



Psychological and Physiological Aspects of Doping in Sports

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Abstract: A drug is described as a substance that alters the body's physiological processes and is used to diagnose, prevent, or treat disease. Athletes that utilise banned athletic performance-enhancing medications are known as dopers. Despite the best efforts of athletic bodies such as the World Anti-Doping Agency (WADA) and medical specialists to eradicate the problem, drug use and doping in sports persist. This article defines the term "drug" and discusses the various sorts of drugs that people consume. It covers the definition of doping, as well as a brief history and examples of doping in sports. The review also looks at the short- and long-term physiological effects of drug usage and doping on athletes' cardiovascular systems in sports. Finally, it lays out some proposals for reducing drug use and doping in sports, if not totally eliminating the practise. Finally, it has been discovered that drug use and doping have immediate and chronic impacts on the cardiovascular system functioning when used by sportsmen. This study implies that athletes need receive proper training and fitness from coaches, trainers, physiologists, and other officials in order to perform well in sports. The World Anti-Doping Agency (WADA) should keep looking into innovative ways to test athletes who are able to evade both urine and blood tests.

Key Words: Drug, doping, athletes, cardiovascular, system, sports, competitive sports, human nature, Stimulants, Depressants, physiological.

1. INTRODUCTION:

Brief History of Doping in Sports

The word "doping" comes from the Dutch word "dop" which refers to an alcoholic liquor produced from grape skins. The elixir was claimed to function as a stimulant and improve the prowess of the Zulu warriors in South Africa who drank it. While the term "doping" did not enter general usage until the late nineteenth century, the concept of employing artificial means to gain an advantage in battle or competition dates back to ancient times. Athletes would drink special elixirs and eat special meals in the mistaken notion that they would improve their performance (Lee, 2006).

Cases of Doping in Sports

Ancient Olympic athletes tried to increase testosterone (the hormone that anabolic steroids are supposed to create) by ingesting sheep testicles, a high-testosterone source. Horses were fed drugs believed to make them run faster in chariot races during the Roman era, while gladiators ingested compounds believed to make their fights more spectacular by pumping them up for the competitions (Lee, 2006).

Aside from strychnine, which is still used today, ancient athletes employed cannabis, cola plants, cactus-based stimulants, and fungus, with varied degrees of success. The first reported example of stimulant use was in 1865, when Dutch swimmers used them. European cyclists used a variety of substances, from caffeine to ether-coated sugar cubes to Vin Mariani, a cocaine-laced wine, to treat the agony and tiredness caused by their sport not long after, in the late 19th century. In 1886, a Dutch cyclist died of a cocaine and heroin overdose, while Arthur Linton, a Welsh cyclist, died of strychnine poisoning in 1896. (the same substance used by the ancient Romans). Thomas Hicks, who competed in the Third Olympic Games in St. Louis in 1904, is one of the most well-known early doping stories. Hick was given multiple doses of strychnine-laced brandy during the race. It took four physicians to resuscitate Hicks when he slumped at the finish line, allowing him to be sent to the hospital; it is widely assumed that even one more injection of strychnine would have killed him. He was able to keep his gold medal, however (Lee, 2006).

Jammu and Kashmir is a state in the northern boundaries of the Indian subcontinent with a diversified geography. The state is divided into three sections: the valley, which contains the Indus River and its tributaries; the middle area, which is drained by the Jhelum and Kishan Ganga rivers; and the lower area, which comprises the southern



border strip and its surrounding range of hills. These three locations are separated by the snow-capped Himalayan hills of Zojilla and Pir Panchal.

Drugs

Drugs are substances that alter the way the brain and body work in some way. One of the most important messages the students will take away from this session is that some drugs are legal while others are not. Medication, caffeine, nicotine, and alcohol are examples of legal drugs when prescribed by a medical professional. Tobacco (which contains nicotine) and alcohol are forbidden for children, despite being lawful for adults. Marijuana and cocaine are two drugs that are always banned for everyone. As this list demonstrates, legal substances can be beneficial, but other legal drugs, such as alcohol, can cause significant harm. Because all pharmaceuticals have the potential to harm the brain and body, children should only take medications prescribed by a trusted adult.

