.785$, $p < .05$) among elite weightlifters during the second pull of snatch. However, insignificant correlation was also exist between competition performance and shoulder joint angle ($r=-.426$) among elite weightlifters during the second pull of snatch.

Table-5: Relationship of kinematic variables with competition performance at turn over under the barbell of snatch (N=7)

Sr. No	Variable correlated with competition performance		Co-efficient of correlation
1	Competition Performance	Ankle joint angle	-.077

2		Knee joint angle	-.100
3		Hip joint angle	.428
4		Shoulder joint angle	-.272
5		Elbow joint angle	.716

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-5 depicts insignificant and positive correlation of competition performance with hip joint angle ($r=.428$) and elbow joint angle ($r=.716$) among elite weightlifters during the turn over under the barbell of snatch. Negative insignificant correlation of competition performance were also exist with ankle joint angle ($r=-.077$), knee joint angle ($r=-.100$) and shoulder joint angle ($r=-.272$) among elite weightlifters during the turn over under the barbell of snatch.

Table-6: Relationship of kinematic variables with competition performance at catch phase of snatch (N=7)

Sr. No	Variable correlated with competition performance	Co-efficient of correlation
1	Competition Performance	Ankle joint angle
2		Knee joint angle
3		Hip joint angle
4		Shoulder joint angle
5		Elbow joint angle

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-6 depicts insignificant and positive correlation of competition performance with ankle joint angle ($r=.476$) and hip joint angle ($r=.207$) among elite weightlifters during the catch phase of snatch. Negative insignificant correlation of competition performance were also exist with knee joint angle ($r=-.675$), shoulder joint angle ($r=-.012$) and elbow joint angle ($r=-.536$) among elite weightlifters during the catch phase of snatch.

Table-7: Relationship of linear kinematic variables of barbell with competition performance of elite weight lifters (N=7)

Sr. No	Variable correlated with competition performance	Co-efficient of correlation
1	Competition Performance	Barbell displacement till first pull
2		Barbell displacement till second pull
3		Maximum height of barbell
4		Velocity during first pull
5		Velocity during second pull

(*significant at .05 level; $r=.754$) & (** significant at .01 level; $r=.874$)

Table-7 depicts significant and positive correlation of competition performance with velocity during second pull ($r=.783$, $p < .05$) among elite weightlifters. However, insignificant and positive correlation of competition performance was also exist with barbell displacement till second pull ($r=.538$) among elite weightlifters. Negative significant correlation was exist between competition performance and velocity during first pull ($r=-.769$, $p < .05$) among elite weightlifters. However, negative insignificant correlation of competition performance were also exist with barbell displacement till first pull ($r=-.699$) and maximum height of barbell ($r=-.112$) among elite weightlifters.

5. DISCUSSION & FINDINGS:

From the above data it has been found that shoulder joint angle have significantly and negatively affects the performance of the elite weight lifters during the first pull of snatch and the transition phase of snatch. However, elbow joint angle have significantly and positively affects the lifting performance during the transition phase of snatch. It has been also found that knee joint angle negatively and significantly affects the lifting performance during the second pull of snatch among the elite weight lifters. In contrast to Bauman W. et al (1988) discovered that knee joint moments are generally little and don't relate very well with the total load. The best lifters appear to be ready to constrain the knee joint moment by exact control of the knee position concerning the ground reaction force. Miletello et al (2009) found that kinematic variable high knee angular velocity show distinction in greatest squat between competitive power lifters and amateur power lifters from the base of the lift and staying point. Coaches should

concentrate on their preparation programs on expanding quality so quickening from the base of the lift increments. Harbili E. and Alptekin A. (2014) revealed in their results that coaches need to focus to associate exercises to surge explosive strength through the second pull with utmost strength in male adolescent weightlifters. Further it has been noticed that velocity during first pull of snatch have significantly and negatively affects the competition performance and velocity during second pull have positively and significantly affects the competition performance among the elite weightlifters. Velocity during second pull has pointedly upturns the competition performance because after this pull the body goes down in the position of catch phase. The velocity helps the lifter to lift the maximum load in catch phase. Akkus H. (2012) discovered that the maximum vertical velocity of the barbell was more prominent during the second pull than in the first pull. Hales et al (2009) additionally revealed that during the squat execution the angular position of the hip, knee and ankle joint contrast from one another. However, other angular kinematics and linear kinematics variables ankle joint angle, knee joint angle, hip joint angles, shoulder joint and elbow joint angle have not affects significantly the performance among elite weightlifters during all the phases of snatch. Coaches should focus on each phase of snatch because in each phase body angle and velocity of barbell has been changing and affects the lifting performance.

6. CONCLUSIONS:

1. It has been found that among angular kinematic variables; shoulder joint angle have significantly and negatively affects the performance of the elite weight lifters during the first pull of snatch and the transition phase of snatch. However, elbow joint angle have significantly and positively affects the lifting performance during the transition phase of snatch. It has been also found that knee joint angle negatively and significantly affects the lifting performance during the second pull of snatch among the elite weight lifters.
2. Among linear kinematic variables, it has been noticed that velocity during first pull of snatch have significantly and negatively affects the competition performance and velocity during second pull have positively and significantly affects the competition performance among the elite weightlifters.

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**30 – 31 July, 2020 at Department of Physical Education and sports Science,
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STRESS MANAGEMENT AND ITS VITAL IMPLICATIONS FOR SUCCESS IN SPORT

¹Dr. Ramesh Bapurao Kadam, ²Dr. Thakur Arjunsingh Narayansingh

¹Principal, ²Director

Physical Education & Sports

Rajiv Gandhi College Mudkhed, District Nanded M.H., India

Abstract:

The primary goal of stress management in sport is to allow the athlete to effectively regulate competition related demands to facilitate optimal performance as well as to enhance psychological well-being (PWB). There are numerous stress management techniques that can be classified into various heuristic categories. Effective stress management also needs to recognize the temporal aspect of the stress process. Stressful transactions in sport often involve anticipation, confrontation (engagement), and post engagement stages and can result in an athlete feeling overwhelmed. Stress management techniques can target specific stages or combination of stages. Stress management techniques can include any intervention that can modify one or more components of the stress process. Stress management techniques need to be directed at individual needs and the issue at hand, as well as take into account the coping resources the athlete has available. As with the acquisition of any skill, application of stress management techniques requires training, time, and practice. Knowledge is not sufficient, as it does not guarantee an athlete can apply the necessary skills or program to his or her specific issue. Application and practice are necessary, and effort is needed on the part of the athlete to make gains in stress management ability.

1. INTRODUCTION:

Stress management refers to the environmental, physiological, cognitive, and behavioral techniques employed by an individual to manage the factors and components that underlie the stress process or experience of stress. A primary goal of stress management in sport is to allow the athlete to effectively regulate competition related demands to facilitate optimal performance as well as to enhance psychological well-being (PWB). There are numerous stress management techniques that can be classified into various heuristic categories. Effective stress management also needs to recognize the temporal aspect of the stress process. Stressful transactions in sport often involve anticipation, confrontation (engagement), and post engagement stages and can result in an athlete feeling overwhelmed. Stress management techniques can target specific stages or combination of stages. Contemporary thinking in sport psychology (SP) conceptualizes stress as a complex dynamic transaction between environmental demands, such as those associated with high-level competition, and the athlete. Stress occurs when the demands tax or exceed the resources, such as skills or support, that the athlete has at his or her disposal. Since competitive sport is by nature demanding, how athletes evaluate and cope with the demands they encounter has a large impact on the stress process. The environmental demands, as well as internally generated demands from personal expectations and goals, are typically called *stressors*. Stressors can be acute, chronic, or intermittent, and they can also be expected or unexpected. Effective stress management also needs to recognize the temporal aspect of the stress process. Stressful transactions in sport often involve anticipation, confrontation (engagement) and post-engagement stages and can result in an athlete feeling overwhelmed. Stress management techniques can target specific stages or combination of stages.

2. METHODOLOGY:

Reviewing major research done in the field of stress management in sports and identifying the vital Types of Stress Management Programs and Techniques:

Reviewing procedure and discussion of various Stress Management Programs and Techniques: There are a number of stress management approaches in sport to deal with various components of the stress process. Some practitioners advocate a multimodal approach, which involves using different tactics thought to be more effective in combination. Others suggest focusing on the dominant stressor with a unimodal approach, which uses a singular,

focused intervention strategy. Multimodal approaches tend to be favored because of their effectiveness on a wide range of factors related to different elements of the stress process

Anxiety Management Training: Anxiety management training involves an athlete's learning to employ relaxation strategies under stressful or arousing situations, including those producing emotions such as anger and anxiety.

Applied Relaxation: The aim of applied relaxation is to learn the skill of relaxation and develop the ability to apply it rapidly where needed, in any situation. Connected to this approach are six stages. The first stage is progressive muscle relaxation, a technique where muscles are contracted or tensed and subsequently relaxed, which is used to help facilitate relaxation and help the athlete reduce somatic anxiety symptoms.

Arousal or Energizing Techniques: Some research suggests that athletes differ on the level of activation needed to produce optimal performance. Various levels of arousal are often conducive to high performance, and it is paramount that the athlete perceives the arousal as beneficial

Autogenic Training: Autogenic training, first introduced in psychiatry by Johannes Heinrich Schultz, involves a series of exercises designed to produce sensations such as warmth or heaviness, to help promote relaxation. The program is based on six stages, each with a separate goal.

Biofeedback: Biofeedback training (BFBT) can help control autonomic physiological stress responses, such as increased HR and BP. It also has been used to control anxiety disorders as well as anxiety connected to particular environments or contexts.

Breath Control and Deep Breathing: Breath control is a relaxation technique using the physical strategy of breathing. It is an effective and relatively easy stress management technique to apply. Irregularities in breathing, such as holding one's breath, hyperventilating, or random shallow breaths, can affect performance, potentially influencing coordination, focus, or rhythm, or can cause the athlete to feel unsettled, causing further stress.

Cognitive Affective Stress Management Training: Cognitive affective stress management training is one of the most comprehensive multimodal stress management programs used in sport. Originally designed by Ronald Smith, the program is designed to teach the athlete relaxation and cognitive skills that can aid in controlling physiological reactions and cognitive thought patterns. Intervention consists of both cognitive and physiological strategies, including relaxation skills, cognitive restructuring, and training that is self-instructed and targets the physical and mental reactions to stress.

Cognitive Control: Cognitive control involves changes to cognitions that trigger, maintain, exacerbate, or reduce the stress and emotion response process. Many cognitive control strategies were developed for cognitive therapy and help athletes understand how thought processes are involved in the experience of stress. Strategies to control unwanted or maladaptive thoughts include cognitive restructuring, positive thought control, and attentional refocusing.

Hypnosis: Hypnosis involves getting the athlete to an altered state of consciousness in which he or she is relaxed and where perceptions, feelings, thoughts, or actions can be changed through suggestion. Although still somewhat controversial and misunderstood, hypnosis has been employed with athletes to help reduce anxiety and manage stress, as well as enhance other mental skills, focus attention, and increase confidence.

Meditation: Meditation is another method of raising self-awareness, allowing an athlete to better manage stress. Through meditation, the athlete becomes more attuned to physical sensations

Performance and Competition Planning: Pre-performance and competition as well as performance and competition plans can help the athlete manage the stress that is inherent in competition. Such plans allow the athlete to take a proactive stance on stress, identifying ahead of time triggers of stress, and formulating a plan to counteract those issues. Planning allows many athletes to feel more in control of the situation and the self, thereby often decreasing further experiences of stress.

Self-Compassion: Self-compassion interventions can help prevent athletes from becoming overly self-critical. Based on the work of psychologist Kristin Neff, self-compassion has three key components. Self-kindness involves being understanding and accepting toward oneself in instances of adversity as opposed to being overly self-critical.

Stress Inoculation Training: Stress inoculation training (SIT), developed by Donald Meichenbaum, is based on the idea that if an athlete is exposed to stress and learns to cope or deal with that stress in amounts that increase incrementally, an increased tolerance to stress will be obtained. It is a multimodal approach using coping skills that include creating productive and adaptive thoughts, images, and self-statements designed to benefit the athlete's psychological state, as well as performance.

3. RESULTS, DISCUSSION AND CONCLUSION:

There are also other Associated Psychological Skills, such as imagery, identifying strengths, and goal setting that can be incorporated into stress management programs. Calming imagery, such as visualizing oneself in a safe, relaxing place, can be used to help reduce cognitive anxiety and arousal and to bring on physical relaxation. Conversely, imagery can be used to energize and motivate by visualizing more stimulating, exciting places or scenarios. Imagery is often incorporated into athletes' pre-performance and performance plans and routines. Identifying strengths can help refocus athletes' thought processes toward what they can do rather than what they

cannot do and assist in developing competition plans that maximize assets. Goal setting can help the athlete stay focused on the task at hand and keep attention on relevant issues. Stress management techniques can include any intervention that can modify one or more components of the stress process. Stress management techniques need to be directed at individual needs and the issue at hand, as well as take into account the coping resources the athlete has available. As with the acquisition of any skill, application of stress management techniques requires training, time, and practice. Knowledge is not sufficient, as it does not guarantee an athlete can apply the necessary skills or program to his or her specific issue. Application and practice are necessary, and effort is needed on the part of the athlete to make gains in stress management ability.

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**PHYSICAL EDUCATION AND SPORTS PROGRAMMES IN
SCHOOLS: TOTAL HEALTH SYSTEM FOR HEALTHY LIFE
STYLE**

PROF. RAJENDRA S. RAYKAR

Director of Physical Education,
D.Y. Patil College of Engineering and Technology,
Kolhapur (Maharashtra)

1. INTRODUCTION:

Physical Education is an indispensable of education as it contributes to the health, to the emotional and mental development of an individual. In the modern era we cannot undermine the importance of relationship between general education and physical education. These are complementary and supplementary to each other. Their aims and objectives lead towards common goal—the all round development of personality, enabling the man to lead enriched, abundant and harmonious life. Therefore, physical education is an integral part of general education and their relationship cannot be ignored. They are inter-related and inter-dependent, and constitute an indivisible whole. Physical Education as an integral part of all educational programmes, deserves to be appreciated. The outcomes of these programmes extend much beyond the horizons of keeping fit and healthy. They become positive inputs for the development of multiuse proficiencies, neuro-muscular skills, values and attitudes, which have great potential as foundations for success in life. Activities like rhythmic, expressive movements, dance, mass-drill, flag salutation and singing of the National Anthem do in the course of celebrations of national days and other events certainly go a long way in strengthening national integration. It helps students to realize and appreciate the contributions of these activities in physical, mental, moral, social and emotional development.

Significance of the Study:

The study is to determine the physical education and sports programmes in schools is total health system for healthy life style.

The Main Objectives of Physical Education Programmes are:

- To develop the concept of good health, physical fitness, grace and poise.
- To develop healthy habits relating to sleep, food exercise and hygiene.
- To develop neuro-muscular coordination(bodily skills)
- To develop attitudes and values of cooperation, sports manliness, fair play and team spirit.
- To develop traits of character such as discipline, courage, self- confidence and a sense of responsibility.
- To develop the ability for making an enjoyable use of leisure.
- To promote talent in sports and to achieve international standards.

Free Movements: Movements like walking, running, jumping, throwing are a part of movements education. For free movements and for exploration some improvised gadgets like hoops, old tyres, old boxes, old chairs, obstacles (prepared or existing) could be used. These activities facilitate free exploration, contributes to poise and body coordination and above all provide fun and enjoyment.

Rhythmic: Dance and action songs come under this category. Dance is an excellent medium of free healthful activity through which students can express their emotions. They are – various stimuli for dancing are necessary at this stage. These may be provided by audio-stimuli for dancing are necessary at this stage. These may be provided by audio-stimuli like mouth sounds, clapping, drums and also visual stimuli like demonstration, community songs and some other poems and songs selected from language readers. Examples group dance, action songs, flag drill etc., these activities help develop an agile body, balance and physical poise, graceful movements, a sense of rhythm and above all they yield joy and satisfaction. Imitation,

Story, Plays and Mimetic: Enacting a story with appropriate movements is not only highly interesting but also offers wholesome exercise. Examples of imitation exercises could represent elephant, frog, rabbit, lion, train, motor car, washer man, rickshaw puller, beggar, doctor, old man, ball-catch and throw etc., imitating people the children know and watch, viz., grandmother, mother, teacher which is a very enjoyable exercise. Examples of mimetic could be horse gallop, bell-ringing etc., Story plays like fox and grapes, thirsty crow, visit to a circle, trip to a forest etc., could be enacted. These activities help develop creative self – expression, formation of concepts regarding form, size etc., ability for expression through modes other than the word of mouth that yield joy and fun.

Small Area Games: These are simple games played within a small area involving running, chasing, dodging etc., students could play these individually, in pairs or in groups. The interest of children could be sustained for a very long time through them. Lion in the well, follow the leader, thief and the Policeman etc., such games provides exercise to various muscles, help develop physical strength and neuromuscular coordination, foster a sense of cooperation and have fun and enjoyment.

Gymnastics: Physically activities of this type should be so selected that the children, of the age-group in question, are able to perform without any special equipment, rabbit jumping, displaying the postures of standing, sitting lifting bending and stretching, forward, backward roll, monkey walk, cart wheel, wheelbarrow, shoulder roll, balance walk etc., Gymnastic activities help in body control and neuro-muscular coordination skills. They also impart strength, suppleness and balance to the body.

Simple combative: Simple combative like pushing, pulling, toppling help children in sublimating their aggressive drives and desires. Examples: drake fight, cock fight, lame duck fight, hand wrestle, pushing off the bench or the stool, stepping on toes, knee slap etc. These activities help children to know about their strength in relation to others and help develop courage and self confidence.

Calisthenics: These are exercise without apparatus. They involve continuous movements of the head, arms, trunk, and legs without any rigid positions being held. These developmental exercises have to be done in a formal prescribed way for a sufficiently long time. These are normally 6 to 8 exercises of 2 to 4 counts for this age-group. Calisthenics help develop coordination of bodily movements leading to the growth and development of the body and better postures.

Athletics: Athletics play an important role in the programme of physical education. Activities in this area involve movements of running, jumping and throwing which are measurable and hence comparable. A healthy competition can be fostered through these activities because achievements can be measured and tested objectively where even an individual can compete with himself. Examples: Short Spirits (25 M), hopping (25-50 M), Endurance (200 M), throwing a cricket ball or football, jumping for distance and height. Athletic activities help develop fundamental motor skills, contribute to physical fitness and open up avenues for competition.

Games: Games though important in their own right, have to be suggested with the full awareness of the fact that, playground facilities and specialist coaches or instructors are not available in many schools. Children may be offered opportunities for playing “lead-up” games leading them finally to major games. Next, they may be encouraged to learn and practice a few fundamental skills and finally, to play the games in the modified simple form. An exposure and opportunity is expected to finally enable students to select the games of their choice. Games help children to develop the ability to participate in their choice. Games help children to develop the ability to participate in vigorous activities, to learn new skills, to cultivate an interest in games and to derive fun and enjoyment. Relays constitute a commonly practiced form of games. They could be simple relays, zig-zag relays, hop and run, potato race, three legged race, jumping over the stick etc., Lead up games are miniature forms of big games. In lead-up games of football or hockey, for example, there could be a small field with say 5 yr. 5 players. In a lead-up cricket children may play tennis ball cricket etc.,

Yogic Exercises: Yoga is an Indian contribution to the field of Health Education. Yogic asana be performed in a calm atmosphere, produce desirable effects on the body mind and are an excellent carry over activity. It will develop the ability to concentrate, has a carryover effect for it contributes to physical fitness and is now being increasingly used for therapeutic to cure a number of ailments. Asanas, in which students could be trained at this stage, are Swastikasana, Veerasana, Bhujangasana, Ardhashalabhasana, Utkatasana, Tandasana, Vrikshasana Padahasthasana and Shavasana.

Drill and Marching: Drill and Marching are to be introduced at this state as a compulsory activity. They develop uniformity in orderly move sense of discipline and enable to formation of a habit for maintaining good posture leading to proper and effecting control of the body.

Swimming: Very few schools have swimming pools. However, whenever, natural facilities like a river, a sea, a pond is available nearby, swimming could be made a core programme. Children ought to be encouraged and guided to get over the fear of water through confidence drill consisting (step-by-step) of:

Walking in waist deep water.

Jumping on the spot, back and forth and opening the eyes in the water. Practice of aquatic breathing with the face above the water level, breath in through the mouth and breathing – out through the nose.

Floating with the support of a partner-holding the partner's waist stretched in a horizontal position.

Once the floating skill is achieved, an attempt should be made to introduce the free style, breast stroke, and the butterfly stroke.

The basic skill to be acquired for all the strokes should be:

Body position (horizontal)

Leg action

Arm action

Breathing

Coordination

Swimming leads to the removal of the fear of water, helps develop Confidence, fun and pleasure.

2. DISCUSSION OF THE STUDY:

Scientists and doctors have known for years that substantial benefits can be gained from regular physical activity. The expanding and strengthening evidence on the relationship between physical activity and health necessitates the focus of the study brings to this important public health challenge. Although the science of physical activity is a complex and still-developing field, we have today strong evidence to indicate that regular physical education & sports will provide clear and substantial health gains. We must get serious about improving the health of the nation by affirming our commitment to healthy physical activity on all levels: personal, family, community, organizational, and national. Because physical activity is so directly related to preventing disease and premature death and to maintaining a high quality of life, we must accord it the same level of attention that we give other important public health practices that affect the entire nation. Physical activity thus joins the front ranks of essential health objectives, such as sound nutrition, and the prevention of adverse health effects of tobacco. The effort to understand how to promote more active lifestyles is of great importance to the health of this nation. Although the study of physical activity & sports determinants and interventions is at an early stage, effective programs to increase physical activity have been carried out in a variety of settings, such as schools, physicians' offices, and worksites. Determining the most effective and cost-effective intervention approaches is a challenge for the future.

3. CONCLUSION:

Opportunities ought to be provided to the children for learning and practicing the skills and playing the games with suitable modification in the school, as physical education is the integral part of the educational programme. The programme aim at promoting the development of the body and the mind and also develop the qualities in children that are essential for a happy and well adjusted for health and healthy life style in a free and democratic world. Therefore, it can conclude that, there activities can develop the total personality of the child, to its fullness and perfection total health system for healthy life style.

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YOGA FOR SPORTS PERFORMANCE

¹Babita Biswas, ²Dr. Nita Bandyopadhyay,

¹Research Scholar, ²Head & Director

Department Of Physical Education, University Of Kalyani, W.B.