A drug is a substance that is used to prevent, treat, or relieve the symptoms of a disease. Some medications are available over the counter in the United States, while others require a doctor's prescription (Chen, 2019).

Stimulants

Stimulants (sometimes known as "uppers") affect the central nervous system (CNS) of the body, making the user feel as if they are "speeding up." These medications boost the user's alertness by increasing their heart rate, blood pressure, respiration, and blood glucose levels.

Stimulants are commonly taken as pills, although they can also be snorted or eaten as food and drink. Caffeine, for example, is a powder that is snorted, and cocaine is a powder that is snorted.

Examples of stimulants include: Cocaine and caffeine

Risks of Stimulant Abuse

When abused, stimulants can cause a variety of undesirable consequences. These effects can include: Anxiety, high body temperature, depression, heart failure, stroke, seizures.

Depressants

Like stimulants, depressants also affect the body's Central Nervous System [CNS], but with the opposite effect, making users feel as if things are "slowing down." Thus, they are often called "downers" on the street.

Alcohol as a Depressant

Alcohol acts as a depressant, making it a popular choice for users looking to relax. Although drinking is often associated with immediate bursts of energy after a sip, the user's vital functions inevitably slow down. Overdosing on alcohol can cause severe toxicity and even death.

Risks of Depressant Abuse

Depressants can be useful when used properly, but depressant abuse can cause a host of issues in both the short and long term:

Higher risk of high blood sugar, diabetes and weight gain, increased body temperature, sluggish thinking, low blood pressure, impaired memory, hallucinations, death from withdrawal

Hallucinogens

Hallucinogens work by disrupting communication within the brain. Users report intense, rapidly shifting emotions and perceptions of things that aren't really there. For example, a hallucinogen user might believe that they see a person speaking to them when that person does not even exist.

Hallucinogens come in many forms, which can be smoked, eaten, ingested as pills and even mixed into beverages: Salvia

Risks of Hallucinogen Abuse

Hallucinogen abuse can have devastating effects that can last a lifetime: Fear, anxiety, increased blood pressure,

Narcotics: powerful painkillers that produce a sense of euphoria in users. Narcotics are often prescribed by doctors to patients who are suffering from intense pain.



Narcotics can be smoked, eaten, drink, inject or taken as pills. Examples of narcotics include: Heroin and codeine

Risks of Narcotics Drugs

The risks of narcotics drugs include: Liver damage, brain impairment, euphoria, drowsiness, sedation, pupil dilation, cardiac arrest (if dose is too high)

Inhalants

As the name suggests, inhalants are always inhaled as gases or fumes. The “highs” slightly differ from inhalant to inhalant, but most abusers are willing to huff whatever inhalant they can acquire.

Examples of inhalants drugs includes: Gasoline, glue and nitrous oxide

Risks of Inhalant Drugs

Inhalant abuse can have devastating effects, both immediate and in the long run:

Loss of smell, brain damage, nose bleeding, weakness, euphoria, increased heart rate, loss of consciousness, hallucinations

Cannabis

Cannabis, more widely known as marijuana, serves as a hallucinogen while simultaneously having depressant-like effects. It's a Schedule I substance, which means it's highly addictive. Cannabis can be smoked, vaporised, or even eaten after it has been rendered from the plant matter.

Hash oil with marijuana leaves Sativex, for example, is a cannabis-based medication.

Risks of Cannabis Abuse

Cannabis abuse can lead to death and has both short- and long-term consequences for users:

Reduced immunity to illness, sadness, persistent anxiety, decreased sperm count in men, sleepiness, slowed reaction times, heightened senses, such as seeing brighter colours, and an impaired sense of time are all possible side effects.

Doping

What is the definition of doping? Doping is defined as "the use of medications or blood products to boost sports performance," according to one popular source. We can see, however, that such a wide term is clearly insufficient to serve as a precise definition for doping (Lee, 2006).