Email- ¹babita2016biswas@gmail.com ²nitabandyopadhyay@gmail.com

Abstract:

Back ground : Yoga is a discipline that seers and saints have been practicing since ancient times to bring flexibility to the spine and joints, to keep the muscle of the body pliable and youthful, to increase circulation in arteries and strengthen internal organs. Yoga is an ancient art, harmonizing of development for the body, mind and spirit. In Sports it is generally seen that Sports persons get injured frequently due to improper flexibility, coordination and improper relaxation after their work-out. **Purpose:** The purpose of the present study was to observe the effect of selected yoga practices on sports performance. **Methodology:** A comprehensive search on open access articles including PubMed, Google scholar, Sodhganga, researchGate, Book, etc were done. Total 75 articles were reviewed and among them 26 articles were selected based on Yoga on Sports performance. Other articles found non-relevant to the present study were excluded. **Result and Discussion** Articles were critically reviewed and It has been observed that yoga is a great tool for Sports persons to perform better. Practicing yoga offers a number of physical, emotional and psychological benefits. An intelligent yoga practice may increase mental concentration and significantly reduce the level of stress and anxiety. Yoga practice is also most beneficial in eliminating muscle stiffness, improving coordination and in preventing and curing injuries.. The stretching and breathing practices of yoga help the Sports persons and athletes to improve their performance and to maintain their fitness. **Conclusion:** Practice of different form of yoga significantly increases the physical, mental and emotional energy, which helped in better concentration and endurance. Moreover Relaxation technique allows body and mind to recover from fatigue and weakness and had a significant impact on mind calmness.

Key Words: Yoga, Asanas, Pranayam, Meditation , Health , Sports Performance.

1. INTRODUCTION:

Swami Sivananda highlights that steady and systematic practice of yoga will ‘make the mind very obedient and faithful’ and make the practitioner ‘successful in every attempt’. Practice and Exercise are two different terms. Exercise means activity carried out to sustain or improve health and fitness and practice means habit or custom. Practice is needed to achieve good physique by qualitative exercise. Practices, which prevent physical and protect the body for sound functioning are termed as yoga. Yoga is a timeless pragmatic science evolved over thousands of years dealing the physical, mental, moral and spiritual wellbeing as a whole. Body, mind, spirit are the three basic components of yogic practices, that leads to a spiritual individual. The word Yoga is derived from the Sanskrit root ‘yuj’, meaning to bind, join, attach to ‘yoke’. In the practice of yoga, according to Indian philosophy it is self-development and self-realization as well. The importance of yoga for the attainment has been recognized throughout the ages by all the systems of Indian philosophy (Mishra, 2001)

Today, the increasing popularity of yoga is very much clear to us because of its possible application in various fields of human interest, i.e. health, cure and prevention of sports injuries. Sports performance, body relaxation and above all, the development of physical fitness are the key prerequisite factor for performance in different Sports activities (Mishra, 2001). As far as physical body of man is concerned many studies show that

the practices of yoga make the body strong, flexible and improves performance. Similarly, in terms of physiology, it improves cardiovascular fitness. As far as psychological aspect is concerned among Sports persons. Yoga practices give mental equilibrium to an individual or Sports persons. Udupa, et al., (2003) have made a examined on Pranayam training on cardiac function in normal young volunteers; and found potential benefits of Pranayam in maintaining good health and in fighting diseases. (Manjunath and Telles 2003) have studied the effect of Sirsasana practice on autonomic and respiratory variables and observed the practice of Sirsasana causes sympathetic activation. (Maity and Samanta, 2001) found significant effect of yogasanas on developing motor fitness in late childhood period. Tiken, et al., (2002) reported that yoga practice improves motor abilities, which lead to improvement in performance. Giri (1966), Giri and Prokash (1988) and Bera (1991) have also reported that yogic training improves the physical fitness as well as performance. Similarly, Gharote (1973) and others have found significant results with short-term yogic practices on more improvement of physical fitness and motor abilities too for the different age groups. So, the present paper investigates experimental studies based on some of yogic practices, by which athletes and sports person can improve their physiological and psychological benefits.

2. METHODOLOGY:

A comprehensive search on open access articles including PubMed, Google scholar, Sodhganga, Researchgate, books, etc were done systematically. A Total 75 articles were reviewed and among them 26 articles were selected based on Yoga on Sports performance. Other articles found non-relevant to the present study were excluded.

3. OBSERVATION:

Yogic Practices and Sports

Yoga is the application of physical postures, control of breath, purification to achieve and maintain the required physiological and psychological fitness in Sports, there are mainly three basic practices in yoga --- Asana, Pranayama, Meditation.

ASANA

Asana is one of the parts of yoga. According to patanjali; stable and happily posture/state of the body is called yogasana. Asana also help to create harmony and balance between the mind and body and help to achieve a healthy body and stable mind. Babu, et al., (2011) studied the effect of yogic practices on selected physiological variables of men hockey players and found that yogic practices group significantly improved cardiorespiratory endurance, breath hold time and significantly decreased resting pulse rate when compared to the control group. Singh, et al., (2011) assessed the effects of 6-weeks yogasanas training on agility and muscular strength in sportsmen and found that the agility and muscular strength significantly improved in experimental group compared with the control group. The yoga asana training may be recommended to improve agility and muscular strength and may contribute to enhance sports performance. In present days many famous players have practiced yoga for achieving highest level of perfection in their career. In this connection we found that Sachin Tendulkar had practiced under guidance of world famous yoga teacher BKS Iyengar (Times of India, News).

SURYANAMASKARA

Suryanamaskara comes under asanas, and includes 12 different postures, which consists of 8 asanas. Fondran (1992), conducted a study on the effect of Surya Namaskara yoga practice on resting heart rate and blood pressure, flexibility, upper body muscle endurance and perceived well-being in health, found that Suryanamaskara help in increasing hamstring flexibility and in improving upper body muscle endurance. Bhutkar, et al., (2008), worked on Effect of Suryanamaskara practice on Cardio-respiratory Fitness Parameters and found that suryanamaskara practice can be advocated to improve cardio-respiratory efficiency for healthy individual. Tomar (2013), investigated the Effects of Suryanamaskara on Selected Physiological Variables of Paramilitary Forces Sports person, where suryanamaskara was considered as the independent variable and blood pressure, pulse rate, BMI and breath holding capacity were considered as the dependent variable. He found the effect of suryanamaskara in relation to Blood pressure, Pulse rate and Breath holding capacity. In case of BMI no significant difference was found.

PRANAYAMA

Swami Vishnudevananda mentions that through pranayama will-power, self-control and concentration power can be increased. Pranayama is a part of yoga. Pranayama is an ancient yoga technique. The regular

practice of pranayama integrates the mind and the body. Shankarappa, et al.,(2012), worked on Short Term Effect of Pranayama on the Lung parameters, and found that the pulmonary function was improved after Short term pranayama practice. A study by Bhargava, et al., (1988) showed a Statistically significant increased breath holding time after the pranayama practice. Another study by Upadhayay, et al., (2008) in which pranayama practice was conducted for a duration of 4 weeks and revealed increased peak expiratory flow rate. Bhavani, et al.,(2014) observed that pranayama caused immediate and significant reduction in the auditory and visual reaction time, indicating an improved performance an enhanced processing ability on central nervous system. Rabindra, et al., (2005) conducted a study on patients with premature ventricular complexes (PVC) and episode of palpitations, found that pranayama produced an immediate relief in the palpitation and PVC. This improvement could have been because of the reduction of the sympathetic reactivity which was attained by the pranayama training.

MEDITATION

“Peak performance is meditation on motion” is a revealing quote by the Olympic championship diver Greg Louganis which nicely incorporates the crucial role of meditation in “making the mind quite” for many athletes. Meditation is a practice in yoga, which initially starts turning of the senses (PanchIndriya) inward from outward which leads to developing the creative aspects through concentration. From a recent survey , it seems that athletes perceive meditation as an important means for enhancing sport performance, the higher the level of sport proficiency, the more important mediation seems to cope with to reduce anxiety levels Kudlackoa, et al., (2013).

Furthermore, several studies had revealed that long-term mindfulness meditation practice enhances the experience of flow , which consists of the absence of negative thoughts and a feeling of enhanced physical and psychological functioning (Kee and Wang 2008., Bernier, et al.,2009., Kaufman, et al., 2009., Scott-Hamilton et al., 2016., Zhang, et al., 2016). Related to it , in a seminal study, Jhon, et al., (2011) found decrements in cortisol levels (stress hormone) in a group o f elite Shooters who underwent a training of 5 weeks mindfulness meditation and it was found to be effective in achieving optimal athletic performance by decreasing the level of anxiety, ruminative thing and enhancing the experience of flow (Birrer, et al., 2012 and Pineau et al.,2014).

4. RESULT AND DISCUSSION:

After the critical analysis of each article, it has been observed that yoga is a great tool for the Sports persons to perform better.. Yoga practicing offers a number of physical, emotional and psychological benefits. An intelligent yoga practice may increase mental concentration and significantly reduce the level of stress and anxiety. Yoga practices are also observed most beneficial in eliminating muscle stiffness, improving coordination and in preventing and curing injuries.. The stretching and breathing practices of yoga help the Sports persons and athletes to improves their sports performance and to maintain their fitness. Balaji, et al., (2012) conducted a study on Physiological Effects of Yogic Practices and Transcendental Meditation in health and Disease and found that there were considerable health benefits, including improved cognition, respiration, reduced cardiovascular risk, body mass index, blood pressure.

5. CONCLUSION:

Finally from the present study , it may be concluded that combined approach of different form of yoga (Asanas , Suryanamaskara , Pranayama , and Meditation) significantly increase the physical, mental and emotional energy, which in turn develop better concentration and endurance. Moreover relaxation technique allows the body and mind to recover from fatigue and weakness and had a significant impact on mind calmness.

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**“THE PLACE OF HEALTH, YOGA AND PHYSICAL EDUCATION
COURSE IN THE SECONDARY TEACHER EDUCATION
PROGRAMME CURRICULUM OF MANIPUR”**

¹B. Mercy Vahneichong, ²Dr. Lamalu Thaimei

^{1,2}Assistant Professor,
Dept. of Teachers education
Manipur University
Dept. of ACEE, Manipur University

Abstract:

In the midst of Covid-19 pandemic the importance of good health become more pronounced especially amongst the adolescent who are categorically placed in the 4-years secondary stage of national pattern of education. Therefore, There is a need to relook on the curriculum of secondary education programme in Manipur to check whether the knowledge areas related to health, yoga and physical education has been incorporated and if so, to further check on the place of health, yoga and physical education course in the Secondary Teacher Education Programme Curriculum Of Manipur so that, whatever objective related to health yoga and physical education enshrined in the curriculum of secondary education programme are expected to be put into practice by the trained teachers as recommended and the health of the student community of the secondary stage who are the future citizen of democratic society of the state of Manipur are least affected. This paper is a humble attempt to highlight The Place of Health, Yoga and Physical Education Course in the Secondary Teacher Education Programme Curriculum in the context of Manipur

Key Words; NCF, NCTE, STEP, Adolescent, Health, Yoga, Physical education.

1. INTRODUCTION:

“He who has health has hope; and he who has hope has everything”.

Thomas Carlyle

Health is define as “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”

–WHO constitution

‘Yoga practice contributes to the overall development of the child and various studies have shown that it contributes to flexibility and muscular fitness and also corrects postural defects among school- children (Gharote, 1976;Gharote, Ganguly and Moorthy,1976; Moorthy,1982). In addition it plays an important role in improving cardio-vascular efficiency and helps to control and reduce excessive body fat while contributing to the overall physical and health related fitness (Ganguly,1981; Bera,1998;Ganguly, 1989; Govindarajulu, Gannadeepam & Bera, 2003;Mishra, Tripathi & Bera, 2003). Apart from contributing to physical fitness, yoga also contributes to improving learning, memory and dealing with stress and anxieties.

Physical education similarly have positive impact on individual self-esteem, promotes better interaction among children, imparts values of co-operation, sharing and to deal with both victory and defeat.

To produce learned and informed citizen in a democratic society like ours the curriculum holds a significant degree of responsibilities. In 1964, The Government of India appointed the first education commission under the chairmanship of Prof. D.S. Kothari, the then chairman, University Grant Commission to advise the Government on the national pattern of education and on the general principles and policies for the development of education. The Commission recommended common national pattern of education and accordingly 4 (four) -years of secondary education were suggested for the age group of 13-16 years categorically. This age group is a transitional stage between childhood and adulthood and often falls in adolescence period. The period is characterised by rapid acceleration of growth and changes in appearance and

functions of the body associated with the onset of puberty. They are very adventurous, full of energy, curious to know the world around them and longed to be accepted and loved by society. This period is also often termed as a stressful period of life. Yet they enjoy physical activities as dance, games and sports and yogic exercises. Taking this fact into consideration, the commission recommended embedding yoga and physical activities into the regular curriculum containing the disciplinary content knowledge areas for secondary education to ensure the maintenance of good health which can improve academic performance too. Thereby, facilitate in attaining holistic development of the adolescent. Mahatma Gandhi rightly stated Education is a tool to draw out the best in a person's body, mind and spirit and it is naive to say that best in the person will be drawn out if the person is unhealthy. Manipur a small and beautiful corridor to South-East Asian countries imparted Physical education to the youths in a systematic way since the days of king Pakhangba (33 A.D.) They started the provision of giving secondary education in 1921 under the Pioneerism of the colonial rulers by upgrading a Middle school into high school. Initially higher secondary schools exist in two forms the first category has 3-years (IX X XI) and the second category has 4-years course that is classes (IX X XI XII). The schools could provide opportunity for further studies to well performing students, but cannot accommodate the rest. This necessitate the establishment of more secondary schools so, the locals of Manipur took up the initiative of establishing a private school at Imphal in 1931. In 1934-35, there were 4 high schools and the enrolment in the school was 770 students. Which highlight the increase in enrolment over the past years. The local people as they took donations from different people including Princess Tombisana Devi for the construction of the school building so, in 1936 the school was named after her as she made huge contribution for the construction of the school building. The outbreak of the second world war (1939-1945) struck a heavy blow on the progress of secondary education in Manipur'. After Indian independence, during five year plan periods various programmes were taken up for the development of secondary education in Manipur thus, it was rapidly expanded as shown by the year wise enrolment figures;

Year	School	Enrolment
1947	6	3705
1972	130	40755
1979-1980	264	70740
2013	924	74192

Source; Devi, .J.(1989) *Education in Manipur and RMSA, Manipur 2013*

In 1972 Manipur became a full fledge state of India where the state then provided secondary education in the high schools classes IX and X, and higher secondary classes XI and XII.

In 1973 secondary education Act of Manipur was passed and under this Act *The Board of Secondary Education, Manipur* was set up to regulate, supervise and develop secondary education in the state.

1.1. OBJECTIVES:

- Find out the place of health, yoga and physical education course in the STEP curriculum of Manipur
- To find out the difficulties in imparting health, yoga and physical education in the STEP curriculum of Manipur
- Suggest alternative means to address the said grievances

2. METHODOLOGY

The method adopted for the present study is Document analysis

3. DISCUSSION:

Place of Health, Yoga and Physical Education in Secondary Education Curriculum of Manipur

The objectives of secondary education in India as recommended by the *Secondary Education Commission 1952, and the recommendations made by Education commission of India (1964-66)* were followed on the whole by *The Board of Secondary Education, Manipur*, who formulated the secondary education curriculum in 1980 on the basis of the framework drawn by the NCERT along with the modifications made by the *Patel Committee*. Where the objectives pertaining to development of personality and qualities of leadership in the learners reflected the need for games, sports and athletics for the maintenance of physical fitness amongst adolescent.

To achieve the above objectives the following subjects of studies are frame for Secondary Education;

1. Language
2. Social science
3. Science

4. SUPW

5. *Physical and Health education*

6. One of the following; fine arts, music, dance, home science, Urdu, Sanskrit, old Manipuri, commerce, economics, higher mathematics.

New syllabi on the above subjects were prepared by the Secondary Board of Education, Manipur. Text books were written based on the new syllabi. The new text books have been introduced in the schools of Manipur from the year 1984.

In 1988, NCERT prepared a Curriculum Framework for Elementary and Secondary Education where **Health, Physical Education and Sports** should be an integral part of the learning process and be included in the evaluation of performance. The NCF 2000 recommended that **physical education** should include more rigorous activities including indigenous games, gymnastics, yogic exercises, meditation, combatives, judo and swimming. The NCC and social service should be encouraged in addition to the compulsory programmes of physical education. In classes IX and X, health education should enable the pupils to learn, comparatively in more detail, about personal health, environmental health, food and nutrition, control of diseases, consumer education, first aid, home nursing and safety measures. NCF 2005 also recommended that **health and physical education** form critical components of school curriculum. It also pointed out that the subject of **health, yoga and physical education** must be joyful and therefore more participative in nature. The school timetable needs to accommodate this for a minimum of half an hour a day. A relook on the secondary education curriculum of Manipur indicates that the **Physical and Health Education** has been considered as subject of studies following the recommendations made by national curriculum framer.

Even after the realisation of the importance of Health, Yoga and Physical Education At Secondary Education. Yet, it has been given a secondary status owing to the traditional mindset, giving due importance to some knowledge areas only coupled with the negative attitude meted out by administrators and concerned authorities as it demands physical space and material equipments in schools. Outdoor and indoor facilities coupled with proper ventilation and sanitation in the classroom and school premises and that the doctors and medical personnel visit the school regularly, which require financial involvement. Thus, this subject area though given the status of a compulsory subject, from primary to secondary stages and as optional subject at the higher secondary stage in real terms is treated as an area less important than the core subjects. The time allotted itself speaks a thousand words There was a strong feeling that the achievement of students in this subject must be rated like other subjects particularly at the secondary stage, in order for it to receive the needed priority. Agarkar 1947, pointed out that the dance movements help the participants in achieving neuro-muscular co-ordination as dance influences neuro-muscular movements and it overcomes the trouble of training in physical education.

The Need of Secondary Teacher Education Programme for Health, Yoga and Physical Education Course, Teacher

As it was realised that one important reason for the ineffective transaction of this area in schools is primarily due to non-availability of trained teachers, In order that this subject gain the status equal to core subjects in the curriculum NCF 2000 encourage the provision for separate teacher and classes for this course. And NCF 2005 makes it mandatory for all educational institutions to appoint trained and qualified teachers in health, yoga and physical education as the human resource dimension is critical for both yoga and physical education. Efforts must be made to involve and utilise the services of other teachers who have interest, aptitude and expertise in this subject. In addition parents, alumni, local sports veterans, recognised specialised NGOs having the required expertise and trained medical practioners to strengthen the human resources. The number of teachers should be proportionate to the number of students and these teachers should be fully at par with other regular subject teachers. Teacher preparation for this area needs well planned and concerted efforts at different levels. It should be mandatory and refresher courses must be made available for in-service teachers at least once in five years for their professional growth with appropriate incentives.

The Place of Health, Yoga and Physical Education Course in the Secondary Teacher Education Programme Curriculum of Manipur

Manipur and Tripura were two top ranking among smaller states in India in terms of incremental performance next to Mizoram (first in overall performance) despite Low level of economic development as per the first round of report of health index- 2017 “Healthy states, progressive India” with an objective to release a composite health index based on key health outcomes and other health systems and service delivery indicators and generate health index scores and rankings for different categories of the states and UTs based on incremental performance and overall performance. This is a good lessons that the people of Manipur can set an example to promote positive competition and learning among the states and UTs to build a healthy youths for progressive India even with low economic involvement.

History itself is an evidence to reflect the importance the people of Manipur felt for physical fitness. Mention may be made of indigenous games as khong kangjei, mukna, yubi lakpi, kang sanaba and dancing which are part of physical education that have been imparted since the time of king Pakhangba. Thus, the Sanaleibak (Manipur) is recognised as being the power house of India in the field of games and sports despite its tiny size, it has produced numerous national and international levels sports personalities. It may be the largest single contributor in the Indian armed forces and Indian sports in ratio despite its size. Against the backdrop of National Curriculum Framework-2005, NCTE has also developed NCFTE-2009. It has recently notified in NCTE regulations, 2014, to revise all teacher education curriculum and the above developments on renovating curriculum for school and teacher education are necessarily mean to cope with the developments in global situations on education by addressing the special curricular issues and quality concerns in secondary education. The curriculum framework developed by NCTE for two-year B.Ed. programme 2014 comprises of three broad curricular areas-

- perspective in education
- curriculum and pedagogic studies
- engagement with the field

The course Health, Yoga and Physical Education which is directed to be in the purview of curriculum and pedagogic studies is placed under perspectives in education as PE 04 and becomes a core curriculum for semester II, as the importance is greatly felt with a marks carrying 10+40 =50 (internal +external=total). Contact hours/week =1hour (lecture-cum-discussion) 2hours (practical session for 1 day)

The course objectives are enumerated as below to enable student-teachers to;

- develop an understanding of Yoga and the skills and competencies for practicing yoga
- establish a perfect co-ordination and harmony between the body and the mind
- develop an understanding of different types of exercises and their effects on the body systems
- Develop positive attitude towards exercise and health
- Develop nutritional awareness among the students
- Develop an understanding of health education and provide general health awareness to the students
- Provide knowledge concerning prevention of general diseases and other such as HIV/AIDS
- Develop an understanding on the importance of personal hygiene
- Develop skills in organizing physical education programme in schools
- Acquire of skills of various indoor and outdoor sports events
- Acquire basic skills of first aid and
- Acquaint with the first aid measures and emergency responses required for common injuries.

In order to achieve these objectives the course is divided into 3 units with sessional works and the mode of transaction should be lecture, lecture cum discussion, demonstrations, practical.

There are 15 –Secondary Teacher Education Programme Institute in Manipur affiliated to Manipur University and recognised by NCTE till 2019 as given in the following table;

Sl/no.	Name of institute	Management
1.	DMCTE	State govt.
2.	Hindi teachers training	State govt.
3.	Kanan Devi	Private
4.	Thokchom Ibotombi Institute of teacher educationa nad training	Private
5.	R.K. Sanatombi	Private
6.	Trinity teacher training college	Private
7.	IRE	Private
8.	Slopeland College of Teachers education	Private
9.	Ibotombi institute of education	Private
10.	DTE, MU	Central Govt.
11.	S. Kula college of Education and Training	Private
12.	The Ideal Teachers Training Academy	Private
13.	Mount Everest College of Teachers education	Private
14.	Bethany Christian College of Teachers Education	Private
15.	T.C. college of Teachers Education	Private

Source; NCTE

All this institute follow religiously the course curriculum prescribed by Manipur University.

The marks allotted for The course Health, Yoga and Physical Education is 50 out of 400 for semester II yet it is considered as a core curriculum which implies the course holds an equal status to other core curriculum. In the context of Manipur, health is considered as wealth. So this course occupies a special place in the curriculum.

Difficulties in Imparting Health, Yoga and Physical Education Course in The Secondary Teacher Education Programme Curriculum Of Manipur

Physical space and material equipment's at institute for outdoor and indoor facilities coupled with proper ventilation and sanitation in the classroom and school premises is one factor which most of the private institute find it hard to afford. And another factor is the time allotted for the course. As the secondary teacher education programme is non residential programme in Manipur and all students are day scholars so it becomes difficult for student teachers to reach the premise of the institute early morning for the course which involved practical as it generally involves physical activities which make them tired and exhausted though they enjoyed a lot.

4. FINDING:

1. Physical education despite NCTE regulations 2014 to places as an optional course has been placed as a core curriculum under perspective of education.
2. Despite the difficulties in managing the course as it demands heavy financial involvement, the course is taken up as core curriculum which reflected the positive attitude of Manipuri people towards healthy living thus become the 2nd top ranking among smaller states in India in terms of incremental performance next to Mizoram under the theme "Healthy states, progressive India"

5. SUGGESTION

- As pointed out by Agarkar 1947 dance can also be incorporated as a unit of the course Health, Yoga and Physical Education to overcomes some of the trouble of training in physical education.
- There is a need to sensitised the administrators about the importance of the course health, yoga and physical education and that all teacher educators can extend co-operation in organising yoga and physical education this will build healthy relationship amongst educators and administrators too
- Residential Secondary teacher education programme may be instituted so that the course prescribed in the curriculum is more intensively put in to practice.

6. CONCLUSION:

Adolescents are future of the society. Their health conditions need to be understood at length and breadth so that their energy is rightly channelled. For this purpose the curriculum framers need to seriously take the course health, yoga and physical education and invest on it ignoring the monetary involvement and also by giving proper pre-service and in-service training to the teachers for drawing out the best in them and become skilful in this pedagogy and help the society in building a healthy state for progressive Manipur.

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A STRUCTURAL EQUATION MODELING OF ADULT SUICIDAL IDEATION

¹Mayanglambam Banita Devi, ²Salam Shantikumar Singh

^{1, 2}Department of Statistics, Manipur University,
Canchipur, 795003, Manipur (India)

Email: ¹mbanitadevi@gmail.com, ²shantikr@manipuruniv.ac.in

Abstract:

A sample of 225 under-graduate students from Pachhunga University College, Aizawl, Mizoram (India) had been selected to study the adult suicidal ideation. The Likert scale of measurement was used to convert the qualitative answers of the respondents into quantitative measures. The 5-point Likert scale of eight items for FSS (functional social support), 5-point Likert scale of 24 items for SPS (social provision scale), 3-point Likert scale of 10 items for PSS (perceived stress scale) and 3-point Likert scale of 21 items for BDI (depression inventory) were administered to determine the adult suicidal ideation (ASI) which is measured by 7-point Likert scale of 25 items. The structural equation modeling (SEM) was used to establish their interrelationships between them and to measure the effects of FSS, SPS, PSS and BDI on adult suicidal ideation. The finding from CFA shows the positive relations between FSS & SPS, between PSS and ASI, between PSS and BDI, and between BDI and ASI. However, the relationships between FSS & ASI, SPS & ASI, FSS & PSS, SPS & BDI, PSS & SPS and FSS & BDI are negatively correlated. From SEM, it is observed that BDI & PSS have significantly and positively influenced on ASI but SPS and FSS have negatively influenced on ASI.

Key Words: Adult suicidal ideation, confirmatory factor analysis, structural equation modeling, functional social support, social provision scale, perceived stress scale and depression inventory.

1. INTRODUCTION:

In recent years suicide has been recognized as major public and social health problem in countries throughout the world. Suicide is an example of an individual behaviour influenced by social integration, the extent of which the people in a society are bound together in social networks. Thus not only individual factors but also a range of social factors should be considered in attempts to explain suicide and suicidal behaviour. A number of studies mainly focused on completed suicide and suicide attempts. Yet there has been growing recognition of suicidal ideation as an important process in suicidal action. Suicidal ideation precedes suicide planning, which may result in an attempt leading to death. Thus, ideation should be understood as an important phase in the suicide process, preceding suicide attempts and completed suicide. The suicidal ideation shares many risk factors with suicidal attempts and completed suicides in general population. The risk factors include mood disorders (depression), low level of social supports, low self-esteem and negative life events, lack of reasons for living, higher than average life stress, relationship, low income, marital status, unemployment, low level of hope and poor self perceived health. On the other hand, protective factors of suicidal behaviour in the general population include social support, self-appraisals, self-continuity, drawing a religious and moral beliefs, connecting with family and peers, a sense of belonging, and a sense of coherence. The major risk factors contributing to suicide are prior attempts and deliberate self harm, mental illness, depression, psychotic disorders, conducts & personality disorders, neurobiological factors, drug and alcohol abuse and social factors such as social adaptability, relationships, childhood abuse and sexual assault, unemployment, rural communities, high risk groups (males over 80 years, homeless, HIV/AIDS patients, people in custody etc.).

2. REVIEW OF LITERATURE:

Previous study (Xu et al. 2016) suggests that mentally ill was associated with suicidal ideation and it was directly as well as indirectly mediated by social isolation. More stigma stress was related to social isolation which in turn was associated with low self-esteem, depression and suicidal ideation. And social isolation fully

mediated the link between stigma stress and suicidal ideation. Perceived parental love and family structure were not associated with suicidal ideation regardless of whether or not children lived with two biological parents during childhood, individuals who perceived love from caregivers during childhood had significantly lower the lifetime suicidal ideation than those who did not perceive support from caregivers (Susukida, Wilcox, and Mendelson 2016). As suggested by Qin (et al. 2016), physical disability, domestic violence, depression, impulsiveness, negative events and motor impulsiveness were associated with suicidal ideation of rural immigrants in China. Another finding (Goncalves et al. 2016) suggests that the factors associated with suicidal ideation on higher education students are self-concept factors such as self-acceptance, self-effectiveness and impulsivity, stress, anxiety and clinical depression; linkage anxiety and social support activities dimension; intimacy and total social support. Further, it is highlighted (Goncalves et al. 2016) that higher the acceptance and self-effectiveness and lower the impulsivity, the lower is the risk of suicidal ideation. On the other hand, higher the depressive condition and anxiety and the higher the stress manifest, the higher is the suicidal ideation risk. Higher the levels of comfort with proximity and trust in others and lower linkage anxiety is associated with the increasing of the suicidal ideation risk. If the social support dimensions such as intimacy and social activities are more expanded, then the risk of suicidal ideation will also be reduced. During the middle childhood and adolescence period, dysregulation profile is the best conceptualized as a syndrome which exists over and above to specific problems of anxiety and depression, aggression, and attention problems that are factor of suicidal ideation (Deutz et al. 2016). Among the people who are schizophrenia, the presence of suicidal ideation (Depp et al. 2016) was not associated with the quantity of social interactions or time spent alone, but it was associated with the anticipation of being alone. People with suicidal ideations suggest that suicidal ideation in schizophrenia may not be associated with the quantity of social interactions, but with negative expectations about the quality of social interactions coupled with an aversive experience of being alone. In a study of a non-casual relation between casual sex in adolescence and early adult depression and suicidal ideation (Deutsch and Slutske 2015), it is suggested that there is no casual relationship between casual sex in young adulthood and suicidal ideation and these effects did not differ by gender. In addition to the above findings, it is also reported (Brunoni et al. 2015 & Kumar et al. 2012) that major depressive disorder, common mental disorders, stressful life events, poor self-perceived physical health and being single were associated with suicidal ideation. In a study of suicidal ideation and attempted adult survivors of childhood cancer patients (Recklitis et al. 2006), it is found that the suicidality is unrelated to age or sex but positively associated with younger age at diagnosis, longer time since diagnosis, cranial radiation treatment, leukemia diagnosis, depression, hopeless, pain, and physical appearance concern. On the other hand, it is reported by Lee, Hahm, and Park (2013) that the suicidal ideation rate for women was double time that for men and older individuals were more likely to have a higher rate of suicidal ideation.

According to Ra and Cho (2013), different components of social participation are associated with a lower risk of suicidal ideation in different stages of adulthood. Suicidal ideas in older adult stage are originated from psychological factors, medical psychiatric, social, and probably neurobiological domains, for which treatments and preventive interventions are, or can be made, available (Conwettl and Duberstein 2005). With a creative approach and firm commitment by society to the health and well being of its elders, we should expect to reduce substantially the number of senior citizens who die by their own hands.

Table 1: Incidence and rate of suicides in India during 2002 to 2014

SL. No.	Year	Total no. of suicide	Estimated mid-year population (in 100,000)	Rate of suicide (per 100,000) (COL.3/Col.4)
1	2002	110417	10506	10.5
2	2003	110851	10682	10.4
3	2004	113697	10856	10.5
4	2005	113914	11028	10.3
5	2006	118112	11197.8	10.5
6	2007	122637	11365.5	10.8
7	2008	125017	11531.3	10.8
8	2009	127151	11694.4	10.9
9	2010	134599	11857.6	11.4
10	2011	135585	12101.9	11.2
11	2012	135445	12133.7	11.2
12	2013	134799	12287.9	11.0
13	2014	131666	12440.4	10.6

Source: National Crime Records Bureau, Ministry of Home Affairs, Govt. of India

2.1. Objective of the Study:

The objectives of the study are

- To determine the risk factors for adult suicidal ideation
- To determine the influence of risk factors on adult suicidal ideation
- To establish the inter-relationship between functional social support, perceived stress scale, depression inventory and adult suicidal ideation.

3. METHODOLOGY:

Structural equation modeling (SEM) is a comprehensive statistical approach for testing hypotheses about relations among the observed and latent variables (Hoyle, 1995). The SEM defines two components: the measurement model and structural model. The measurement model is the component of the general model in which the latent variables (unobserved variables) are prescribed. Confirmatory factor analysis is used to test a measurement model of the general structural equation model. On the other hand, the structural model prescribes relations between the latent variables and observed variables that are not indicators of latent variables. SEM starts with the specification of a model to be estimated. Once a model has been specified, then it is required to estimate the free parameters from a set of observed data. The goal of model estimation is to determine the value of the unknown parameters and the error associated with the estimated value by minimizing the difference between the observed (sample) variance covariance matrix and the model-implied matrix. In this technique, there are three most commonly used statistical estimation methods that can be employed to estimate the unknown parameters. They are: maximum likelihood (ML) method, generalized least squares (GLS) method derived under normal distribution assumptions and asymptotic distribution free (ADF) method. Although the choice of method depends on many factors, such as data normality, sample size, and the number of categories in an observed variable, the most widely used method is maximum likelihood. However the ML method can be inadequate because it is developed under the multivariate normality assumption, which is usually violated in practice. Besides, most of the psychological data cannot follow multivariate normal distribution. Despite, ML method is the default in many SEM programs because it is robust under a variety of conditions and is likely to produce parameter estimates that are good, even when the data are not normally distributed (Hoyle, 1995). Muthen, (1983) discussed the specification and estimation of latent variable structural equation models with particular emphasis on the cases of dichotomous and ordered polytomous observed variables(indicators) with continuous indicators of latent variables. Now a general model can be developed for this study. The structural model between the latent variables has been represented as

$$\eta = \alpha + \Gamma' \xi + \zeta \quad (1.1)$$

The equation (1.1) is the general matrix representation of the structural model for the latent variable. Here, α is an intercept scalar and it is equal to zero in the single-group analyses [Muthen (1984)]; η an endogenous latent variable representing Adult Suicidal Ideation; ξ 4×1 exogenous latent variable vector. It includes functional social support (FSS), depression inventory (BDI), social provision scale (SPS) and perceived stress scale (PSS). Γ is 1×4 regression coefficient matrix for regressions of exogenous observed variables (ξ) that are not indicators of latent variables on the endogenous latent variable (η). ζ is a residual error associated with η . This part will represent the part of the endogenous latent variable that cannot be explained by the exogenous latent variables. Then, $E(\zeta) = 0$ and are uncorrelated with the exogenous latent variables.

The measurement part of the general structural equation model will consists of two parts. They are identified as given below:

$$x = v_x + \Lambda_x \xi + \delta \quad (1.2)$$

$$y = v_y + \Lambda_y \eta + \epsilon \quad (1.3)$$

where $x(21 \times 1)$ is a vector of observed independent indicators of ξ ; $y(4 \times 1)$ latent response vector (indicators of η); v_x and v_y are intercept forms ($v_x = 0$ and $v_y = 0$ since all x 's and y 's are deviated from their means). $\Lambda_x(21 \times 4)$ and $\Lambda_y(4 \times 1)$ are the structural coefficient parameters linking the latent and the observed variables. δ and ϵ are errors of measurement of ξ and η respectively with $E(\delta) = 0$ and $E(\epsilon) = 0$. Both are uncorrelated with x , y , ξ and η .

The conventional overall test of fit in structural equation modeling (covariance structure analysis) assesses the magnitude of the discrepancy between the sample and model implied covariance matrices. Let S denote the unbiased estimator of a $p \times p$ population covariance matrix Σ based on a sample of size N . The covariance hypothesis is that

$$\Sigma = \Sigma(\theta) \quad (1.4)$$

where Σ is the population covariance matrix of x and y and $\Sigma(\theta)$ is the covariance matrix written as a function of the free model parameters in θ . The parameters are estimated so that the discrepancy function between the

sample covariance matrix S and the implied covariance matrix $\Sigma(\hat{\theta})$ is minimum; where $\Sigma(\hat{\theta})$ is the implied covariance matrix evaluated at the estimate of θ . The relation of Σ to $\Sigma(\theta)$ is a key for determining the condition of identification, estimation and assessments of model.

The model variance-covariance matrix to be estimated can be predicted as

$$\Sigma(\theta) = \begin{bmatrix} \Sigma_{yy}(\theta) & \Sigma_{yx}(\theta) \\ \Sigma_{xy}(\theta) & \Sigma_{xx}(\theta) \end{bmatrix} \quad (1.4)$$

$$\begin{aligned} \Sigma_{yy}(\theta) &= E(YY') = E[(\Lambda_y\eta + \varepsilon)(\Lambda_y\eta + \varepsilon)'] \\ &= \Lambda_y E(\Gamma'\xi + \zeta)(\Gamma'\xi + \zeta)\Lambda_y' + \Theta_\varepsilon \end{aligned}$$

$$= \Lambda_y[\Gamma'\phi\Gamma + \psi]\Lambda_y' + \Theta_\varepsilon \quad (1.6)$$

$$\Sigma_{yx}(\theta) = E(YX') = E[(\Lambda_y\eta + \varepsilon)(\Lambda_x\xi + \delta)'] = \Lambda_y\Gamma'\phi\Lambda_x' \quad (1.7)$$

$$\Sigma_{xx}(\theta) = E(XX') = E[(\Lambda_x\xi + \delta)(\Lambda_x\xi + \delta)'] = \Lambda_x\phi\Lambda_x' + \Theta_\delta \quad (1.8)$$

$$\therefore \Sigma(\theta) = \begin{bmatrix} \Lambda_y[\Gamma'\phi\Gamma + \psi]\Lambda_y' + \Theta_\varepsilon & \Lambda_y\Gamma'\phi\Lambda_x' \\ \Lambda_x\phi\Gamma\Lambda_y' & \Lambda_x\phi\Lambda_x' + \Theta_\delta \end{bmatrix} \quad (1.9)$$

Where $\Phi_{21 \times 21}$ is covariance matrix of exogenous latent vector (ξ)

ψ is the variance of the random error ζ associated with endogenous latent variable (η)

Θ_ε and Θ_δ are the variance covariance matrices of ε and δ respectively.

The sample variance and covariances are represented in terms of the structural parameters. The unknown parameters in equation (9), Λ_y , Λ_x , Γ , ϕ , ψ , Θ_ε and Θ_δ will be estimated by using robust maximum likelihood estimation method so that the implied covariance matrix, $\Sigma(\hat{\theta})$ is closed to the sample covariance matrix S . To know how much the estimates are closed to the sample values, a fitting function that is to be minimized, is required. The fitting function $F(S, \Sigma(\hat{\theta}))$ is based on S , the sample covariance matrix, and $\Sigma(\hat{\theta})$, the implied covariance matrix of the structural parameters. This fitting function has been associated with the following properties:

- (1) $F(S, \Sigma(\hat{\theta}))$ is a scalar.
- (2) $F(S, \Sigma(\hat{\theta})) \geq 0$.
- (3) $F(S, \Sigma(\hat{\theta})) = 0$ if and only if $\Sigma(\hat{\theta}) = S$.
- (4) $F(S, \Sigma(\hat{\theta}))$ is continuous in S and $\Sigma(\hat{\theta})$.

The most widely used fitting function for general structural equation model is the maximum likelihood fitting function (F_{ML}). It is given below:

$$F_{ML} = \log|\Sigma(\theta)| + \text{tr}(S\Sigma^{-1}(\theta)) - \log|S| - (p + q) \quad (1.10)$$

Where p , number of response vector (y) = 4 and q , number of independent observed variables (x) = 21. Generally, we assume that $\Sigma(\theta)$ and S are positive definite. Otherwise, it would be possible for the undefined log of zero in F_{ML} .

The required fitting function under robust maximum likelihood estimation function for the ASI model can be constructed as

$$\begin{aligned} F_{ML} &= \log[\Lambda_y\Lambda_x\psi\phi\Lambda_x'\Lambda_y' + \Lambda_y(\Gamma'\phi\Gamma + \psi)\Lambda_y\Theta_\varepsilon + \Lambda_y(\Lambda_x\phi\Lambda_x' + \Theta_\delta)\Theta_\varepsilon] + [\Lambda_y\Lambda_x\psi\phi\Lambda_x'\Lambda_y' + \\ &\Lambda_y(\Gamma'\phi\Gamma + \psi)\Lambda_y\Theta_\varepsilon + \Lambda_y(\Lambda_x\phi\Lambda_x' + \Theta_\delta)\Theta_\varepsilon]^{-1} [\Sigma_{yy}(\Lambda_x\phi\Lambda_x' + \Theta_\delta) - \Sigma_{yx}\Lambda_x\phi\Gamma\Lambda_y' + \\ &\Sigma_{xx}\{\Lambda_y(\Gamma'\phi\Gamma + \psi)\Lambda_y' + \Theta_\varepsilon\} - \Sigma_{xy}\Lambda_y\Gamma'\phi\Lambda_x'] - \log(\Sigma_{yy}\Sigma_{xx} - \Sigma_{yx}\Sigma_{xy}) - 25 \end{aligned} \quad (1.11)$$

Once the parameters in a model are estimated, then the next step is to check the extent to which the model fits the data. The main purpose of model fitting is to determine how well the model fits the data i.e. to compare the predicted model covariance matrix with the sample covariance matrix. This is evaluated using various types of fit indices. There are three categories of fit indices for model fitting in SEM: absolute fit indices (model fit), comparative fit indices (model comparison) and parsimonious fit indices. With the help of these fit indices, it can be predicted whether the model adequately fits the data or not. If the model does not acceptably fit the data, the proposed model will be rejected as a possible one for the causal structure underlying the observed variables. If the model cannot be rejected statistically, it is a plausible representation of the causal structure. Since different models typically generate different observed data, carefully specified competing models can be compared statistically.

1. **Population:** 1856 students of Pachhunga University College during the Academic session 2012-13 was the study population.
2. **Sampling Design:** Stratified Random Sampling under proportional allocation (each semester was treated as stratum).

3. **Sample Size:** A sample of 225 under-graduate students from Pachhunga University College, Aizawl, Mizoram (India) had been selected to study the adult suicidal ideation.
4. **Data Collection Tool:** Questionnaires for Adult Suicidal Ideation are Depression Inventory, Percieved Stress Scale, Social Provision Scale and Functional Social Support.

4. MEASUREMENTS: The Likert scale of measurement was used to convert the qualitative answers of the respondents into quantitative measures. The 5-point Likert scale of eight items for FSS (functional social support), 5-point Likert scale of 24 items for SPS (social provision scale), 3-point Likert scale of 10 items for PSS (percieved stress scale) and 3-point Likert scale of 21 items for BDI(depression inventory) were administered to determine the adult suicidal ideation (ASI).

5. STATISTICAL METHODS: Statistical methods are used to analyse and interpret the data and ultimately to identify the adult suicidal ideation. It will also determine magnitudes of the relationships between different latent variables and the construct variable, “suicidal ideation”. The statistical method used for analysis of the data is advanced statistical method that is structural equation modeling.

6. RESULTS: The figure 1 shows the path diagram of structural equation modeling (SEM) of adult suicidal ideation and its associated factors namely functional social support (FSS), depression inventory (BDI), social provision scale (SPS) and perceived stress scale (PSS).