2. METHODOLOGY:

The goal of the research is to determine the impact of doping on athletes as psychological and physiological variables in the sports world, which is a hot topic in today's sports world. The gathering of comments from national level players and coaches from various sports to investigate doping and its general risks to sports, and to give overall development to sports and prevent it through unethical drug use, as well as to make it FAIR PLAY.

Research Design

The researcher took 120 male national level sports players and 100 female national level sports players as samples of the study using a simple random method of sampling, and 65 coaches' opinions were collected using a structured Questionnaire as the study's tool. Open discussion was held with the sample group at 75 All India interuniversity Athletic federations. To prove the research hypothesis, the obtained data was analysed and presented in tables.

Sample of the Study

In this study, 120 national level male players and 100 female players were chosen at random, and the opinions of 65 coaches were collected during an open discussion with the sample group at 75 All India interuniversity Athletic championship tournament collected from cyclists competing in the All India Inter University Cycling Road Championship Men and Women, which was held in Jammu and Kashmir.

Source of the Data

Primary Source: Data will be obtained from the study's sample as the primary source of information. Structured



Questionnaires will be used to collect data.

Secondary Source: When conducting any form of study, secondary sources play a crucial part. The current study or research does not accept that, as it incorporates both primary and secondary sources. Secondary sources for this study will include published books, journals, articles, and unpublished research works, which will be gathered from libraries, personal libraries, and the Internet.

3. RESULTS AND DISCUSSION:

The Table No. -1 shows the national level sports players' opinions on doping in sports, both for and against. In the current study, 83.3 percent (100) of male sports players are against doping in sports, whereas 16.7% (20) are in support of doping in sports competitions. Out of 100 female athletes, 85 percent (85) are opposed to doping in sports, whereas 15 percent (15) are in support of doping in sports. Overall, 84.09 percent (185) of athletes are opposed to doping in sports contests, whereas 15.91 percent of athletes are in support of doping in sports competitions.

Table No -1 Percentage of Athletes favour and against to the Drug using in Sports.

Male(120)		Female(100)	
Against	Favor	Against	Favor
100	20	85	15
83.3%	16.7%	85%	15%
Overall(220)		Against	Favor
		84.09%	15.91%

The graph depicts a distinct difference of opinion in favour of and against the use of drugs in sports, a gap that is so large that it is quite positive to take actions to prevent doping in sports. The players who support doping do so because they believe that if they do not use the medicines, they will fall behind in contests and that others who do so unethically will be ahead of them. The athletes that are in favour make it clear that their opinions are personal and not based on reality.

Overall, 15.91 percent of players favour drug use in sports events, which they believe is very destructive to the sport. They also believe that sports organisers fail to conduct ethical sports.

Table No/. 2 Athletes basic Knowledge of rules & regulations of doping in sports

Male(120)		Female(100)	
Aware	Unaware	Aware	Unaware
54	66	25	75
45%	55%	25%	75%
Overall(220)		Aware	Unaware
		35.9%	64.09%

The Opinion on Athletes' Basic Knowledge of Doping Rules and Regulations in Sports is shown in Table No. 2. In the current study, 45 percent (54) of 120 male sports players are aware of basic knowledge related to rules and regulations of doping in sports, while 55 percent (66) are unaware, while 25 percent (25) of 100 female players are aware and 75 percent (75) are unaware of basic rules and regulations of doping in sports. Overall, 35.9% (220) of sports players are aware of the basic laws of doping in sports, while 64.09 percent of players are oblivious of doping in sports events. When it comes to athletes' basic awareness of doping rules and regulations at the national level, it is woefully inadequate in the Indian sports field, because the question is only for basic knowledge, not for advanced information.

The findings demonstrate the need of educating athletes with a basic understanding of doping rules and regulations, as well as associated information, so that they can fully utilise their knowledge in fair sports participation.

Table No - 3 Opinion on availability of drugs to the Athletes to use in the competitions

Male(120)		Female(100)	
Easy to get	Hard to Get	Easy to get	Hard to Get
36	84	19	81



30%	70%	19%	81%
Overall(220)	Easy to get	Hard to Get	
	25%	75%	

Table 3 shows the percentage of people who think drugs should be available to athletes to use in competitions. In the current study, 30 percent (36) of 120 male athletes stated unethical chemicals are easy to obtain from the market for use in contests, whereas 70% (84) said it is difficult to obtain doping agents and unethical substances in the competitive arena. Out of 100 female players, 19 percent (19) stated immoral substances are easy to obtain from the market for use in contests, while 81 percent (81) said it is difficult to obtain doping agents. Overall, 25% of athletes stated unethical chemicals are easy to obtain from the market for use in sports events, while 75% said it is difficult to obtain doping agents and unethical substances in the competitive arena.

In the current situation, all forms of medicines are available internationally, and underground markets for doping substances, particularly for sports, may exist. By using a black-market link, the internet network may be able to offer you with your desired material at the tip of your fingers. This is one of the most difficult obstacles for the World Anti-Doping Agency and its active member countries to overcome in order to maintain control of the situation. If the authorities can come up with a solid solution, it will be the most trustworthy approach in the sphere of sports to avoid drug addiction.

PHYSIOLOGICAL IMPLICATIONS OF DRUG USE AND DOPING ON CARDIO VASCULAR SYSTEM AMONG ATHLETES

- **Cardiovascular Effects**

Sport causes acute responses in the near term and chronic adaptation in the long term. Increased heart rate, stroke volume, and cardiac output, redistribution of blood flow, transporting oxygen to active muscles, and removing waste products such as carbon dioxide from the body are all short-term responses. Other short-term responses include maintaining body temperature and regulating hormones. These responses improve the body's ability to cope with the present exercise bout's immediate demands, for example, by facilitating oxygen delivery and use by the muscles (Stephen, Catrin, Louise, & Ronda, 2015).

Longer-term or chronic adaptations, such as anatomical and physiological changes in the musculature and cardiovascular system, improve the body's ability to cope with the demands of subsequent exercise, such as increased oxygen demand by active muscles. Such adaptations would be viewed as an improvement in the person's "cardiovascular system," allowing them to potentially reach higher levels of performance in following exercise bouts or events (Stephen, Catrin, Louise, & Ronda, 2015).

Doping is utilised to augment these responses and adaptations, allowing the person to achieve more than they could through training alone. Because each sport has its own set of demands, the prevalence of various medications and doping methods will vary, as they are utilised to target certain components of the fitness required by the performer in that activity. Furthermore, as previously stated, some doping practises are used specifically to improve an individual's physique, often to gain muscle mass and/or lose body fat: and while such outcomes may benefit sports performers' strength, power, and endurance, for others, the enhanced physique is the primary goal (Stephen, Catrin, Louise, & Ronda, 2015).

- **Effect of Creatine on Cardiovascular System**

This is widely used by athletes in anaerobic activities, is said to lead to arrhythmias, meaning the irregular beating of the heart. Most of the drugs used to stimulate the central nervous system are associated with hypertension, angina, cerebral haemorrhage, dependence and even death (Lubna, 2008).

- **Effect of Anabolic Adrenergic Steroids [AAS] on Cardiovascular System**

While some side effects of anabolic adrenergic steroid are quite visible and apparent, a majority of effects on cardiovascular system often go unnoticed until a serious medical complication arises (Warpeha, 2006). (Warpeha, 2006) further reports that left ventricular hypertrophy is said to be a common finding in heavy resistance trained athletes. Long term use, overuse and abuse of anabolic adrenergic steroid are cited by (Brooks, Fahey and Baldwin, 2005) to be a major



cause of heart damage. Other side effects as reported by (Warpeha, 2006) include diastolic dysfunction, arrhythmias, myocardial infarction, stroke and sudden cardiac death.