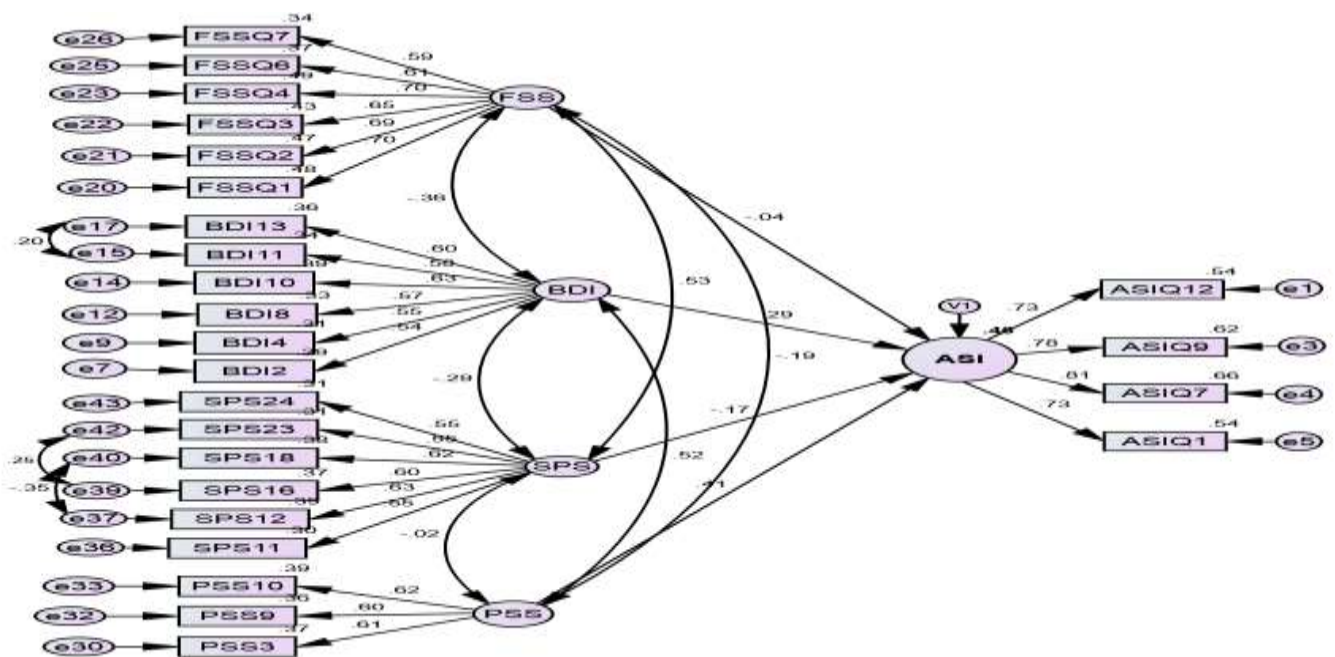


Figure 1: Path diagram of SEM

Table 3: Model Fit Summary

Test Statistics		Calculated value	Values of Good Fit
Chi-Square	Chi-Square	295.451	P>0.05
	d.f.	262	
	P-value	0.076	
Absolute Measures	Fit	Goodness of Fit Index (GFI)	0.907
		Root Mean Square Error of Approximation (RMSEA)	0.024
		90% confidence interval for RMSEA	(0.000, 0.037)
		Root Mean Square Residual (RMR)	0.059
		Standardized Root Mean Square Residual (SRMR)	0.0471
Incremental Indices	Fit	Tucker Lewis Index (TLI)	0.975
		Comparative Fit Index (CFI)	0.978
Parsimony Indices	Fit	Adjusted Goodness of Fit Index (AGFI)	0.884
		Parsimony Normed Fit Index (PNFI)	0.732

From the SEM analysis based on 225 under-graduate students, all the model fit indices show a criteria of good fit. Thus, the model and the data established a good relationship since overall model fit of structural equation modeling is good with relative Chi-square ($\chi^2/\text{d.f.}$) = 1.13, degrees of freedom (d.f.) 262 with P=0.076 (>0.05); GFI (Goodness of fit index) = 0.907 (≥ 0.90); RMSEA (Root mean square error of approximation) = 0.02 (≤ 0.05); RMR (Root mean square residual) = 0.059 (≤ 0.05); TLI (Tucker Lewis index) = 0.975 (≥ 0.90); CFI (Comparative fit index) = 0.978 (≥ 0.90).

Table 4: Factor loadings and reliability of items

Observed variables (items)	Factor Loading				
	ASI	BDI	FSS	SPS	PSS
ASIQ7	0.812				
ASIQ9	0.785				
ASIQ1	0.734				
ASIQ2	0.734				
BDI10		0.627			
BDI13		0.596			
BDI11		0.583			
BDI8		0.571			
BDI4		0.554			
BDI2		0.54			
FSSQ4			0.697		
FSSQ1			0.695		
FSSQ2			0.688		
FSSQ3			0.654		
FSSQ6			0.606		
FSSQ7			0.586		
SPS12				0.626	
SPS18				0.616	
SPS16				0.605	
SPS23				0.555	
SPS24				0.553	
SPS11				0.547	
PSS10					0.622
PSS3					0.605
PSS9					0.597
Average Variance extracted	58.83	33.55	43.01	34.17	36.98
Construct Reliability	0.68	0.77	0.77	0.80	0.75

From the table 4, it is observed that all the loading factors are high and therefore all the factors are perfectly measured by their corresponding items. FSS (functional social support) is perfectly measured by 6 items, viz., FSSQ1, FSSQ2, FSSQ3, FSSQ4, FSSQ6, and FSSQ7 with construct reliability 0.77; BDI by 6 items – BDI2, BDI4, BDI8, BDI10, BDI11 and BDI13 (reliability 0.77); SPS by 6 items – SPS11, SPS12, SPS16, SPS18, SPS23 and SPS24 (reliability 0.80); PSS by 3 items – PSS3, PSS9 and PSS10 (reliability 0.75); and ASI by 4 items – ASIQ1, ASIQ7, ASIQ9 and ASIQ12 (reliability 0.68).

Table 5: Correlations between factors/non-observed variables

Factors		Estimate
BDI <-->	SPS	-0.292
BDI <-->	FSS	-0.362
PSS <-->	SPS	-0.022
FSS <-->	SPS	0.527

Factors		Estimate
BDI <-->	PSS	0.521
FSS <-->	PSS	-0.188
e37 <-->	e40	-0.349
e39 <-->	e42	0.251
e15 <-->	e17	0.199

The non-directional relationships between pair of factors and random errors are shown in above table 5. The depression inventory (BDI) is negatively correlated with social provision scale (SPS) and functional social support (FSS) and positively correlated with perceived stress scale (PSS). Similarly the correlations between pairs of variables are shown in table 5. Thus if the level of social provision and functional social support are decreased then the level of depression in adulthood will decrease reasonably. On the other hand, if the perceived stress of an adult is increased then the level of depression will increase. However, functional social support and social provision to safeguard young adultss are positively related.

Table 6: Standardized Regression Weights

	Estimate
ASI <--- FSS	-0.038
ASI <--- PSS	0.413**
ASI <--- BDI	0.289*
ASI <--- SPS	-0.172

*significant at 0.01 level, **significant at 0.001

The effects of functional social support (FSS), perceived stress scale (PSS), depression inventory (BDI) and social provision scale (SPS) on adult suicidal ideation (ASI) are measured by standardized regression coefficients shown in table 6 and also in figure 1. It is suggested from the analysis that PSS and BDI have significantly and positively influenced on ASI with regression coefficients 0.413 and 0.289 respectively and ASI is negatively affected by FSS and SPS with regression coefficients -0.038 and -0.172 respectively.

7. CONCLUSION

It may be concluded that the adult suicidal ideation of the students will be decreased by reducing depression inventory and perceived stress scale. However, by increasing the functional social support and social provision scale, adult suicidal ideation will be decreased.

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**ROLE OF MAXIMAL AEROBIC POWER IN ATHLETE’S
PERFORMANCE: A PEER REVIEW**

¹Khoisnam Somibala Devi

PhD Research Scholar, Department of Physical Education and Sports Science, Manipur University
Assistant Professor, MB College
Email: somikhoisnam@gmail.com

²Prof. T Inaobi Singh

Head of the Department
Department of Physical Education and Sports Science,
Manipur University, Canchipur

Abstract

The maximal aerobic power of athletes is a significant component of accomplishment in sports achievement. It is commonly viewed as the best marker of cardiorespiratory endurance and athlete’s fitness. Maximal aerobic power is the highest attainable rate of oxygen consumption during exercise. It is a globally accepted parameter and best option in estimating an individual’s cardiopulmonary status. It is one of the most broadly obtained variables in exercise physiology. The objective of this paper is to provides an overview of the maximal aerobic power commonly in athletes performance and assessment protocols for examining and monitoring maximal aerobic power. The review promotes an in-depth appraisal of current knowledge and identification of key areas of research that would most profitably propel and use of sports physiology. A literature search was undertaken via PubMed, Google Scholar, Science Direct, Academia, Springer. The inclusion criteria studied comparison of athletes of different competition levels of different sports.

Key Word: Maximal aerobic power, VO_{2max}, Athletes performance

1. INTRODUCTION:

The maximal aerobic power (VO_{2max}) is the rate at which the body can consume oxygen during exercise. The maximal aerobic power of athletes is a significant component of accomplishment in sports achievement. It is commonly viewed as the best marker of cardiorespiratory endurance and athlete’s fitness. Maximal aerobic power is the highest attainable rate of oxygen consumption during exercise. It is a globally accepted parameter and best option in estimating an individual’s cardiopulmonary status. It is one of the most broadly obtained variables in exercise physiology. Maximal aerobic power is considered to be a useful indicator of an individual’s ability to perform sustained heavy muscular exercise (Astrand P.O, 1956). Traditionally, VO_{2max} is verified when it coincides with a plateau in VO_{2max} despite further increased intensity, a respiratory exchange ratio (RER) that exceeds 1.1, and a maximal heart rate within ± 10 b/min from predicted (220-age) (Robergs and Keteyian Steven, 2003). To predict the maximal aerobic power with direct measurement of oxygen uptake is taken into account the foremost accurate method of assessing aerobic power, but different values are also obtained for the identical individual when different testing modalities are used.

2. METHODS:

2.1 Literature search

A literature search was conducted using the following databases: PubMed, Academia, Springer, Google Scholar, Science Direct and Books. Additionally, a hand search was also conducted on reference lists of selected articles to augment the literature.

2.2 Inclusion and exclusion criteria: The inclusion criteria studied comparison of athletes of different competition levels of different players using physiological performance parameters. Studies which were not directly matched with the concept of analysis were excluded from the process.

2.3. Individual Variation in VO_{2max} :

VO_{2max} values are dispersed between extremely low capacity, like those of sedentary individuals ($<50\text{ml/kg/min}$), and capacities of well trained and elite endurance athletes ($>80\text{ml/kg/min}$). The factor that combines to influence VO_{2max} is a high proportion of slow-twitch motor unit, high central and peripheral cardiovascular capacities, and the quality and duration of training. Having more slow-twitch muscle fiber increase the oxidative capacity of the muscle. Fitzgerald (1985), showed that decline in VO_{2max} may be related to their -related reductions in exercise volume but it does not appear to be related to a greater rate of decline in maximal heart rate with age. However, it's interesting to note that VO_{2max} value seen within the young sedentary population are the same as those seen in highly trained elite-level basketball players (Hoffman and Maresh, 2000). As maximal oxygen uptake is the product of systemic blood flow (cardiac output) and systemic oxygen extraction, training-induced changes in VO_{2max} occur due to increased maximal cardiac output, increased maximal VO_{2} difference, or some combination of both. Many studies have shown that VO_{2max} predicts endurance exercise performance in a large group of individuals with a large range of VO_{2max} values ($r>0.85$), it has less importance in determining exercise performance in a group of individuals with a similar VO_{2max} . Other factors are involved in determining how well a person can perform in endurance exercise. Aleksandra (2012), noted that athlete's capability as an indicator of his physical capacity, the difference in aerobic capacities of athletes concerning the type of sport they were practicing, moreover because the differences obtained compared with non-athletes. Reilly et al. (2000) claim that VO_{2max} isn't a sensitive measure of operating capability in soccer and suggest that $VO_{2max} >60\text{ mL}$ represents a threshold to possess the physiological attributes for achievement in men's elite soccer. In contrast, Stølen et al. (2005) claim that it might be reasonable to expect about $70\text{ mL} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ for a 75-kg professional soccer player, a similar value to that in elite middle-distance athletes. McArdle, Katch and Katch (1996) shows that VO_{2max} values can increase 15-30% over the 3 month of an endurance training program and may rise as much as 50% within 2 years of training. As a result, when individual begin an endurance training program their VO_{2max} typically increase. This increase in aerobic capacity can justifiably be interpreted as an increase in fitness level.

2.4. VO_{2max} during different exercise modes:

The maximal oxygen uptake can be determined by a variety of work tasks that activate a large muscle groups as long as the exercise of sufficient intensity and duration to engage maximal aerobic energy transfer. VO_{2max} is known to be differ depending on upon the type of exercise and the type and extend of training performed by the individual. The table below provides a comparison of VO_{2max} between different exercise modes. Generally, VO_{2max} response is higher in Hit and Turn Tennis Test compared with Yo-Yo Intermittent Running Test and Multi Stage fitness Test. Previous studies have shown that treadmill and field tests running are similar or slightly different in athletes' performance (Bülent Kilit et al, 2016).

Treadmill test (ml/kg/min)	Hit & Turn Tennis (ml/kg/min)	Yo-Yo Intermittent Recovery test (ml/kg/min)	Multi Stage fitness test (ml/kg/min)
54.9±2.2	57.4± 1.9	55.1± 0.9	55.8± 0.1

Bülent Kilit et al.: Laboratory and Field-based Assessment of Maximal aerobic power in professional Tennis Players:

However, when compared with cycling and treadmill running exercise VO_{2max} values have shown to be greatest in the trained exercise mode, with cycling VO_{2max} equal to or greatest than treadmill VO_{2max} in well trained cyclist. However, Cajasus have shown that the value of VO_{2max} reached 66.4ml/kg/min in football players of the Spanish first league. In addition, highest VO_{2max} values were obtained in football players and as a sport requires higher degree of endurance compared to the other sport. Therefore, VO_{2max} values are statistically significantly higher in the groups of athletes compared to the group of non-athletes (Goran Ranković et al., 2010). Maximum oxygen uptake values in senior and junior badminton players weren't significantly different and averaged at about $64\text{ ml.kg}^{-1}.\text{min}^{-1}$ in males and $55\text{ ml.kg}^{-1}.\text{min}^{-1}$ in females. The level of maximum oxygen uptake is 63.4 ± 4.0 and $53.3\pm 3.6\text{ ml.kg}^{-1}.\text{min}^{-1}$ (Sukkun and Wang, 1988). In laboratory maximal aerobic power is assessed from incremental test which are dependent on the stage duration and work load increase according to testing protocol (Faria et al. 2005; Hopkin et al. 2001; Julien Pinot et al. 2014). The present data of VO_{2max} of soccer player obtained from Cooper test is $22.351\text{d(km)}-11.288(\text{ml/min/kg})$ which is

significantly lower when compared to other testing protocol (Zerf Mohammed, 2017). Astrand and Saltin and Stenberg et al. couldn't find any difference in $\text{VO}_{2\text{max}}$ determined during leg work on a bicycle, compared with working on the ergometer with the legs and at the same time performing arm cranking. In contrast, Gleser et al. observed 10 % $\text{VO}_{2\text{max}}$ when arm work was added to maximal leg work on a bicycle ergometer. They interpreted their result to favour the hypothesis that $\text{VO}_{2\text{max}}$ could be a function of the mass muscle engaged in the exercises. Furthermore Secher et al. and Reybrounck and associate reported the $\text{VO}_{2\text{max}}$ during combined arm leg ergometry attained higher values compared with those found during leg ergometer alone and therefore the difference seemed alone and pronounced within the arm trained subjects. (Stromme et al., 2020).

Percentage of $\text{VO}_{2\text{max}}$: A relative measure of exercise intensity:

The measurement of $\text{VO}_{2\text{max}}$ or $\text{VO}_{2\text{peak}}$ is not only an important measure in itself but also serve as a value for the relative expression of exercise intensity. As the increase in $\text{VO}_{2\text{max}}$ is linear function of exercise intensity. Exercise intensity below $\text{VO}_{2\text{max}}$ can be expressed as a percent of $\text{VO}_{2\text{max}}$ thus allowing metabolic responses at the same relative intensity to be compared between individual who may have very different $\text{VO}_{2\text{max}}$ values. In addition, the linear relationship between intensity and $\text{VO}_{2\text{max}}$ enables synonymous use of the expression % $\text{VO}_{2\text{max}}$ and % workload at $\text{VO}_{2\text{max}}$. An individual can tolerate an higher exercise intensities but because these intensities are associated with an overreliance on glycolysis development of acidosis, depletion of creatine phosphate and the development of additional cellular and neural condition associated with muscle fatigue exercise session are much shorter in duration.

3. CONCLUSION:

The studies we reviewed illustrate the current status of sports performance research in applied behavior analysis. As for intervention, positive reinforcement, goal setting, modeling, and graphic feedback have been effective with athletes of all ages, at different skill levels, and in many sports. Other methods, like TAG, appear to be promising but require further evaluation. The tone set by prior research in assessing the acceptability of and satisfaction with sports performance intervention objectives and procedures also should be emphasized. We suggest further that applied behavior-analytic research. The studies we reviewed illustrate the current status of sports performance research in applied behavior analysis. As for intervention, positive reinforcement, goal setting, modeling, and graphic feedback have been effective with athletes of all ages, at different skill levels, and in many sports. Other methods, like TAG, appear to be promising but require further evaluation. The tone set by prior research in assessing the acceptability of and satisfaction with sports performance intervention objectives and procedures also should be emphasized. We suggest further that applied behavior-analytic research. Maximal aerobic power ($\text{VO}_{2\text{max}}$) encompassed a wide and diverse range of scientific interest. It varies from gender to gender, age and from trained athletes to untrained. In addition, it is not appropriate to assume that professional well-trained team sport athletes have higher $\text{VO}_{2\text{max}}$ than young trained individual. But it can conclude that endurance sports athletes might have higher $\text{VO}_{2\text{max}}$. As a result, the intensity of the exercise increase, oxygen consumption also rises. The values of $\text{VO}_{2\text{max}}$ obtained from field test and laboratory-based test are not much difference. Therefore, field test may be considered as a measure of individual $\text{VO}_{2\text{max}}$. Furthermore, field test may be used as a valid test to assess $\text{VO}_{2\text{max}}$ of an athlete. In light of this study, it is suggested that the maximal aerobic power have great influence in athlete's performance.

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POSITIVE IMPACT OF YOGA ON BOXING PLAYERS: A BRIEF STUDY

Dr. Jayant Kumar V. Ramteke

Asst. Professor, Dept. of Physical Education

Seth Kesarimal Porwal College of Arts and Science and Commerce, Kamptee

Abstract:

Boxing is a combination of technical, tactical, durability, speed and coordination features. It is a deceptively difficult sport. To a novice it is merely like moving around and throwing punches. Quite the contrary! Boxing requires absolute control of the body, mind, breath, emotions, and surrounding atmosphere. It demands deep concentration, excellent mind-body coordination, and exceptional physical and cardiovascular strength. Yoga can enhance and complement your ability and build muscular strength and stamina for boxing players. This paper attempts to focus on the impact of yoga on boxing players and how yoga is very beneficial to everyone especially for a boxer.

Key Words: yoga, boxing, strength,

1. INTRODUCTION:

Yoga originated thousands of years ago in India as a technique to help people achieve spiritual enlightenment. Based on the idea that the mind and body are one, students believe that Yoga improves health by improving how you see the world, which calms the spirit and decreases stress. Today, people practice Yoga to improve their physical, mental and spiritual wellbeing. There are many disciplines of yoga that emphasize different aspects of the mind, body and spirit. However, in the West, mainstream Yoga focuses largely on the physical practice, primarily Hatha Yoga. Hatha is a widespread style that incorporates a series of poses (called Asanas) that emphasize stretching, breathing (called Pranayama), relaxation and meditation techniques to help build strength, increase flexibility, Concentration, balance and improve co-ordination. Yoga has a lot of definitions floating around in today's world; however, if we go back to the roots of the word, we find that the term 'Yoga' has its origins in Sanskrit. It means to 'unite' Yoga helps the body to unite with the other vital metaphysical aspects of the mind and spirit. It is also often defined as a lifestyle which aims to have a healthy mind within a healthy body. Most simply defined, yoga is a set of poses or 'asanas', coupled with breathing techniques, which help impart strength and flexibility to the body while helping to balance the mind and its' thinking. Unlike other physical forms of exercises, like the aerobics, by practicing yoga, one can not only achieve physical health, but also mental and spiritual wellbeing.

2. METHODOLOGY:

The purpose of this study was to find out the positive impact of physical and physiological aspect of yoga on boxing player.

Benefits of Yoga for Boxers

Boxing certainly isn't a low-key sport. It doesn't inspire thoughts of calming nature sounds, still waters, or a serene atmosphere. However, boxers may need a little bit of that. While boxing seems purely physical on the outside, it requires a great deal of mental and emotional strength. Yoga's tranquil nature and focus on the inner self makes for a great complement to a boxer's training routine. Not only is yoga great for the mind, but it improves many components of athleticism that are essential to sports performance. Let's check out how it can benefit you in the ring.

Flexibility

There is no surprise that yogis are flexible. Much of yoga requires holding the body in extreme stretching poses. Over a period of time, this enables the muscle fibers to loosen up and elongate. As a boxer, need that extra flexibility. Intense boxing cross-training tends to bulk up and stiffen the muscles, making them more prone to injury. The flexibility gain through yoga can improve range of motion, which is critical in the

ring. It will help a boxer to dodge opponent, throw stronger punches, and prevent injuries. Yoga's twisting poses can also help to improve twisting range of motion, making for higher and more accurate hooks.

Balance

A good boxer should, defiantly knows how important balance is in a fight. Balance helps to stay on his feet, move around the ring, and give proper stance to blow powerful punches, all without falling over! Many yoga poses don't just require flexibility, but exceptional balance as well. Balancing poses will help to improve concentration and body awareness. To remain balanced, we need to learn how to make the right adjustments to the body. Unique balance poses used in yoga also encourage core strength. They work the abdominals, the inner core muscles, the obliques, and the deep pelvic floor muscles. A strong core enables you to be more nimble on your feet and promotes better balance and coordination.

Strength

Yogis may not have bulky muscles like bodybuilders, but they certainly aren't weak. In fact, yoga is an excellent complement to a boxer's strength training routine. The strenuous bodyweight poses held in yoga will get working muscles that conventional strength training doesn't combine both yoga bodyweight conditioning with conventional strength training, and boxer will be unstoppable in the ring.

Breathing

Breathing patterns might not seem like they matter in the middle of a fight, but breath has a profound impact on a boxer performance. During intense physical activity, most people breathe just enough to stay alive. Yogic breathing, however, focuses on long, deep breaths throughout each movement. Once we got our breath under control, our heart rate get slows, our body relaxes, and our mind becomes more clear and able to make quick decisions. Mind fullness by focusing on the breath, on the movement, and on our body in space, yoga teaches to be present in the moment. Carrying that mindfulness into the ring improves intuition, heightens our awareness of ourselves and your surroundings, and helps us to control our mental and emotional state.

3. EFFECTS OF YOGA ON DIFFERENT FACTORS:

Physical Effects

- Increases suppleness through stretching muscles
- Improves joint mobility by lengthening ligaments to their healthy limits
- Reduces risk of injury and assists with injury rehabilitation
- Effective as a form of soft tissue and collagen fiber rehabilitation
- Helps to bring the body back into alignment and improves posture
- Increases stride length
- Enhances co-ordination and agility
- Contributes to improved cardiovascular fitness and stamina
- Teaches athletes how the body performs and functions as a synergistic unit
- Lowers resting heart rate and increases

Psychological effects

- Relieves performance anxiety and stress, and frees athletes from mental distractions
- Improves focus International Journal of Multidisciplinary Research and Development
- Develops determination and self-discipline
- Teaches athletes to challenge themselves and go outside of their comfort zone
- Reduces stress and provides a method of relaxation
- Breath work provides athlete with techniques they can use whilst competing to control arousal levels
- Helps athletes to achieve flow and get in 'the zone'
- Teaches athletes how to use imagery and relaxation 9. Helps athletes to understand the importance of relaxing, resting, and recovering

4. FINDING:

Regular yogic practice, adaptation and implementation of the principals of yoga in day to day life may improve physical and physiological status of a boxing player and improves the subjective feeling of well being.