PSYCHOLOGICAL IMPLICATIONS OF DRUG USE AND DOPING ON CARDIO VASCULAR SYSTEM AMONG ATHLETES

- **Effect of Depressant on Cardiovascular System**

David and David (2005) have noted that alcohol is a good example of this category of drug that leads to dehydration, hangover, insomnia, fights and weight gain all of which affect the athlete negatively. (Insel & Roth, (2002) have observed that during a hangover, heart rate and blood pressure increase making some individuals more vulnerable to heart attack. Specifically, alcohol affects aerobic and psychomotor skills due to its slow/ fixed rate of metabolic and toxic interference with energy and carbohydrate metabolism. None of these side effects are beneficial to athletics performance. (David and David, 2005) have reported that rate of alcohol consumption by athletes is higher than that of general public with rates for men at 75-95% and for women at 71-93%. High rate of alcohol consumption is likely to suppress endurance performance significantly when consumed before athletics activity (Kirby et al. 2008). (David and David, 2005), further report that consumption of alcohol is being high among soccer players, swimmers, baseball/softball than in basketball, volleyball, and track and field athletics. Their study goes on to show that alcohol consumed 24 hours before athletics activity significantly reduces aerobic performance by 11.4%. Furthermore, rate of consumption of alcohol a day before training and competition was too high at 18-84% in basketball, soccer, rugby and football sports. Alcohol, according to David and David (2005), is a fantastic example of this type of medication because it causes dehydration, hangovers, insomnia, fights, and weight gain, all of which are detrimental to athletes. (Insel & Roth, (2002) discovered that when people have a hangover, their heart rate and blood pressure rise, rendering them more vulnerable to heart attacks. Because of its slow/fixed rate of metabolic and toxic interference with energy and carbohydrate metabolism, alcohol has an effect on aerobic and psychomotor skills. None of these negative side effects help athletes perform better. According to (David and David, 2005), athletes consume more alcohol than the general public, with rates ranging from 75 to 95 percent for males and 71 to 93 percent for women. When consumed before an athletic activity, a high rate of alcohol consumption is likely to drastically reduce endurance performance (Kirby et al. 2008). According to (David and David, 2005), alcohol consumption is higher among soccer players, swimmers, and baseball/softball players than in basketball, volleyball, and track and field athletes. Their research also found that drinking alcohol 24 hours before an athletic activity impairs aerobic performance by 11.4 percent. Furthermore, in basketball, soccer, rugby, and football sports, the rate of alcohol use the day before training and competition was excessively high, ranging from 18 to 84 percent.

Stimulant Effects on the Cardiovascular System

Caffeine has been linked to insomnia when used in high amounts of more than 500mg per day, as well as dehydration, both of which are detrimental to athletic performance. Caffeine, on the other hand, is known to boost fat metabolism while also preventing glycogen depletion, giving the user an edge in athletic performance. When blood levels above the permitted standard of 12 mg/ml, it is designated a banned substance by the World Anti-Doping Agency [WADA].

Canabis' Effect on the Cardiovascular System

Marijuana is a psychoactive chemical that generates pleasure, heightened subjective sensory sensations, a slowed impression of time, and a relaxed mood even at moderate doses. Long-term usage may cause respiratory harm, including chronic bronchial irritation and precancerous alterations in the lungs, which impede the flow of oxygen to the heart muscles (Insel & Roth, 2002). With time, the consequences become more pronounced, resulting in impaired memory, a disrupted thought pattern, and concentration lapses. Humans that participate in competitive sports have strived to obtain every advantage over their opponents. After all, human nature manifests itself in the drive for any and all competitive advantages. It's not unexpected that the usage of performance-enhancing pharmaceuticals can be traced all the way back to ancient times. Despite the long and illustrious history of performance-enhancing substances in sports, doping is currently the most contentious and discussed topic in contemporary sports. It's a problem that affects all sports, regardless of their popularity, technology, or heritage. It impacts sports that are usually regarded to be "muscle-bound," such as football and bodybuilding, but it has also shown up in sports where mass is less significant, such as women's gymnastics and Olympic sledding (Lee, 2006).