5. CONCLUSIONS

The mind-body association in yoga is basic to helping competitors create mental keenness and focus. Likewise, yoga helps to unwind tight muscles, as well as on edge and overemphasized minds. We also think that brain exercise will help boxer make the right decisions in training or competition by enabling them to think continuously. Yoga can help a sportsperson to have evenness of mind and control of their thoughts even during

stress and adversity. Yoga can play a key role in cultivating mind control and concentration which helps boxer to perform at their peak level and yoga helps us a lot.

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**ENTREPRENEURSHIP POTENTIAL INDIGENOUS MARTIAL
ARTS, SPORTS AND GAMES OF MANIPUR**

Ningthoujam Dhiren
Ph.d Student, DPES,
Manipur University, Canchipur, Imphal.

Abstract:

*The meiteis play various martial arts, sports and games originated in the soil of their birth and treasured them as rich traditional heritage culture of the community since hoary past to till date. Sarit sarak, Mukhna, Mukhna Kangjei, Thang Ta, Sagol kangjei @ Polo, Kang @ Surface billiard, Ten Kappa, Ching kaba are some of the well known indigenous sports and games which are facing strong competition from modern sports games played and practice by the people of Manipur. In fact, indigenous sports and games are struggling for survival on its soil of birth. At this critical juncture, to save these indigenous activities from gradual extinction, Entrepreneurs can do **Entrepreneurship** program for these sports and games to save, preserve and popularise them through economic activities.*

Key Words: Sarit sarak, Mukhna, Mukhna Kangjei, Thang Ta, Sagol kangjei @ Polo, Kang @ Surface billiard, Ten Kappa, Ching kaba, Entrepreneurs can do **Entrepreneurship**,. Indigenous, Extinction.

1. INTRODUCTION:

Manipur though small in physical territory, it is home to nearly 50 plus colourful talented communities having different traditional cultural heritage and the Meitei is one such among them having traditional cultural heritage high end esteem that even today, people from across the globe watch in awe anywhere whenever they are on display as stage performance program. These activities has millions years history of existence (Pre history to till date), but began to become dying activities with the entry of modern sports and games in the state. People love these activities but due to want of fame, name and money, they opted for modern foreign sports and games for carving a niche at the national, international, Asian games and Olympics, world cup, etc. Sarit sarak, Mukhna, Mukhna Kangjei, Thang Ta, Sagol kangjei @ Polo, Kang @ Surface billiard, Ten Kappa, Ching kaba became a victim of choice as most of them are not recognise by Indian Olympic Association, International Olympic Committee and Ministry of Youth Affairs & Sports, Government of India. Another reason for fading away of these activities is that people of different age group of Manipur has opted for modern foreign sports and games instead of indigenous activities. On the other hand, the entry of modern sports and games made local people easily accessible to it as they reach here with necessary equipments, gears and standardise set of rules & regulations. With their arrival, sports equipments shops began to crop up in every big and small towns of the state and attract interested individual in large number. Further the adaptability character of the people also made them handy in mastering the skill, techniques and tactics of playing such activities while indigenous martial arts, sports and games has hardly any recognisable standard equipment production houses in the state.

1.1. Significance of the study:

The significance of the study is that

- It helps to find out which activity requires what kind of equipments and how it be developed and improved in standardise fashion for use in the events of organise competitions where nobody would throw up questions against the equipments.
- It will provide helps to find out ways and means to save these indigenous activities from gradual disappearance.
- It will help individuals interested in taking the cudgel of entrepreneurship for saving it through business activities and promotion & popularisation to posterity.

- It is identifying the kind of equipments use for playing different indigenous sports & games as well as safety sportswear and garments, etc.

1.2. Objectives of the study:

- To highlight the plight of Indigenous Martial Arts, Sports and Games of Manipur and need for immediate attention to save it from gradual dying at present.
- To explore the probability of every possible economic activities and business opportunities out of Indigenous Martial Arts, Sports and Games of Manipur.

1.3. Hypothesis of the study:

- There will be enough area for business probability if anybody dares to make out good enough from it.
- There will be sponsors for those who want to venture into the field of **Entrepreneurship Potential Indigenous Martial Arts, Sports and Games of Manipur**.
- It will provide the interested communities enough opportunities to do **Entrepreneurship**.

2. RESEARCH METHODOLOGY:

Descriptive, Observation and Spot interview of the concern authorities of the indigenous Martial Arts, Sports and Games of Manipur.

2.1. Equipments for Indigenous Martial Arts, Sports and Games:

Among the indigenous martial arts, sports and games, Mukhna Kangjei, Thang Ta, Sagol kangjei @ Polo, Kang @ Surface billiard, Ten Kappa, requires necessary equipments and protective gears.

1. Mukhna Kangjei @ Trial of Strength cum Hockey: (Mukhna @ Manipuri style wrestling / Trial of strength body contact sports. Kangjei @ a strong cane stick having season root head on the striking end for striking ball) and ball.

2. Thang-Ta @ Sword-Spear: This is an indigenous weapon (sword and spear made of iron metals) using martial arts where the opponents or performers are displaying their skill prowess in the process of duals or compose fights. Chung/chungkoi @ Shield/buckle is an indispensable weapon of both the fighters/performers.

3. Sagol kangjei @ Polo: It is another world conquering indigenous game of Manipur carried away by the British officers as their favourite past time game there they named it Polo. A game played by mallet wielding men / women sitting on the horse back competed to score by striking the ball towards opponent team's goal post.

4. Kang @ Surface billiard: Kang is a flat oblong object made from resin/ivory/bauxite use to play the game of Kang. The game kang is literally meaning surface billiard where every player would try to score points by throwing the oblong flat object towards the target @ a spherical sphere @ ball place on the other non striking end.

5. Ten Kappa @ target archery: Coincidentally, it happens an International as well as Olympic medal event but due to its expensive nature, the beginners did not find easy to train themselves for reaching Olympic round. Hence, the invention of Take Down Bamboo Bow and Arrows design and produce here in Manipur help archers in the nation climbing the stairs upto Olympic games. Its a reality and fact.

2.2. Entrepreneurs and Entrepreneurship a Call of the Hours:

We often talk on rich traditional cultural heritage of martial arts, sports and games of Manipur but nobody including the government establishment, universities dare to take responsible step towards preservation, promotion and popularization of these activities so that it can move upwards into international recognition and acceptance like Greco Roman Wrestling, Taekwondo, Judo and Wushu etc in a refine manner.

For preservation, promotion and popularization of these activities, **Entrepreneurs can do Entrepreneurship** program for these sports and games, and save them for posterity. Interested individual can go for Skill India Start Up program with full dedication. For target archery there is handful of small and medium **Entrepreneurs** in the state whose production is reaching most of target archery avenues of the nation and sub continent.

Identification of the required Protective Gears & Equipment

Sl.	Activity	Protective gears	Equipments
1	Mukhna Kangjei	Mukhna custome	1. Cane stick having season root head on the striking end for striking ball) and ball. 2. Ball
2	Thang Ta	1. Full body	1. Sword.

		protection equipment. 2. Head gear 3. Chest guard 4. Wrist band/guard 5. Leg guard	2. Spear 3. Shield/buckle 4. Sword spear holder
3	Sagol kangjei	1. Uniform as per set rules of IPA. 2. Helmet 3. Knee high boot	1. Pony 2. Saddles 3. Rein 4. Whips 5. Horse Shoes 6. Hockey sticks & Balls.
4	Kang	Traditional attires as per mutual agreement	1. Kang @ Oblong shaped palm size flat object. 2. Kangkhin @ Glass ball
5	Ten Kappa	Traditional or modern attires as per mutual agreement or set rules of FITA	1. Bow 2. Arrows 3. Quivers 4. Target bust

In fine:

No business or venture is free from risks and problems. From problems only, prospects emerge and that is the real beginning of a business set up. Hence, it is worthy to assume that **Entrepreneurship** is the branded activities of **Entrepreneurs** who never ceases looking for business opportunities in the market but sitting on the mount of problems.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

SIGNIFICANCE OF CURRICULUM MODEL AND DESIGN IN CURRICULUM DEVELOPMENT

¹Kanika gupta, ²Dr. Samiran Chakraborty

Research Scholar, Associate Professor
Department of Physical Education and Sports Sciences
IGIPSS, University of Delhi, Delhi

Abstract:

Present study focused of Curriculum Development with effect of Curriculum model and appropriate design. A curriculum is the combination of instructional practices, learning experiences, and students' performance assessment that are designed to bring out and evaluate the target learning outcomes of a particular course. The development of curriculum involves implementation of different types of instructional strategies or organizational methods that are focused on achieving optimal student development, student outcomes and objectives. As for the development of Curriculum the Curriculum model and design should be the two most important key points. curriculum design focused on objectives and planning of the Curriculum includes Focused area, stakeholders, conceptual framework which covers different Curriculum models. For Curriculum Development learning outcomes, constraints or delimitation areas, curriculum mapping, instructional methods and last the evaluation which will lead to assess the success rate of curriculum.

Key Words: Curriculum model, Curriculum mapping, Stakeholders, learning outcomes.

1. INTRODUCTION:

Curriculum can be defined as document, plan or blue print for instructional guide, which is used for teaching and learning to bring about desirable learner behavior change. This definition refers to formal curriculum, which is planned ahead of time, bearing in mind the characteristics of the curriculum recipient, the philosophy and goals of education, the environment, resource, the method of teaching and evaluation procedure. It is the road map to attainment of the goals of education, the curriculum document can be regarded as syllabus, the scheme of work or the course outline. It refers to the planned curriculum. A curriculum consists of the "roadmap" or "guideline" of any given discipline. Both the philosophy of teaching of the instructors as well as of the educational institution serve as two of the principles upon which a curriculum is based. A curriculum is the combination of instructional practices, learning experiences, and students' performance assessment that are designed to bring out and evaluate the target learning outcomes of a particular course. Curriculum development can be defined as a kind of step-by-step process used to create positive improvements in the courses offered in higher education. The world changes, approaches and profiles develop and new perspectives on research and professions influences the curricula.

2. APPROACHES IN CURRICULUM DEVELOPMENT:

Ornstein and Hunkins (2009, p15) contend that curriculum development encompasses how a 'curriculum is planned, implemented and evaluated, as well as what people, processes and procedures are involved.'. Curriculum models help designers to systematically and transparently map out the rationale for the use of particular teaching, learning and assessment approaches.

Designing a Quality Curriculum: The following curriculum design tips can help educators manage each stage of the curriculum design process.

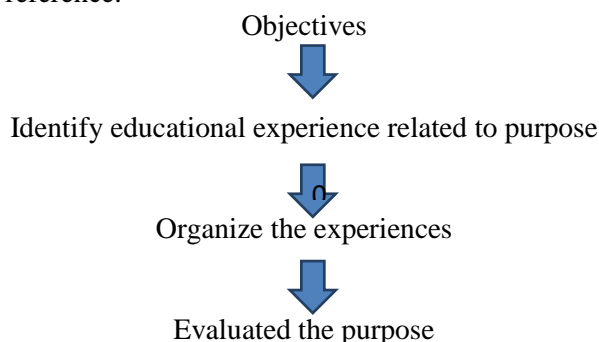
- **Identify the needs of stakeholders** (i.e., students) early on in the curriculum design process. This can be done through needs analysis, which involves the collection and analysis of data related to the learner. This data might include what learners already know and what they need to know to be proficient in a

particular area or skill. It may also include information about learner perceptions, strengths, and weaknesses.

- **Define a conceptual framework for the curriculum:** A conceptual curriculum framework is a series of statements characterizing the desired curriculum. These concepts establish criteria for selecting activities and experiences included in the curriculum. The framework directs the selection of activities and reflects beliefs about education and the learner through the curriculum model.

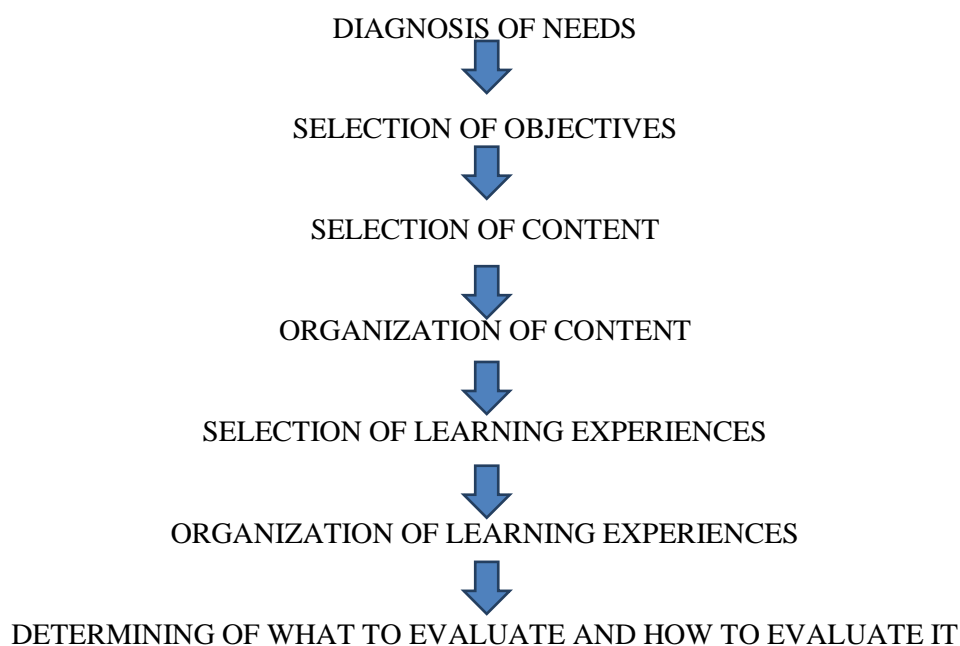
Curriculum types can be broken down into two broad categories: the product model and the process model. The product model is results-oriented. Grades are the prime objective, with the focus lying more on the finished product rather than on the learning process. The process model is more open-ended, and focuses on how learning develops over a period of time. These two models need to be taken into account when developing a curriculum. For Practicum Curriculum Process model is used for different games and sports.

A) Ralph Tyler's model, 1950 which include 4 factors and considered as prominent method for curriculum development and widely used as a reference.



B) Hilda's Taba model is also known as “Grass Root Approach” he thinks that there should be a definite order of developing curriculum to facilitate a more thoughtful and dynamically conceived curriculum. This basically have “Inductive approach” which starts with specific to general design i.e. its starts by teacher creating teaching- learning unit for the student then narrow down to the objectives.

7 Steps of Taba's Model



Step I (DIAGNOSIS OF NEEDS)

To identifying the needs of the students for whom the curriculum is planned.

Step II (SELECTION OF OBJECTIVES)

Specify objectives to be accomplished

Step III (SELECTION OF CONTENT)

Match content and objectives

Step IV (ORGANIZATION OF CONTENT)

Organize content into sequence, taking into an account the maturity of learners, their academic achievement and their interest.

Step V (SELECTION OF LEARNING EXPERIENCES)

Teacher select learning experiences and the method that will involve the students with the content

Step VI (ORGANIZATION OF LEARNING EXPERIENCES)

Sequence and organize learning experiences.

Step VII (DETERMINING OF WHAT TO EVALUATE AND HOW TO EVALUATE IT)

Determine how objectives are to be accomplished and what have been accomplished

B) Oliva's Curriculum Development Model-

According to Oliva (1988), a curriculum model should be simple, comprehensive and systematic. Oliva describes the curriculum development model in the 12 components in which one another inter-related. The components are as follows.

- General students and community Needs
 - Special student's needs, the community needs, needs of discipline.
 - The purpose of general curriculum.
 - Specific goal curriculum.
 - Specific curriculum organization
 - The broad objective of learning.
 - The specific purpose learning.
 - The selection of learning strategies.
 - Selection of preliminary technical evaluation and selection to techniques of final evaluation.
 - Implementation of the strategy.
 - Evaluation of learning.
 - Evaluating the curriculum
-
- **Create a clear list of learning goals and outcomes.** This will help you to focus on the intended purpose of the curriculum and allow you to plan instruction that can achieve the desired results. Learning goals are the things teachers want students to achieve in the course. Learning outcomes are the measurable knowledge, skills, and attitudes that students should have achieved in the course.
 - **Identify constraints that will impact your curriculum design.** For example, time is a common constraint that must be considered. There are only so many hours, days, weeks or months in the term. If there isn't enough time to deliver all of the instruction that has been planned, it will impact learning outcomes.
 - **Consider creating a curriculum map** (also known as a curriculum matrix) so that you can properly evaluate the sequence and coherence of instruction. Curriculum mapping provides visual diagrams or indexes of a curriculum. Analyzing a visual representation of the curriculum is a good way to quickly and easily identify potential gaps, redundancies or alignment issues in the sequencing of instruction.
 - **Identify the instructional methods** that will be used throughout the course and consider how they will work with student learning styles. If the instructional methods are not conducive to the curriculum, the instructional design or the curriculum design will need to be altered accordingly.
 - **Establish evaluation methods** that will be used to assess learners instructor sand the curriculum. Evaluation will help you determine if the curriculum design is working or if it is failing. Examples of things that should be evaluated include the strengths and weaknesses of the curriculum and achievement rates related to learning outcomes. The most effective evaluation is ongoing and summative. Includes different evaluation methods.

a) **Rubrics Development**-Evaluate student on basis of rubrics of the skills, technique and evaluate basically on execution.

b) **Teachers Observation**- Throughout the theme, keep a checklist of skills that have been performed competently by each student

c) Students Performance- Evaluate student movements and routines for technique, creativity and variety. Record the number of pull-ups each student can perform at the beginning of the theme and after practicing it for a set period of time. Note the change in ability

d) Self-Evaluation/Reflection- Video tape is a very valuable tool in demonstrating to students their level of performance and skills. Video tape students and allow them to assess their performance for correct technique and identify areas for improvement.

e) Peer Evaluation- Have students plan and perform simple routines. The class will judge the routines and give immediate feedback to the performers on their level of performance.

3. CONCLUSION:

Curriculum can be defined as document, plan or blue print for instructional guide, which is used for teaching and learning to bring about desirable learner behavior change. The development of curriculum involves implementation of different types of instructional strategies or organizational methods that are focused on achieving optimal student development, student outcomes and objectives. This required proper curriculum design focused on objectives and planning of the Curriculum includes Focused area, stakeholders, conceptual framework which covers different Curriculum models. For Curriculum Development learning outcomes, constraints or delimitation areas, curriculum mapping, instructional methods and last evaluation which will lead to assess the success rate of curriculum.

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COMPARATIVE STUDIES ON SELECTED PHYSIOLOGICAL AND PHYSICAL VARIABLES OF HOCKEY AND FOOTBALL PLAYERS IN MANIPUR

Hidangmayum Surendra Sharma

MPE, NET, Lecturer of Physical Education
D.M College of Teacher Education, Imphal
Research Scholar, PESS,
Manipur University, Canchipur, Imphal.

Dr. L. Santosh Singh

Assistant Professor
Dept. of Phy. Edn. & Sports Science,
Manipur University, Canchipur, Imphal.

ABSTRACT:

The purpose of study was to find out the comparative status of Physiological and Physical variables of Hockey and Football Players in Manipur after 12 weeks training programme. The variables studied were Aerobic Endurance, Resting Heart Rate and Vital Capacity that comes under Resting Heart Rate @ Resting Heart Rate and Resting Respiratory Rate @ Vital Capacity. The data collected for comparative interpretation is only on Resting Heart Rate and Aerobic Capacity.

Key Words: Comparative, Status, Physiological, Physical, Variables, 12 weeks training programme, Resting Heart Rate and Vital Capacity, Resting Respiratory Rate.

1. INTRODUCTION:

Hockey and Football are such competitive games played across the globe having large fan following that demands maximum physical fitness for better skill performance. A good number of youths from Manipur are participating in these games at different level of tournaments or championships like state, national, international level including Olympics. No doubt, performance level in the national level is good but there still exists enough rooms for improvement as compared to global level.

On the other hand, performance standard of Manipur University as well as State Hockey and Football teams were seen dramatically improved in recent past that elite clubs and services sports boards in the nation are recruiting finest among of them for National and International duties so far.

At present, for better improvement of performance for inter-collegiate and university hockey and football players' a Comparative Study on selected Physiological and Physical variables of Hockey and Football Players was undertaken with 80 male players by employing 12 weeks training programme.

2. STATEMENT OF THE PROBLEM:

Comparative Study on selected Physiological and Physical variables of Inter College and Inter University level Hockey and Football Players of Manipur University.

3. PURPOSE OF THE STUDY:

It is to compare the Cardio- Respiratory Endurance of Inter-University and Inter-Collegiate Footballers of the Colleges Affiliated to the Manipur University.

4. OBJECTIVE OF THE STUDY:

The objectives of this study are stated as below:

- i. To see the effect of 12 weeks training programme to the Inter-University footballers and Inter-College footballers.

- ii. To compare the Aerobic endurance, Resting Heart Rate and Vital Capacity between the Inter-University footballers and Inter-College footballers before (pre-test) and after (post-test) the training conducted.
- iii. To find out the different level of Aerobic endurance, Resting Heart Rate and Vital Capacity between the Inter-University footballers and Inter-College footballers

5. DEFINITIONS OF THE TERM:

Resting Heart Rate: A resting heart rate between 60 and 100 beats per minute is considered normal for adults. However well train athletes might have a normal resting heart rate closer to 40 beats per minute.

Aerobic capacity: It is the Physical activity in which metabolic demands can be met by the oxygen transport i.e. oxygen supplied by respiration during activity provides sufficient energy for executing the activity.

Cardio – respiratory Endurance: It is the ability to carry work –load for relatively prolonged period. It had very significant value in various games and sports, especially in long distance running in Track and Field, Basketball, Football, Handball, Boxing and other vigorous and long duration games.

6. METHODOLOGY OF THE STUDY:

Subjects: Applying random sampling technique, for the purpose 30/30 Hockey and Football Players (male) call up for trial selection of university teams of both the disciplines were selected. After narrating the whole procedure of the training and ascertaining their willingness to participate in the training, they have been introduce into a 12 weeks intensive training programme for data collection purpose on i. Resting Heart Rate. ii. Aerobic Capacity, respectively.

Training package: Land conditioning, technical base skill conditionings have been arranged. To monitor the whole procedures, three officials' experts in football and hockey games were assigned under whose watch the training would took place.

7. ANALYSIS AND INTERPRETATION OF DATA:

The data pertaining to the study was collected on 3 intervals as such i. Pre Training, ii. Training iii. Post training, etc for the purpose. But only the post test data was collected and treated fit for interpretation.

Findings:

The statistical analysis of the data on physiological and physical variables of Football and Hockey players as per test items are:

Table=1: Resting Heart Rate:

Group	N	Mean	MD(mean diff)	df	Std div	SEM	t-ratio
Football	30	65.12	0.75	78	3.6	0.56	1.10
Hockey	30	64.37			2.41	0.38	

Significant at 0.05 level.

Tab.05 (78)=1.980

It was found that the mean of **Resting Heart Rate** for Football Players was (65.12) while the Standard Deviation (SD=+/-3.6), Hockey Players, (64.37) while the Standard Deviation (SD=+/-2.41). Further, the obtained t-ratio was 1.10 which was less than the table t-ratio 1.980 at 0.5 level with the degree of freedom 78. Hence, no significant exist there between the **Resting Heart Rate** of Football Players and Hockey Players.

Table=2: Aerobic capacity:

Group	N	Mean	MD(mean diff)	df	Std div	SEM	t-ratio
Football	30	25.01	0.93	78	2.93	0.46	0.89
Hockey	30	24.17			5.92	0.93	

Significant at 0.05 level

Tab.05 (78)=1.980

Table=2 shows that the means of **Aerobic capacity** for Football Players and Hockey Players were 25.01(S.D=+/-2.93) and 24.17 (S.D=+/-5.92). While, the obtained t-ratio 1.980 at 0.5 level of significance with degree of freedom,78. Hence, there is no significant difference of **Aerobic capacity** between Football Players and Hockey Players.

8. DISCUSSION OF THE FINDING

From the above findings, it was observed that subjects of both the games were showing no significant difference of **Resting Heart Rate** and the reason may be because of the open atmosphere where they the games. They were playing the games in the open atmosphere enjoying naturally charge aerobic energy hence the result.

Further, the player of these games also shows no significant difference of **Aerobic capacity**. This may be due to type of the game they profess to play and by virtue of its longer duration plays, helps them to maintain physically strong, mentally tough and sustainable body structures having abundant aerobic and latent energy during training and competition periods which in turn help them play excellent entertaining games.

9. CONCLUSION

In fine, the study observed that there emerged no significant difference of **Resting Heart Rate and Aerobic capacity** between football and hockey players and concluded to recommend for doing similar studies for other games too.

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**PSYCHOLOGICAL HEALTH STATUS AMONG THE IMPHAL
QUARANTINE CENTER INMATES DURING COVID-19 PANDEMIC:
A CROSS-SECTIONAL STUDY**

¹Ayekpam Leeli Devi

Research Scholar, Department of Physical Education and Sports Science,
Manipur University, Imphal, Manipur (India)

²Dr. Khuraijam Sanatombi Devi

Head and Associate Professor, Department of Physical Education and Sports Science,
D.M. University, Imphal, Manipur, India

Abstract:

The purpose of the study was to investigate the level of depression, anxiety and stress level among the inmates of quarantine center during COVID-19 outbreak. The study was conducted on randomly selected 4 quarantine centers of Manipur at Imphal area. The questionnaires were distributed through Google forms. The study was a cross-sectional, web-based online survey. A total of 100 participants responded to the study. The participants were of different background and of different age group. 21 items DASS questionnaire was used for the study. The questionnaire consist of three sub-scales of 7 questions each i.e. Depression, Anxiety and Stress. To analyze the problem descriptive analysis like mean and SD was used for the study. Results revealed that due to present COVID-19 outbreak there found to be some symptoms of depression, anxiety and stress. On assessment it was found that 17% of respondents were reported to have mild to moderate depression and only 3% with severe to extremely severe depression. Along with this, 15% were found to have mild to moderate anxiety, 29% mild to moderate stress level were detected with 3% severe to extremely severe stress levels among the participants.

Key Words: *Depression, Anxiety, Stress, COVID-19, Quarantine Center.*

1. INTRODUCTION:

The pandemic situation of COVID-19 is impacting the whole world. Despite of many precautionary measures its spreading like a wildfire and it causes many psychological health issues apart from the respiratory problem. All these factor lead to a fear, anxiety and depression. It not only harm the health workers also to the normal people like students, professional and to all others. The present study emphasizes on the psychological health impact given by the COVID-19 to the inmates of Quarantine centre located at Imphal area (Manipur).

1. 1. OBJECTIVE:

The objective of the study is to investigate the level of depression, anxiety and stress level among the inmates of quarantine center during COVID-19 outbreak.

2. METHODOLOGY:

Four quarantine centers of Imphal area (Manipur, India) were randomly selected and the questionnaire was randomly distributed using Google forms among the inmates of different quarantine center. Mean and standard deviation was calculated.

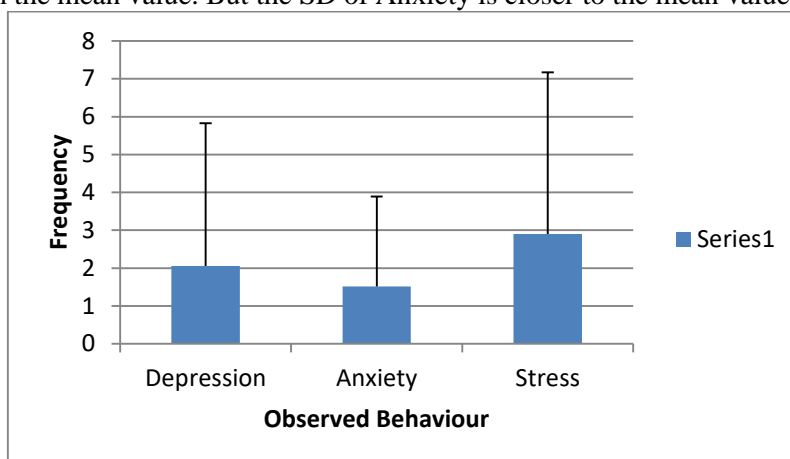
3. RESULTS AND DISCUSSION:

There were 50 participants who responded to the questionnaire. Out of these, 28% were male and 72% were female. The respondents were of different backgrounds like students, professionals, govt. employee, others, etc.. On assessment it was found that 17% of respondents were reported to have mild to moderate depression and only 3% with severe to extremely severe depression. Along with this, 15% were found to have

mild to moderate anxiety, 29% mild to moderate stress level were detected with 3% severe to extremely severe stress levels among the participants.

Table: Mean and SD values			
Variables	N	Mean	SD
Depression	100	2.06	3.77
Anxiety	100	1.52	2.37
Stress	100	2.90	4.27

The above table shows that the SD of Depression and Stress are far from the mean which means the data spreads far away from the mean value. But the SD of Anxiety is closer to the mean value.



Graph

4. CONCLUSION:

Above study revealed that the present scenario of COVID-19 has a negative impact on psychological health status of the people. It was found from the study that stress was laid more on the population as compared to anxiety and depression because of the alarming situation. It can also be concluded that the participants have a very good coping strategies in part of depression and an anxiety as compared to stress. The finding of the study shows that more research can be conducted on larger scale to improve the psychological health of the people so that they can lead a stress free life while at the quarantine center or at anywhere.

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COMPARATIVE STUDY BETWEEN GROUND EXERCISES AND WATER EXERCISES ON PHYSICAL FITNESS AMONG COLLEGE STUDENTS

Laxmindar Debnath

Assistant Professor,
Faculty of Physical Education and Yoga, the ICFAI University Tripura

Abstract:

The purpose of the study was to determine the effect of some specific exercises on selected physical fitness components in different two situations i.e. ground exercise and water exercise among college students. 30 students were selected from Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal (Maharashtra), for this study and they were divided in two groups each consist of 15 students. The subjects were selected at random to serve as subjects for this study. All the subjects were undergoing a residential professional course in physical education and they were fairly well in condition. All the students of both groups were given AAHPER Youth Fitness Test - 50 Yard Dash (Speed), Standing Broad Jump (Power), Shuttle Run (Agility), and 600 Yard Run and Walk (Endurance) and Cureton Flexibility Test - Hip Flexion and Extension (Flexibility). The groups name were given Group-A (Ground Exercise) and Group-B (Water Exercise). Before participated in 6 weeks exercise program, both groups were given pre-test and after the exercise program post test on AAHPER Youth Fitness Test and Cureton Flexibility Test. The performance of ground group and water group recorded according to their high performance in the trails by the pre-test and post-test method. To analyze the difference in physical fitness variable between two group in two difference situation (Ground exercise and Water exercise) were determined through 't' test. From the findings, it has been found that there was a significant difference between the ground exercise and water exercise, where the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence).

Key Words: Physical Fitness, Speed, Power, Agility, Flexibility, Endurance, Ground Exercise, Water Exercise.

1. INTRODUCTION:

Physical fitness is a condition in which an individual has sufficient energy to avoid fatigue and enjoy the life. It's refers to the organic capacity of the individual to perform the normal task of daily living without undue tiredness or fatigue having reserves of strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him. Speed is a physical fitness component; it is the capacity of an individual to cover maximum distance in minimum time. It is the quickness of movement of limb whether this is the legs of a runner or the arm of the shot putter. Power also a physical fitness component; it is related with strength and speed of contraction of muscles. The ability to exert maximum muscular contraction instantly is an explosive burst of movement. Agility is an ability to change, both rapidly and accurately, the position or direction of the body through large ranges of movement. Endurance is the ability to deliver oxygen and nutrition to tissues and to remove wasters, over sustained periods of time. Long runs and swims are among the methods employed in measuring this component. Flexibility is the ability of an individual to move the body and its part through as wide a range of motion as possible without undue strain to the articulation and muscle attachment.

1.1. Purpose of the study: The purpose of the study was to determine the effect of some specific exercises on selected physical fitness components in different two situations i.e. ground exercise and water exercise among college students.

1.2. Statement of the problem:-

The researcher himself is as a swimmer. Maximum people do exercises on the ground and try to develop their fitness level. Hence, it was a question in his mind and keen desire to know what type of exercises

are more effective to physical fitness to students? Through this he wanted to satisfy himself by finding of the answer. Viz which exercise is providing better effectiveness on physical fitness of students?

So, he thought of comparing the ground exercises and water exercises with this view in mind, the researcher stated the problem for study as under –

“Comparative Study between Ground Exercises and Water Exercises on Physical Fitness among College Students”

1.3. Objectives of the study:

The objectives of the study were as follows:

- To study the difference of Speed (50 yard dash) between ground exercises and water exercises among college students.
- To study the difference of Power (standing Broad jump) between ground exercises and water exercises among college students.
- To study the difference of Agility (Shuttle Run) between ground exercises and water exercises among college students.
- To study the difference of Flexibility (Hip flexion & Extension) between ground exercises and water exercises among college students.
- To study the difference of Endurance (600 Yard Run and walk) between ground exercises and water exercises among college students.

1.4. Significance of the Study:

This study would be significance in aware the misuse of exercises and would help the researcher to suggest in new exercises as per need of physical fitness. It also would help the self realization of physical education teachers, coaches and trainers and would help to conduct the similar study in future by a new researcher. This study would help to choice of the physical exercises and would support in the improvement of physical fitness of their colleges.

1.5. Hypothesis (Declarative form of Hypothesis):

This is hypothesized that there would be a significant difference between the ground exercise and water exercise among college students.

1.6. Delimitations:

This study was delimited to the following aspects:

- This study was delimited to 30 male students of Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal.
- This study was delimited to 18 – 25 years of age.
- This study was delimited to the specific exercises of physical fitness.
- The exercises programme was conducted in the campus of Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal.
- This study was delimited to B.P.E and B.P.Ed students only.
- This study was delimited to the physical fitness components only.
- This study was delimited to the period of 6 weeks exercises only.

1.7. Limitations:

The following were the limitations of this study:

- The dietary habits were not under control.
- The environmental factors were not under control.
- There were no controls of heredity potential factors.
- No motivational techniques were used during the exercise.
- The socio-economic status of the students was not considered.
- The physical activity, coaching and other training background of the students was not considered.

2. METHODOLOGY:

Sources of data: The students of this study were selected from Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal.

Method of Sampling: In simple random 30 Male students were selected for this study from 100 male student of Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal. The students were divided into two groups of 15 students in each.

Criterion Measures: For the collection of the data the following test were administrated, which was based on AAHPER Youth Fitness Test and Cureton Flexibility tests.

- 50 Yard Dash to measure the speed.

- Standing Board Jump to measure the leg power.
- Shuttle Run to measure the agility.
- Hip Flexion and extension to measure the flexibility.
- 600 Yard Run and Walk to measure the endurance.

3. STATISTICAL ANALYSIS OF DATA:

The statistical analysis of data pertaining to the scores of the selected physical fitness variables of **AAHPER Youth Fitness Test** and **Cureton Flexibility Test** that is speed, power, agility, flexibility and endurance, collected from fifteen of ground exercises and water exercises subjects of B.P.E and B.P.Ed of the Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal has been presented here. Each subject was administrated in total of two test one before the exercise and then after 6 weeks exercises programme (means one was Pre- test and another was Post-test). The score of all the tests were arranged in tabulated from with a view to analysis it further by standard satisfied procedure.

TABLE 1.

Table showing the Effectiveness of the speed (50 yard dash) on students through ground exercises and water exercises

water exercises							
Group	Test	Mean	SD	MD	‘t’ value Pre & Post	Total Calculated ‘t’ value	Tabulated ‘t’ value
Group-A	Pre-Test	7.63	0.42	0.28	2.80	9.37	1.98
	Post-Test	7.35	0.10				
Group-B	Pre-Test	7.36	0.37	0.92	6.57		
	Post-Test	6.44	0.41				

The results of **Table No. 1** show that mean of Group-A Pre-Test and Post-Test are **7.63** & **7.35** and Mean difference is **0.28**.

The finding shows that there is a significant difference between the mean of group-A Pre-Test & Post-Test, as the calculate 't' value of **2.80** is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Similarly the mean of Group- B Pre-Test & Post-Test are **7.36** & **6.44** and mean difference is **0.92**.

The results of this table shows that there is a significant difference between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of **6.57** is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence). Finally, it reveals that there is a significance difference between the mean of both Group-A & B, as the calculated 't' value 9.37 is greater than the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence). Hence, the hypothesis is accepted.

GRAPH 1.

Graph shows the Effectiveness of the speed (50 yard dash) on students through ground exercises and water exercises

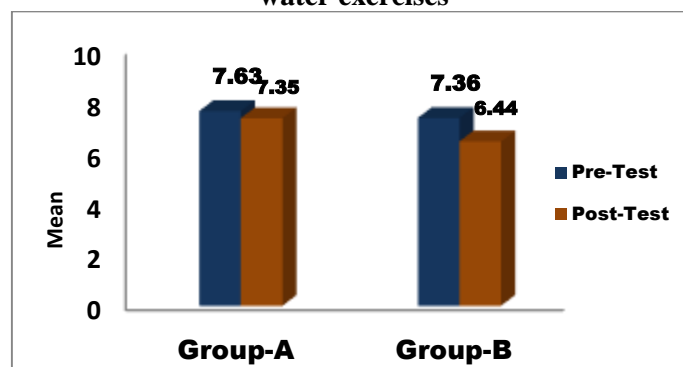


TABLE 2.

Table showing the Effectiveness of the power (Standing Broad Jump) on students through ground exercises and water exercises

Group	Test	Mean	SD	MD	't' value Pre & Post	Total Calculated 't' value	Tabulated 't' value
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Group-A	Pre-Test	75.93	4.89	5.07	3.11	10.68	1.98
	Post-Test	81	4.02				
Group-B	Pre-Test	76.4	4.08	10.07	7.57		
	Post-Test	86.47	3.13				

Table no.2 shows that mean of Group-A between pre Test and Post-Test are 75.93 & 81 and mean difference is 5.07.

The finding shows that there is a significant difference between the mean of Group-A Pre-Test & Post-Test, as the calculate 't' value of 3.11 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Similarly the mean of group-B Pre-Test & Pos-Test are 76.40 & 86.47 and mean difference is 10.07.

The finding of this table shows that there is a significant difference between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of 7.57 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence). Finally, it reveals that there is a significance difference between the mean of both Group-A & B, as the calculate 't' value 10.68 is greater than the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence).

Hence, the hypothesis is accepted.

GRAPH 2.

Graph showing the effectiveness of the power (Standing Broad jump) on students through ground exercises and water exercises

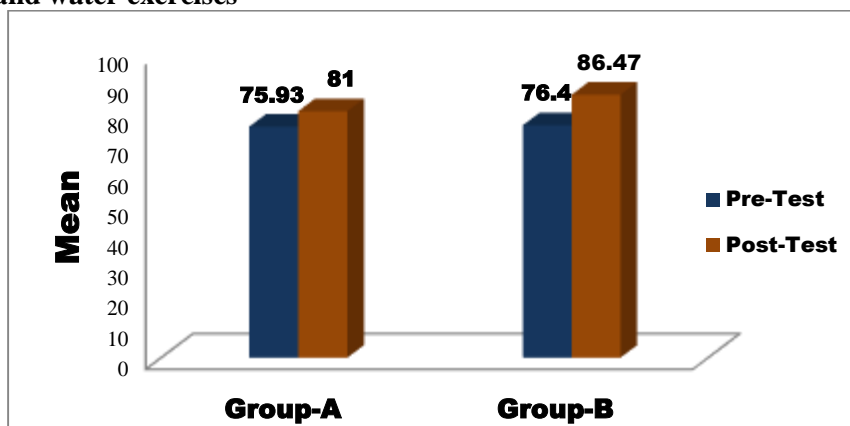


TABLE 3.

Table showing the effectiveness of the agility (shuttle Run) on students through ground exercises and water exercises

Group	Test	Mean	SD	MD	‘t’ value Pre & Post	Total Calculated ‘t’ value	Tabulated ‘t’ value
Group-A	Pre-Test	30.03	.45	2.26	13.29	28.47	1.98
	Post-Test	27.77	.53				
Group-B	Pre-Test	29.85	.73	3.34	15.18		
	Post-Test	26.51	.42				

The finding of this Table no. 3 shows that mean of Group-A Pre-Test and Post-Test are 30.03 & 27.77 and mean difference is 2.26.

The results shows that there is a significant difference between the mean of Group –A Pre-Test & Post-Test, as the calculate 't' value of 13.29 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Similarly the mean of Group –B Pre-Test & Post-Test are 29.85 & 26.51 and mean difference is 3.34.

The finding of this table shows that there is a significant difference between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of 15.18 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Finally, it result that there is a significant difference between the mean of both Group-A & B, as the calculate 't' value 28.47 is greater than the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence). Hence, the hypothesis is accepted.

GRAPH 3.

Graph showing the effectiveness of the agility (Shuttle Run) on students through ground exercises and water exercises.

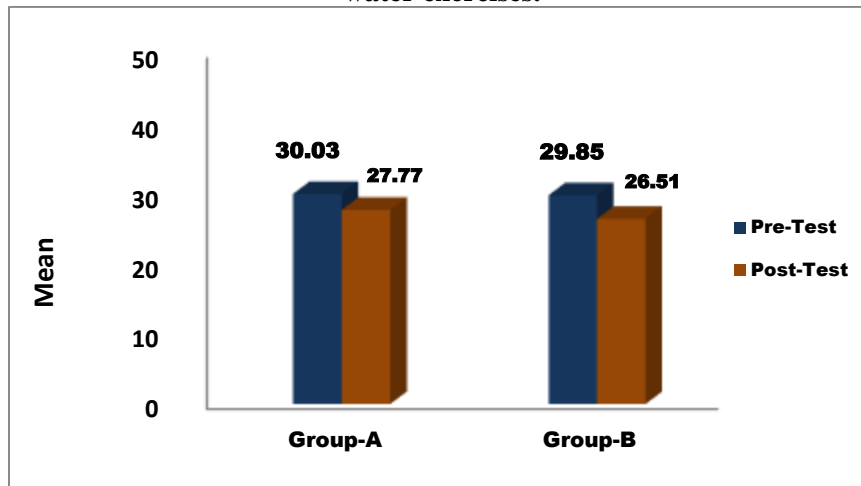


TABLE 4.

Table showing the Effectiveness of the Flexibility (Hip) Flexion on students through ground exercises and water exercises

Group	Test	Mean	SD	MD	't' value Pre & Post	Total Calculated 't' value	Tabulated 't' value
Group-A	Pre-Test	37.76	2.67	2.73	3.00	7.80	1.98
	Post-Test	35.00	2.30				
Group-B	Pre-Test	36.73	3.66	6.33	4.80		
	Post-Test	30.40	3.59				

The results of TABLE no. 4 shows that means of Group – A Pre-Test and Post-Test are **37.76** & **35.00** and Means difference is **2.73**.

The finding shows that there is a significant difference between the mean of Group-A Pre-Test & Post-Test , as the calculate 't' value of 3.00 is higher than the tabulate 't' value of 2.10 (14 degree of freedom at 0.05 of confidence).

Similarly the mean of Group-B Pre-Test & Post-Test are 36.73 & 30.40 and Mean difference is 6.33.

The result of this Table shows that there is a significance between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of 4.80 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level confidence).

Finally, it reveals that there is a significance difference between the mean of the both Group-A & B, as the calculate 't' value 7.80 is greater than the tabulate 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence).

Hence, the hypothesis is accepted.

GRAPH 4.

Graph showing the effectiveness of the flexibility (Hip Flexion) on students through ground exercises and water exercises.

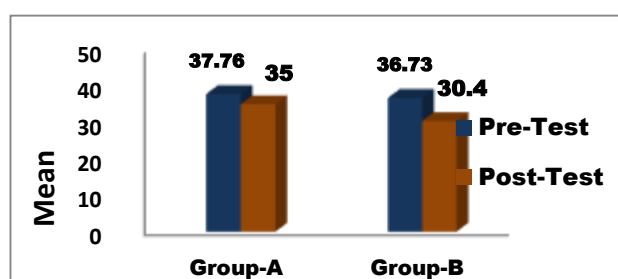


Table showing the effectiveness of the flexibility (Hip Extension) on students through ground exercises and water exercises

Group	Test	Mean	SD	MD	‘t’ value Pre & Post	Total Calculated ‘t’ value	Tabulated ‘t’ value
Group-A	Pre-Test	223.2	3.04	3.27	2.87	10.26	1.98
	Post-Test	226.47	3.16				
Group-B	Pre-Test	221.47	4.65	10.93	7.39		
	Post-Test	232.4	3.38				

Table no. 5 shows that mean of Group-A Pre-Test & Post-Test are 223.2 & 226.47 and Mean difference is 3.27.