The percentage of coaches that believe doping is a boon or a bane to the sports world is shown in the results. The researcher's hypothetical statement on whether doping is a boon or a bane to sports is successfully realised, with a joint proportion of 86.33 percent in favour of bane and just 13.67 percent in favour of boon. In our universe, there are only two types of blessings: boons and banes, and how you utilise them depends on how you use them. There is no exemption in the case of drugs. Many of us have profited from the use of medications in the medical profession, and using drugs in this manner is undoubtedly correct. Despite this, huge complaints and accusations of using drugs in an unlawful and cheating manner have been addressed for a long time, and it is undeniable that the majority of people oppose it.

We can improve our tidal volume, vital capacity, and muscle development by engaging in frequent sports activities, which strengthens our bodies. In a world of constant change and high strain, sports like soccer, rugby, swimming, and cycling will be seen as a way to unwind. Having sports in this way can be viewed as a way of recharging ourselves and, as a result, boosting our working efficiency or mental condition. Furthermore, athletics might help us maintain our fighting spirit and endurance. We exhaust ourselves by competing in sports with other players, and, more importantly, sports teach us that no matter how difficult a task is, it must be completed. According to one of the top officials, sports offer numerous advantages and will undoubtedly continue to do so in the future. Despite the numerous benefits of participating in sports, some people continue to cheat the games by ingesting the unseen plague of drugs.

Have you ever been restless because you cheated others in games such as chess when you were younger? In reality, an athlete who wins a game via doping feels just like that. To be sure, winning in this manner will bring them fame and money, and if no one discovers the truth, people will hold him in high regard. They will, however, not be able to experience the true joy of winning because they have never played the game fairly. After all, once they've tried it and no one has stopped them, they'll do it again. Then, in their minds, a false concept of sports will be formed, namely, that they must win the tournament by all means necessary. Because winning the game in this manner is unethical and illegal, they will jeopardise the fairness of the game and may even be disqualified. As we all know, the Olympic Games are completely fair and holy, and allowing drugs to be used in them is not conceivable nor acceptable.

Doping during competitions can be extremely harmful to one's health, in addition to having a negative impact on fairness. Many medicines that can be utilised by athletes, particularly sports-designer pharmaceuticals, have numerous negative effects. Hypertension, tachycardia, stroke, seizures, androgenic alterations can all result in infertility, malformed offspring, and even death. As a result, doping-related deaths among athletes in competition are relatively prevalent. Worse yet, doping athletes face not only the possibility of death, but also the ruination of their own countries' reputations. Perhaps you believe it is still worthwhile because winning the competitions will net you a large sum of money.

4. RECOMMENDATIONS:

This review is restricted to only physiological implications of drug use and doping in sports on cardiovascular system, therefore, the following stated below are suggestions for further reviews:

- Cases of drug use and doping in sports on cardiovascular system should be strictly revealed to athletes so as to reduce these cases if not completely solved.
- There should be continuous investigation on the methods of tests of doping in sports World Anti-Doping Agency (WADA) to detect athletes who do escape these tests in sports.
- Physicians, trainers, coaches, parents, and others in the athlete community need to be well trained in recognizing the signs and symptoms of drug use and doping, including changes in physical health and behaviour.

Lastly athletes should be given adequate fitness, training and skills needed to meet the requirement of optimal performance without doping in sports.

5. CONCLUSION:

According to the findings, athletes use and dope for a variety of reasons, including psychosocial factors, personality factors, a lack of socialising, career termination, weight control, and the effect of better performance.

Researchers have discovered that doping and drug usage in sports have both acute and chronic impacts on the cardiovascular system. Acute effects include a reduction in heart rate, stroke volume, and cardiac output, as well as insufficient redistribution of blood, oxygen, and nutrients to working muscles, resulting in high blood pressure



(hypertension). While the long-term consequences of drug abuse and doping in sports can include heart failure, heart attack, thrombosis, arrhythmia, stroke, and even death.

It is concluded that doping has such a big impact on athletes that it causes several hormone changes, tissue damage, social problems, and mortality. Substance addiction and doping tactics produce physical mal effects and are classified as abnormal on a mental or psychological level.

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