The finding shows that there is a significant difference between the mean of Group-A Pre-Test & Post-Test, as the calculate 't' value 2.87 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Similarly, the mean of Group-B Pre-Test & Post-Test are 221.47 & 232.40 and mean difference is 10.93.

The results of this table shows that there is a significant difference between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of 7.39 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Finally, it reveals that there is a significance difference between the mean of both Group-A & Group-B, as the calculate 't' value 10.26 is greater than the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence). Hence, the hypothesis is accepted.

GRAPH 5.

Graph showing the effectiveness of the flexibility (Hip Extension) on students through ground exercises and water exercises.

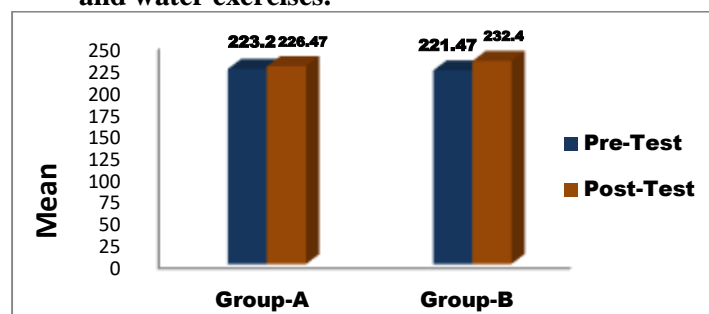


TABLE NO:- 6

Table showing the effectiveness of the endurance (600 Yard Run & Walk) on students through ground exercises and water exercises

Exercises and water exercises									
Group	Test	Mean	SD	MD	‘t’ value Pre & Post	Total Calculated ‘t’ value	Tabulated ‘t’ value		
Group-A	Pre-Test	3.36	.22	.11	2.20	7.30	1.98		
	Post-Test	3.25	.02						
Group-B	Pre-Test	3.44	.37	.51	5.10				
	Post-Test	2.93	.22						

The results of Table no.-6 shows that mean of Group-A Pre-Test and Post-Test are 3.36 & 3.25 and mean difference is .11.

The finding shows that there is a significant difference between the mean of group-A Pre-Test & Post-Test, as the calculate 't' value 2.20 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

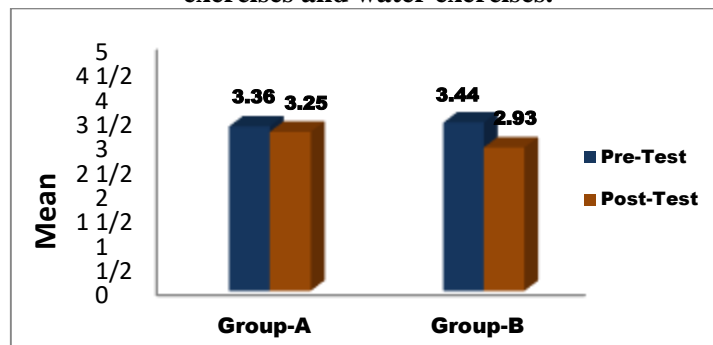
Similarly the mean of Group-B Pre-Test & Post-Test are 3.44 & 2.93 and mean difference is .51.

The finding of this table shows that there is a significant difference between the mean of Group-B Pre-Test & Post-Test, as the calculate 't' value of 5.10 is higher than the tabulated 't' value of 2.10 (14 degree of freedom at 0.05 level of confidence).

Finally, it results that there is a significant difference between the mean of both Group-A & B, as the calculate 't' value 7.30 is greater than the tabulated 't' value of 1.98 (28 degree of freedom at 0.05 level of confidence). Hence, the hypothesis is accepted.

GRAPH 6.

Graph showing the effectiveness of the endurance (600 Yard Run & Walk) on students through ground exercises and water exercises.



4. CONCLUSIONS

On the basis of the finding of this study the following conclusions were drawn:-

- There is a significance difference between Pre-Test and Post-Test on ground group due to six weeks training program.
- There is a significance difference between Pre-Test and Post-Test on water group due to six weeks training program.
- Conclusion is that 50 Yard dash in between ground group and water group is difference.
- There is a significance difference in Standing Board Jump in between ground group and water group.
- After the statistical evolution of Shuttle run the significance of ground group and water group is difference.
- There is significant difference in Hip Flexion in between ground group and water group after exercise (Post-Test).
- Conclusion is that Hip Extension between ground group and water group is difference.
- After the statistical evolution of 600 Yard Run and Walk the significance of ground group and water group is difference.

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A STUDY ON LIFESTYLE AND PHYSICAL ACTIVITY OF GOVERNMENT COLLEGE MALE STUDENTS OF CHANDIGARH

¹Swati, ²Dr. Th. Nandalal Singh

¹Research Scholar, ²Associate Professor,

Department of Physical Education, Panjab University, Chandigarh.

ABSTRACT:

Purpose: The purpose of the study was to compare life style and physical activity among hosteller and non-hosteller male students of Chandigarh. **Methods:** For the purpose of the study, total 400 students (Hosteller – 200 and Non-hosteller 200) were selected conveniently and purposively as the subject. The subjects were selected from various hostels of Government Colleges of Chandigarh. The age of the subjects ranged from 18 to 25 years. Keeping the feasibility criterion in mind, the life style and physical activity selected as variables for the present study. Life Style was assessed with the help of Life Style Assessment Inventory developed by Davids, J. Anspangh, Michael, H. Hamrich and Frank D. (1994), and Physical Activity was assessed with the help of Physical Activity Index developed by B. Mayfield (2006). **Statistical Technique:** To compare the mean differences between Hosteller and Non-Hosteller students of Government College, descriptive Statistics i.e. mean, standard deviation and t- test were used. The level of significance was set as 0.05 levels. **Findings:** The results of the study indicate that the insignificant difference was found between the Hostellers & Non-Hostellers on Life Style, as p-value was greater than 0.05. The results of the study also indicate that the significant difference was found between Hostellers & Non-Hostellers on Physical Activity, as p-value was lesser than 0.05.

Key words: Hostellers & Non-Hostellers, Life Style, Physical Activity.

1. INTRODUCTION

Hostel is a place where students stay away from home in the institution. A hostel presents altogether different physical, social, psychological and philosophical environment compare to home environment. The students who they stay away from their parents in the hostels are known as hostellers. Unlike home the students are deprived of various physical and emotional comforts. They have to conform with norms and values forced by the authorities. Hostel environment varies from home environment. Non-hostellers do not stay away from their parents. The students who live in home with their parents and come to school or college only for study hours are identified as non-hostellers. They remain in constant touch with their parents and other members of family and relatives and feel more secured and comfortable compare to a hosteller students (Singh, 2016).

Lifestyle of an individual incorporates prototypes of culture and behavior and their personal habits such as physical activity, diet, smoking, or alcoholism that have developed through the process of socialization. It develops through importunate interaction with family and peers (Purohit, & Singh, 2012). Due to concern for a health-promoting life style, the role of physical activity has occupied an important position in recent research (Shephard & Aoyagi, 2010; Atallah, Leong, Lo, et al., 2011). Participation in a systematic physical activity is especially emphasized in relation with many necessities for the good health of contemporary societies.

The lifestyle topics included were weight management, nutrition, physical activity, and smoking. We coded whether the general practitioner or the patient initiated the discussion about lifestyle. The content of lifestyle counseling was classified as assessment of lifestyle or giving specific advice. Assessment of lifestyle was defined as information gathering on weight, or weight change, dietary pattern, physical activity, or

smoking status, or (recent) changes in these behaviors. It also included the measurements of body weight or waist circumference. Discussion of alcohol use was regarded as a discussion of 'nutrition', unless the focus was on problems related to alcohol addiction.

2. Objective of the Study

To find out difference between hosteler and non-hosteler male students of Government College on life style and physical activity.

3. METHODOLOGY

Selection of subjects

For the purpose of the present study total 400 Male Students (200 Hostellers & 200 non-hostellers) were selected conveniently and purposively. The subjects were selected from Panjab University Chandigarh. The age of the subjects ranged from 18 to 25 years.

Criterion Measures

For the purpose of data collection of Life style and physical activity the following standardized tests were used:

- Life Style was measured by using Life Style Assessment Inventory developed by Anspangh, J. Davids, Michael, H. Hamrich and Frank D. Rasato (1994).
- Physical Activity was measured by Physical Activity Index developed by B. Mayfield (2006).

Administration of test

Life Style

Life Style was assessed with the help of Life Style Assessment Inventory developed by Davids, J. Anspangh, Michael, H. Hamrich and Frank D. (1994). It has 78 items, these question statements were evenly divided in eight Life Style contents namely Physical, Alcohol and Drug, Nutritional, Social wellness, Spiritual wellness, Emotional Wellness, Stress Control, Intellectual Wellness assessment. The subjects were responding using five point ordinal scale. The validity of the scale is .89. The normative response intervals for life style assessment are Excellent for 86-100, good for 70-85, Average for 50-69, Below Average for 30-49 and Needs Improvement for Less than 30.

Physical Activity

Physical activity of the subjects was assessed by Physical Activity Index developed by B. Mayfield (2006). It was calculated by multiplying Frequency, Duration, and Intensity. Further on the basis of above assessment the students were classified into different Activity Level i.e. less than 15 indicates Sedentary, 15-24 is Low Active, 25-40 is Moderate Active, 41-60 is Active, and greater than 60 is High Active.

Statistical technique

To compare the mean differences between Hosteller and Non-Hosteller students of Government College, descriptive Statistics i.e. mean, standard deviation and t-test were used. The level of significance was set as 0.05 level.

4. RESULT & FINDINGS OF THE STUDY

Table-1

Descriptive statistics of Hosteller and Non-Hosteller on Life style and Physical Activity

Group Statistics							
	Group	N	Mean	Std. Deviation	t	df	Sig.
Life	Hosteller	200	69.2138	12.960	-.947	398	.344

Style	Non Hosteller	200	70.4576	13.317			
Physical Activity Index	Hosteller	200	30.165	31.675	-	398	.018
	Non Hosteller	200	38.220	35.922	2.379 *		

* Statistically significant at 0.05 level of significance

Table-1 reveals that insignificant difference was found between Hostellers & Non-Hostellers on Life Style, since t-value of 0.947 was found lesser than the required tabulated value and p-value was greater than 0.05. In other hand the significant difference was found between Hostellers & Non-Hostellers on Physical Activity, since t-value of 2.379 was found greater than the required tabulated value and p-value was lesser than 0.05.

Hostellers had significantly lesser physical activity compared to the Non-Hostellers in Physical Activity Index ($p < 0.018$). Studies mentioning hostel as a risk factor for low physical activity among college students were hard to come by, and we could not find an Indian study despite best efforts. An international review article published previously had discussed that students living off-campus are more active than those on campus (Irwin, 2004).

Fig. 1 Graphical representation of means of Hosteller and Non-Hosteller on Life style

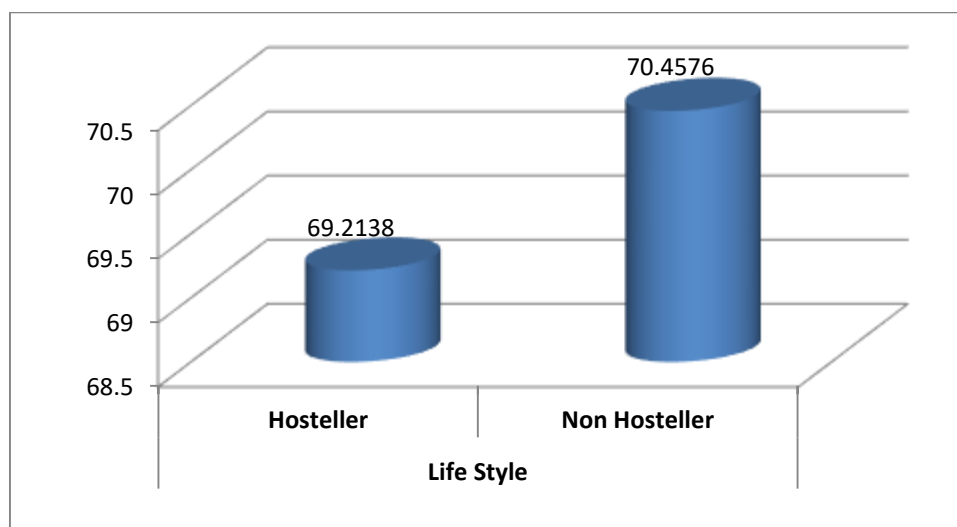
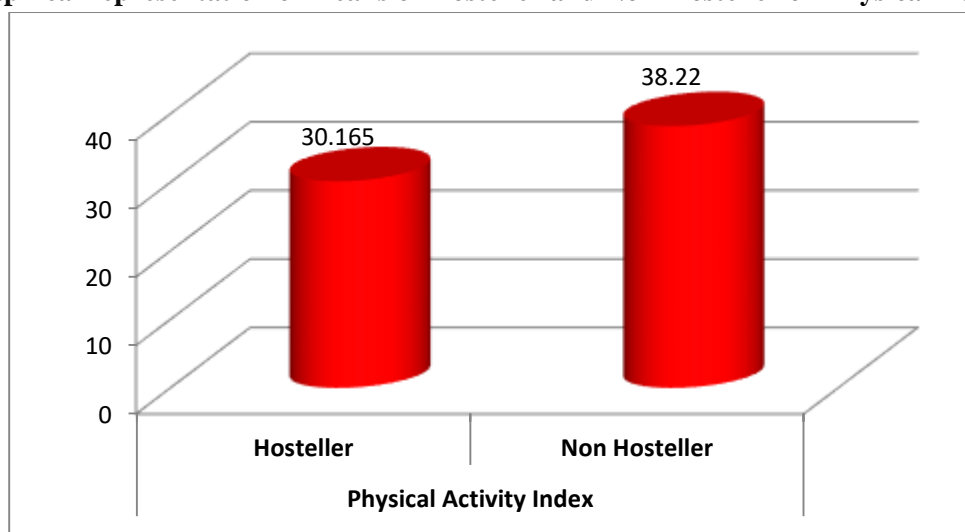


Fig. 2 Graphical representation of means of Hosteller and Non-Hosteller on Physical Activity



5. DISCUSSION OF FINDINGS

From the findings of this study it was evident that the significant difference was found between physical activity index among hostellers and non-hostellers. Same type of study done in past, there lots of study suggested that day scholars student study skills was good as compared to hostler. Previous study conducted by Khera & Sharma (2012) has reported that hostellers had significantly lesser physical activity compared to the day scholars in the transport domain and recreational domain ($p < 0.001$). Similar study were made by Medina Barquera Janssen (2013), Awadalla et al. (2014), Zhao et al. (2007), Martinez-Lemos, et al. (2014). A number of studies conducted to evaluate the physical activity, diet, and fitness status of university students have revealed that the physical condition and nutritional habits of students are very much associated with their own attitudes toward health promotion and illness prevention (Haase et al., 2004; Nasui, Popescu, 2014).

6. CONCLUSIONS

On the basis of findings of the study, the following conclusions may be drawn:

- The results of the study indicate that the insignificant difference was found between the Hostellers & Non-Hostellers on Life Style.
- The results of the study indicate that the significant difference was found between Hostellers & Non-Hostellers on Physical Activity.

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**IMPORTANCE OF PHYSICAL ACTIVITIES AND EXERCISE FOR
THE WOMEN DURING THIS MODERNIZATION AND
GLOBALIZATION**

MR. KONARK ROY

Ph.D. Scholar at ICFAI University, Agartala, Tripura.

Abstract:

The term “Physical activity” is not equal to “exercise”. Exercise is a body has a sound mind” It means that if a person is weak, dull, and sick, he is not able to do his work efficiently and quickly. A well-balanced exercise program can improve general health, build endurance, and slow many of the effects of aging. Regular physical activity has important health benefits for women. Sedentary women have increased risks for cardiovascular disease, diabetes, hypertension, colon cancer, and depression. Physical activities and exercise means, the daily practice of doing some physical work. Physical Activities and exercise is the key to good health and fresh mind the daily practice of some physical work does not mean to take stress on body, but it is actually the stress relieving activity. The increase in modernization and globalization has brought several behavioral changes which are the most important and modifiable risk factors for chronic diseases. One of those factors is the lack of physical activity. Physical activity and exercise can have immediate and long-term health benefits. Most importantly, regular activity can improve our quality of life.

Key Words: Physical Activity, Exercise, Women, Modernization and Globalization

1. INTRODUCTION:

Physical activity is defined as any bodily movement produced by skeletal muscles that require sub category of physical which is structured, repetitive and purposive. Sound energy expenditure. The term “Physical activity” is not equal to “exercise”. Exercise is a body has a sound mind” It means that if a person is weak, dull, and sick, he is not able to do his work efficiently and quickly. It is very important to have a fresh mind before any work, like office work, study or some creative work. The people who make exercise as essential part of their routine are more happy and efficient than others. Exercise does not mean to go to gym or some club for daily activity; it only means to do some physical activity no matter how and where. Exercise is useful in preventing or treating coronary heart disease, osteoporosis, weakness, diabetes, obesity, and depression. Strengthening exercises provide appropriate resistance to the muscles to increase endurance and strength.

A well-balanced exercise program can improve general health, build endurance, and slow many of the effects of aging. The benefits of exercise not only improve physical health, but also enhance emotional well-being. Regular physical activity remains an essential behavior for endorsing health, postponing or preventing predominant musculoskeletal disorders such as mechanical low back pain, neck and shoulder pain and decreasing the risk of increasing coronary heart disease, hypertension, diabetes, osteoporosis, obesity and colon cancers. The period of adolescence represents the transition from childhood to adulthood and lifetime habits such as regular exercise are normally begun at this time . But unfortunately research indicated that physical activity rates decline consistently during the adolescent years. Regular physical activity has important health benefits for women. Sedentary women have increased risks for cardiovascular disease, diabetes, hypertension, colon cancer, and depression. A recent large clinical trial has shown that increasing physical activity, along with dietary changes, can dramatically decrease the risk of developing type 2 diabetes. Physical inactivity is more prevalent among women than men, and participation in physical activity decreases as women age. Women's exercise participation has been studied less extensively than men's. Several studies have shown that women have different psychological and social mediators of physical activity participation than do men. Women are more likely than men to report barriers to exercise and reduced control

over their decision to exercise. Normative female gender role responsibilities such as child care and housework can lead to decreased participation in physical activity. Female gender roles may also make it difficult for women to make their own health a priority. Even women living with a chronic illness have difficulty taking care of their own health and self-care needs because of the demands and needs of others. Regular physical activity is vital for good physical and mental health. It helps improve your overall health and fitness, maintain a healthy weight, reduce your risk for many chronic diseases and promote good mental health. According to Australia's Physical Activity and Sedentary Behaviour Guidelines recommend that at least 30 minutes of moderate-intensity physical activity on most, preferably all, days is required for good health. This is the same for women and men.

2. SPECIFIC NEEDS AND BENEFIT OF REGULAR PHYSICAL ACTIVITIES AND EXERCISES FOR WOMEN:

Everybody knows that the need of physical activities and exercise in our daily lives, but we may not know why or what physical activities and exercise can do for us. Physical activities and exercise means, the daily practice of doing some physical work. Physical Activities and exercise is the key to good health and fresh mind the daily practice of some physical work does not mean to take stress on body, but it is actually the stress relieving activity. A good health is obligatory for doing a good work. A famous quote is there is awesome evidence that people who lead active lifestyles are less likely to suffer from illness and more likely to live longer. Physical activity and exercise not only makes physically fitter but it also improves our mental health and general sense of well-being. Regular physical activity can improve women's health and help prevent many of the diseases and conditions that are major causes of death and disability for women around the world. Many women suffer from disease processes that are associated with inadequate participation in physical activity:

- Cardiovascular diseases account for one-third of deaths among women around the world and half of all deaths in women over 50 years old in developing countries.
- Diabetes affects more than 70 million women in the world and its prevalence is projected to double by few years.
- Osteoporosis is a disease in which bones become fragile and more likely to break and is most prevalent in post-menopausal women.
- Breast cancer is the mostly commonly diagnosed cancer in women. Women who engage in regular exercise have been shown to have a reduced risk of breast cancer.

3. MAKING CHANGES TO ADOPT A PHYSICAL EDUCATION ROUTINE DURING THIS PANDEMIC SITUATION:

Regular exercise is more likely if you plan ahead. Suggestions include:

- Identify the barriers, such as lack of money or motivation. Think about a range of possible solutions.
- Consider the personal beliefs that may be holding you back, such as guilt about taking time out. Challenge those beliefs. Help the family to realize the needs are as important as theirs.
- Find a support group – perhaps the partner, extended family, friends or paid childcare.
- Find something you like to do. One is more likely to stick with it if choose an activity to enjoy than if it done because it's 'good for one'.
- Look through the diary for the week and make exercise 'appointments' with oneself.
- Set achievable goals. Don't fall victim to the 'all or nothing' mentality. If one can only find the time for one or two exercise sessions per week at the moment. Every little bit helps and some exercise is significantly better than no exercise at all.

4. IMPORTANCE OF PHYSICAL ACTIVITIES AND EXERCISES FOR WOMEN

In developing countries is going through epidemiologic transition, i.e., there is a rising burden of non-communicable diseases while these countries still struggle to eradicate infectious diseases. This transition is attributed most of the times to behavioral and lifestyle factors such as diet and physical activity and With the risk factors being more prevalent in females as compared to males, it is important to focus on preventive and curative aspects especially for this high risk population. The increase in modernization and globalization has brought several behavioral changes which are the most important and modifiable risk factors for chronic diseases. One of those factors is the lack of physical activity. On Global basis, over one million deaths can be attributed to physical inactivity alone. Physical activity is not only associated with overall improved physical fitness and psychological health but also helps in preventing obesity and other risk factors for chronic diseases.

Some of the major reasons of the physical inactivity in women are societal and cultural factors. Studies conducted in Arab countries and Iran have found child care responsibility, lack of security, lack of time, traditional views about women, etc., as some of the reasons for lack of physical activity among women. Even among eastern women residing in western countries, reasons for lower level of physical activity were found to be cultural factors and norms that women should stay indoors. Lack of awareness, lack of culturally appropriate facilities for workout and lack of safety in our setting are some of the major issues which need to be worked upon in order to encourage physical activity in women. For promotion of population based interventions. It is highly recommended to emphasize on activities that can be easily incorporated into people's everyday lives for e.g. walking therefore, steps should be taken for increasing facilities like parks and fitness centers exclusively for females Community based physical activity programs have also been found to be beneficial and should be considered. Some of the clinical trials have reported increase in physical activity among women in response to interventions such as providing information through mailed newsletters, expert consultant's advice, individual counseling addressing barriers, benefits, self-efficacy, social support and goal setting, interactive groups sessions, skills training in a regular exercise regimen, dietician consultation and feedback, etc.

5. CONCLUSION:

Exercise not only makes one physically fitter but it also improves your all body health and general sense of well-being. Physical activity or exercise can reduce the risk of developing several diseases like type 2 diabetes, cancer and cardiovascular disease. Daily exercise can reduce stress and anxiety, boost happy chemicals, improve self-confidence, increase the brain power, sharpen the memory and increase our muscles and bones strength. Physical activity and exercise can have immediate and long-term health benefits. Most importantly, regular activity can improve our quality of life. A minimum of 30 minutes a day can allow you to enjoy these benefits.

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Fit India Campaign Committee and Fit India Club, Manipur University, India**

**ASSOCIATION OF HEIGHT, AGILITY AND SPORTS
ANXIETY WITH PLAYING ABILITY OF STATE LEVEL
BASKETBALL PLAYERS**

¹ Dr. G.A. Preetham Prakesh, ² Raju Gude, ³ Dr. P.P.S. Paul Kumar

*Lecturer in Physical Education, Andhra Christian College, Guntur

²Research scholars, University College of Physical Education & Sports Sciences, ANU.

³Dean, Faculty of Physical Education, Yoga & Sports Sciences, Chairman, Board of Studies

Director of Physical Education & Associate Professor, University College of Physical
Education & Sports Sciences, Acharya Nagarjuna University.

ABSTRACT:

The purpose of this study was to find out the association of anthropometric, physical, psychological and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball players, who represented their state in interstate basketball tournaments the age group of 18 to 25 years. Scientific appraisal, evaluation and prediction of basketball performance from selected anthropometric, physical fitness and psychological variables are present in the literature. These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables. The main objective of this research is appraisal of selected variables as pre requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness and psychological variables. In doing so, the investigator would assess the present status of basketball players anthropometric, physical fitness and psychological variables along with their playing ability. Further, the investigator would associate every variable selected with basketball playing ability. The subjects selected for pilot study phase was 5 state level basketball players. The subjects were drawn from state level basketball players who were represented the state in interstate competitions, the evaluation of the playing ability was subjectively measured only with the help of three experts.

Key words: Anthropometric, Physical, Psychological and Parameters, basketball players

1. INTRODUCTION:

"Evaluation and measurement are universal practices. They reflect man's ever-present curiosity about his environment and his concern about himself." (Lawrence and Fox, 1954) The process of evaluation in education is a never-ending cycle. In the light of results from judgments made with reference to the individual to be educated and the means of educating him, goals are appraised and restated and procedures are replanned, and the cycle is repeated. Measurement and evaluation of performance are essential to determine how well the formulated objectives have been met, how efficient the process has been, and how good the product is. The results indicate the direction and the rate of change in performance. "In athletics and physical education, as in education and in life, the teacher and coach are constantly evaluating and measuring." (Meissner and Meyers 1940). The most valid form of evaluation is the use of well-established criteria as a basis for comparisons, based on association of selected parameters with playing ability.

Game of Basketball: Sports are an enjoyable means of increasing physical fitness and relieving tension. It takes skills to be good; furthermore, it takes skill to have a good since. One tends to participate in those activities in which he possesses some skill and enjoys those activities in which his skill is better than average. Skill tests and learning are very closely related to neuro-muscular co-ordination. Fundamental skills are universal in nature and common to all races, where as their adaptation into games. The fundamental skills are frequently measured in physical tests such as a dash, a throw for distance, a jump, and the like. Skill tests are

usually conducted to test the ability of the students in the skill of sports and major games. Skill tests are necessary to find out, how far the students understood the material and subject matter, which have been taught in the class; as far as practical session is concerned in sports and physical education, the skills tests are necessary to enlighten the progress of students in their subject matter.

Anthropometric Measurements: Anthropometric Measurement is defined as set of noninvasive, quantitative techniques for determining an individual's body fat composition by measuring, recording, and analyzing specific dimensions of the body, such as height and weight; skin-fold thickness; and bodily circumference at the waist, hip, and chest.

([www.medicaldictionary.thefreeonlinedictionary .com](http://www.medicaldictionary.thefreeonlinedictionary.com)). Physical educators have long realized that the performance of men and women is greatly influenced by such factors of age, height, arm length, leg length and body structure.

Objectives of the Subject: Scientific appraisal, evaluation and prediction of basketball performance from selected anthropometric, physical fitness and psychological variables are present in the literature. These studies involved in finding out relationship of with playing ability from isolated anthropometric measurements or physical fitness variables or psychological variables. The main objective of this research is appraisal of selected variables as pre requisites for basketball performance taking to consideration of combination of anthropometric, physical fitness and psychological variables. In doing so, the investigator would assess the present status of basketball players' anthropometric, physical fitness and psychological variables along with their playing ability. Further, the investigator would associate every variable selected with basketball playing ability

2. STATEMENT OF THE PROBLEM:

The purpose of the study is to make an appraisal of selected anthropometric, physical fitness and psychological variables and playing ability of state level basketball players. And to find out relationship between playing ability and selected anthropometric, physical fitness and psychological variables of state level basketball players.

3. SIGNIFICANCE OF THE STUDY: In the recent years physical educators, coaches' sports experts and even most of the players have realized the importance of playing ability. The significance of the study is based on the fact that performance in basketball measured through playing ability can be found association from selected anthropometric, physical, and psychological variables.

- This study will help to evaluate selected anthropometric, physical fitness and psychological levels of state level basketball players and compare the abilities and capacities of the players by themselves and by coaches and physical educators.
- The result and findings of this study would provide criteria for selecting potential basketball players.
- This study might be utilized as a screening instrument in analyzing and classifying the basketball players.
- The outcome of the results shall be helpful to basketball coaches and physical educationists to concentrate at the selected variables of this study, which might be having high correlation with playing ability to design the training programme.
- The result of the study would be making it clear whether the selected independent variables are directly or indirectly related to the criterion variables.
- The result and findings of this study, may guide basketball players on their playing ability.
- This study will help the budding researchers to take up similar studies in other areas and disciplines.

4. DELIMITATIONS:

- ❖ This study was conducted in two phases, namely, pilot study in which the investigator ascertained the reliability of subjects, instruments used, and tests to be administered and final phase of measuring selected anthropometric, physical fitness, psychological variables and playing ability of the basketball players.
- ❖ The subjects selected for pilot study phase was 5 state level basketball players.
- ❖ The age group of the subjects selected was ranking form 18 to 25 years.
- ❖ The subjects were drawn from state level basketball players who were represented the state in interstate competitions,
- ❖ The evaluation of the playing ability was subjectively measured only with the help of three experts.

5. LIMITATIONS:

- ❖ The environmental factor for the study could not be controlled as subjects for the study were the state level basketball players and they differed in their routine habits etcetera.
- ❖ The subjects were undergoing different types of physical activities and the effect of these activities could not be controlled.
- ❖ The diet and experience of the subjects were not considered in this study.

6. METHODOLOGY:

In this chapter, the selection of subjects, research design of the study, selection of subjects, orientation of subjects, selection of variables, reliability of instruments, competency of tester, reliability of data, test retest administration, subjective assessment of playing ability, and the statistical procedure used have been explained.

Selection of Subjects: The generalisability of research results is the selection of sample which will provide the research data. A sample is a small proportion of a population selected for observation and analysis. A sample reflects the characteristics which define the population from which it is selected.

The purpose of this study was to find out the association of anthropometric, physical, psychological and parameters with playing ability of state level basketball players to achieve these purpose 100 basketball players, who represented their state in interstate basketball tournaments the age group of 18 to 25 years.

Selection of Variables: Based on the available scientific literatures pertaining to finding out relationships of selected variables with playing ability in consultation with experts, the following criterion variables were selected for this study to find association with basketball playing ability of the subjects.

Physical Fitness Variables: Height Agility

Psychological Variables: Sports anxiety

Criterion Measures:

- Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- Psychological variable, Sports Competition anxiety was measured through Spielberger's Anxiety test.

Subject Reliability: The subjects selected for this study were state level basketball players played at state level competitions. The players had adequate experience in playing the game. They were well trained in all skills and participated a number of tournaments. They involved in this study impartially and they were considered reliable for the purposes of this study.

COLLECTION OF DATA: The data for the criterion variables were collected by administering the appropriate standard tests. The procedure for administering the test is explained below. Before administering the test the purpose and procedure were explained to the subjects in details.

Administration of Tests: Height

Objective: To measure height

Apparatus used: Stadiometer and Anthropometric rod

Test Description: Height will be measured by anthropometric rod. The subject stand erect bare footed on a plane horizontal surface against a wall with her heels, back of the shoulder and head touching the wall and stretch the body. Stretched upwards as much as possible without her heel leaving the ground. Then anthropometric rod is kept in front of the subject and the crossbar of the anthropometry is adjusted so that the lower edge touches the highest point of the subject's head. Height will be recorded in centimeters.

AGILITY: Shuttle Run Test

Objective: To measure the agility of the performer in running and changing direction

Apparatus used: Stopwatch, measuring tape, 2 blocks of wood.

Procedure: Two parallel lines were marked 10 meter apart as starting line and end line

Two blocks were placed behind the end line at the time of start. The performer on the signal go, ran to the blocks, picked up one returned to the starting line and placed the block behind the line. He repeated the same process with second block.

Scoring: The score for each performer was the time required to complete 60 meter and recorded to nearest one tenth of a second.

STATISTICAL TECHNIQUES: The primary purpose of this study was to find out the association between selected anthropometric, physical fitness and psychological variables with playing ability of state level basketball players. To arrive meaningful findings the following statistics tools were computed.

Results and Discussions: The analysis of data collected from the samples under study. The purpose of the study was to find out the association of selected anthropometric, physical and psychological variables with playing ability of basketball players. To achieve the purpose of the study, the investigator selected hundred basketball players, who represented Andhra State in interstate basketball tournaments and the age group of the subjects were 18 to 25 years. All the subjects had participated in the state level competitions and represented their states. The researcher reviewed number of books, journals, research articles, coaching manuals and found that playing ability of a basketball player may have association with selected anthropometric, physical fitness and psychological variables. Based on these observations, the investigator selected the following variables for this study.

Anthropometric Variables: Height

Physical Fitness Variables: Agility

Psychological Variables: Sports anxiety

- ❖ Anthropometric variable, height was measured through stadiometer and the scores recorded in centimeters.
- ❖ Agility was measured through shuttle run and the scores recorded in 1/10th of a second.
- ❖ Psychological variable, Sports Competition anxiety was measured through Spielberger's Anxiety test.

Computation of Association on Anthropometric Variables with Playing Ability:

Descriptive Analysis: The association of anthropometric variables with playing ability of basketball players was statistically computed. In descriptive statistics the number of subjects tested, mean and standard deviation of the motor fitness parameters are presented in Table I.

Table I - Showing Descriptive Statistics on Anthropometric Variables Selected for this study

VARIABLES	MEAN	STD. DEVIATION	N
Height	170.45	6.097	100

Table II shows that the obtained mean value of the playing ability of the basketball players was 78.13 with standard deviation ± 4.83 . The mean value on height was 64.37 with standard deviation ± 3.97 . The mean value on leg length was 75.39 with standard deviation ± 4.57 . The mean value of arm length was 101.99 with standard deviation ± 3.75 .

Analysis of Coefficient Of Correlation: The obtained values were subjected to statistical treatment to find out the association between anthropometric variables with the playing ability of the subjects. The results are presented in Table II.

Table II - Showing Correlation of Coefficient between Motor fitness Parameters and Playing Ability of the subjects

S.No.	Variables Playing Ability Vs	Correlation Coefficient	Level of Sig.
1	Height	0.693*	<0.05

Required table r value $(1,99)_{0.05} = 0.197$

* Significant at 0.05 level.

Computation of Association on Physical Fitness Variables with Playing Ability

Descriptive Analysis: The association between the selected physical fitness variables with playing ability of basketball players was statistically computed. The descriptive statistics the number of subjects tested, mean and standard deviation of the physical fitness variables are presented in Table III.

Table III - Showing Descriptive Statistics on Physical fitness Variables Selected for this study

VARIABLES	MEAN	STD. DEVIATION	N
Agility	11.1078	.43275	100

Table-III shows that the obtained mean value on the mean value on agility was 11.107 with standard deviation \pm 0.432.

Analysis of Coefficient of Correlation: The obtained values were subjected to statistical treatment to find out the association of each physical fitness variable with the playing ability of the subjects. The results are presented in Table IV.

Table IV - Showing Correlation of Coefficient between Physical fitness Variables and Playing Ability of the subjects

S.No.	Variables	Correlation Coefficient	Level of Sig.
	Playing Ability Vs		
1	Agility	-0.224	<0.05

Required table r value $(1,99)_{0.05} = 0.197$ * Significant at 0.05 level.

The results presented in Table IV proved that there was a playing ability and agility (r: -0.224) as the obtained 'r' values were greater than the required 'r' value of 0.197 to be significant at 0.05 level.

Computation of Relationship on Psychological Parameters with Playing Ability

Descriptive Analysis: The association of psychological variables with playing ability of basketball players was statistically computed. In descriptive statistics the number of subjects tested, mean and standard deviation of the physiological parameters are presented in Table V.

Table V - Showing Descriptive Statistics on Psychological Parameters Selected for this study

VARIABLES	MEAN	STD DEVIATION	N
Anxiety	54.17	4.288	100

Table V shows the obtained mean value on anxiety was 54.17 with standard deviation \pm 4.831.

Analysis of Coefficient of Correlation: The obtained values were subjected to statistical treatment to find out the association of each psychological variable with the playing ability of the subjects. The results are presented in Table VI.

Table VI - Showing Correlation of Coefficient between Psychological Variables and Playing Ability of the subjects

S.No.	Variables	Correlation Coefficient	Level of Sig.
	Playing Ability Vs		
1	Anxiety	0.071	NS

Required table r value $(1,99)_{0.05} = 0.197$ * Significant at 0.05 level.

The results presented in Table VI proved that there was a significant association between playing ability and anxiety (r: 0.71) as the obtained 'r' values were lesser than the required 'r' value of 0.197 to be significant at 0.05 level.

Discussions on Findings: In this study, relationship between selected anthropometric, physical fitness and psychological variables with playing ability were found from 100 basketball players with the help of selected predictor variables such as height, agility, and anxiety. The basketball playing ability was determined through subjective rating by three experts and was used as the criterion variable. The backward multiple regression method was used to determine the association between anthropometric, physical fitness and psychological variables and playing ability of basketball players.

Physical fitness and psychological variables with playing ability, backward multiple regression was analysed for each category of variables, namely, parameters associated with playing ability from selected anthropometric variables, associated with playing ability from selected physical fitness variables and psychological variables associated with playing ability from selected anthropometric variables were studied.

7. DISCUSSIONS ON HYPOTHESIS: For the purpose of this study, the following hypotheses were formulated.

- It was hypothesized that the anthropometric variable height would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected anthropometric variables.
- It was hypothesized that the physical fitness variables, agility would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected physical fitness variables.
- It was hypothesized that the psychological variables, sports anxiety of control would be significantly associated with playing ability of state level basketball players. And basketball playing ability can be successfully predicted by selected psychological variables.

8. CONCLUSIONS: Within the limitations and delimitations of the study, the following conclusions were drawn.

- It was concluded that selected anthropometric variable height were significantly associated with playing ability of basketball players.
- It was concluded that physical fitness variables agility was significantly associated with playing ability of basketball players.
- It was concluded that psychological variables sports anxiety of control were significantly associated with playing ability of basketball players.

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**SIGNIFICANT DIFFERENCE ON SPORTS COMPETITION
ANXIETY BETWEEN NATIONAL AND STATE LEVEL KABADDI
PLAYERS**

L. Pungding

Assistant Professor

Dept. of Physical Education and Sports Science
Manipur University, Imphal

Abstract:

Background: Kabaddi is a game of physical and mental challenges. We must execute movement skills under game-related conditions of restricted space, limited time, physical and mental fatigue, and opposing players. Finally, we need a thorough understanding of individual, group and team tactics. Your ability to meet all these challenges determines how well you perform on the field of Kabaddi.

Objective: The objective of this study was to investigate the significant difference on competition anxiety level between National and State women Kabaddi players of Manipur.

Methodology: Twenty (20) national level women Kabaddi players of Manipur and twenty (20) state level women Kabaddi players were selected as the subjects of this study and the age of the subjects was ranged between 18 to 28 years. The data pertaining to this study were collected by administering Sports Competitive Anxiety Test (SCAT) Questionnaire developed by R. Martens, (1977). To determine the significant difference between National and State women Kabaddi players, t- test was employed and tested at 0.05 level of confidence.

Results: No Significant difference was found between the national and state women players of Manipur as the calculated ' t ' = 1.22 is lesser than the tabulated value of $t = 2.025$ at 0.05 level of confidence.

Conclusion: Among the National and State women Kabaddi players of Manipur, no significant difference was found in terms of competition anxiety.

Key Words: Competition Anxiety, Kabaddi.

1. INTRODUCTION:

Anxiety is a physiological response to a real imagined threat. A certain amount of anxiety is needed for peak performance. Anxiety may be motivating force or it may interfere the performance of successful athlete. As a positive motivating force, it can be instrumental that motivate the athletes to work harder to find new and to help for setting goals. The athlete who uses his anxiety in this way will seek out way to improve himself. This is not only reducing his anxiety but helps him to increase his athletic skills and self-confidence. As a negative motivation, anxiety may interface with productive as well as constructive thinking. Athletes may attempt to handle anxiety by denying their mistakes, denying their weakness and thus denying own to work hard. This can lead to development of poor work habits or athletic technique. The often lead to failure and in turn, lack of confidence and increased anxiety, so it is very important aspect to handled.

1.2. Objective of the Study

The objective of this study was to investigate the significant difference on competition anxiety level between National and State women Kabaddi players of Manipur.

1.3. Hypothesis

It was hypothesized that there might be significant difference on competition anxiety level between National and State women Kabaddi players of Manipur.

2. METHODOLOGY:

2.1 Selection of Subjects:

For this study, forty (N=40) women players, twenty (20) each from national and state level kabaddi players were randomly selected from Manipur. The age of the subjects ranged between 18 to 28 years.

2.2 Collection of Data:

The data pertaining to this study were collected by administering Sports Competitive Anxiety Test (SCAT) Questionnaire by R. Martens, (1977).

3. DATA ANALYSIS: The mean (M) and standard deviation (SD) were calculated, and t- test statistical technique was applied to find out the significant difference of competition anxiety level between National and State women Kabaddi players of Manipur. The level of significance was set at 0.05.

4. RESULTS:

The mean (M), standard deviation (SD) and t-test on competition anxiety level between National and State women Kabaddi players of Manipur are shown in table-1.

Table-1.

Comparison of mean difference between National and State level Women Kabaddi players of Manipur on Competition Anxiety.

Groups	M	SD	MD	SE	T
National level	17.15	2.72	1.00	0.89	1.12
State level	18.15	2.85			

Insignificant at 0.05 level, where, $t_{0.05(38)}=2.025$, and $N=20+20=40$

Table-1 reveals that the means (M) and standard deviations (SD) of competitive anxiety level of national and state women kabaddi players of Manipur were 17.15 ± 2.72 and 18.15 ± 2.85 respectively, and the calculated t-value was found to be 1.12. Therefore, no significant difference was found between the national and state women kabaddi players of Manipur as the calculated $t=1.12$ is lesser than tabulated $t=2.025$. The mean differences are graphically represented in fig. 1.

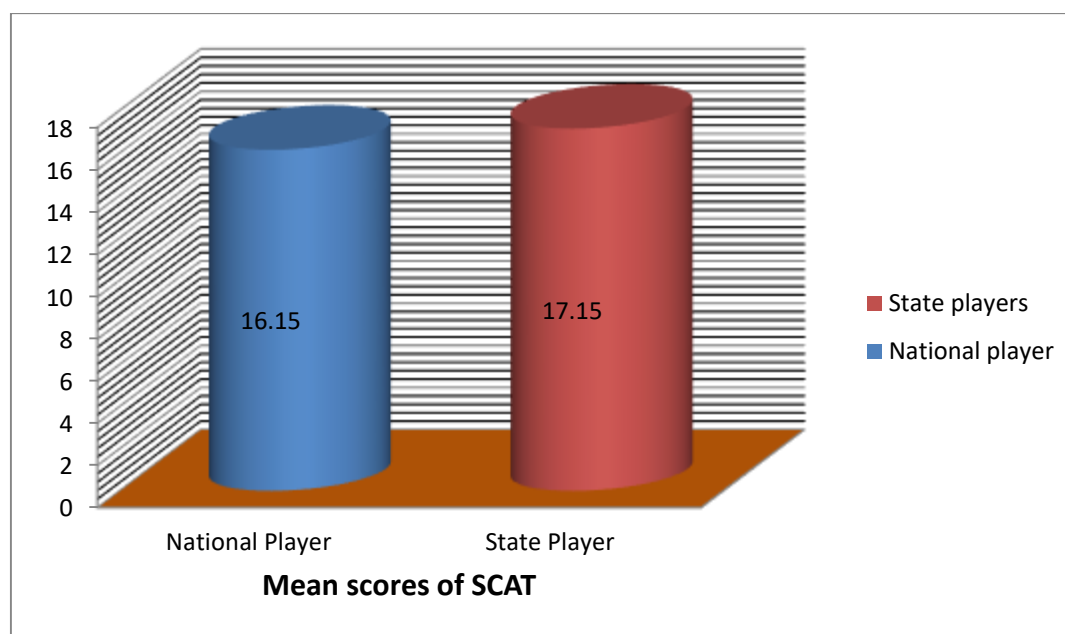


Figure 1. Mean Difference of SCAT between National and State Women Kabaddi Players.

6. DISCUSSION:

The result of the T-test statistical analysis revealed that there was no significant difference in anxiety level between National and State women Kabaddi players of Manipur. The significant difference was not found on this study because the ages of all the selected Kabaddi players for this study was range in between 15-28 ages. At these ages most of the players have thinking abilities and confidence to manage his/her situation according to the environment and it also be conclude that the insignificant difference between the players on competitive anxiety level might be because of the players belonging to the same game and same habitant. At this level the motor quality of players almost at the equal level.

7. CONCLUSIONS:

From the above observation, the study was concluded that the finding of the study revealed that statistically there was no significant difference in competition anxiety level between the National and State women Kabaddi players of Manipur. So alternative hypothesis was rejected and null hypothesis is accepted.

8. ACKNOWLEDGEMENT:

The authors would like to express the grateful thanks to all the players of Manipur teams, coaches and others for their kind participation and co-operation for the fulfilment of this research works.

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