

## KNOWLEDGE AND DIETARY PRACTICES OF DIVISION 1 AND 2 SOCCER PLAYERS IN BENIN DURING A SPORTS SEASON

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**Abstract:** *Football remains one of the most practiced sports. But because of the high energy demand that imposes very high physical efforts, the footballer must consume foods whose intake is able to satisfy his energy needs. In spite of this obvious fact, very little attention has been paid to the study on the eating habits of footballers in Division 1 and 2 in Benin. The aim of this study was to measure the current levels of dietary knowledge and practice among footballers during and outside of training periods. A total of 502 Benin Division 1 and 2 footballers, selected according to the exhaustive method, responded to a self-administered questionnaire on their dietary knowledge and practices. Of the 502 Division 1 and 2 footballers interviewed, only 20 (4.0%) had good knowledge of sports nutrition. None of them had good dietary practices, either outside or during the training period. The lack of good knowledge and good dietary practices among Beninese elite footballers could justify the poor results of Beninese soccer. It is therefore necessary to consider nutritional education for footballers and coaches.*

**Key words:** *Eating habits, sports performance, soccer, players, Benin.*

### 1. INTRODUCTION:

Soccer is the most popular sport in the world played by both men and women. It is an intermittent, physically demanding team sport that is characterized by repeated high-intensity exercises, such as running with the ball, sprinting, and jumping that deplete energy reserves, lead to fatigue, and reduce performance (Bangsbo, 2014). These physiological demands place high demands on the body's energy reserves.

In soccer, elite players frequently play more than 60 competitive games in a season (Altarriba-Bartes, 2020). There are times when players from elite clubs are concurrently engaged in national league, national cup, African cup, and also national team matches, thus leading to increased fatigue in these players. It has also been found that jumping, sprinting and intermittent exercise performances, when assessed after a match, appear to be significantly lower than baseline values (Mohr, 2005). To cope with the energy expenditure and support the performance of footballers, different research works have addressed the aspect related to the nutrition of footballers (Nascimento, 2016; Dobrowolski, 2020). Thus, diet is an important factor because it participates in the health and sports performance of players (Nascimento, 2016). Despite this importance of diet in the practice of sports activities, research reports that soccer players have very little knowledge of diet and poor dietary practices. As a result, many of them do not achieve their nutritional goals (Spronk, 2015; Jagim, 2019). Therefore, it is fundamental that athletes have good knowledge in sports nutrition in order to select the appropriate foods for the achievement of good performance and maintenance of good health (Gina, 2016). Indeed, it has been proven that the better the soccer player's dietary knowledge, the better their dietary practices (Michael, 2016).

In Benin, footballers regularly participate in national championships and African and international competitions, without experiencing real success at the continental level. Apart from the quarterfinal of the African Cup of Nations (CAN) in 2019, Beninese footballers are regularly eliminated in the qualifying stages. To remedy this low level of performance, particular attention is paid to technical and tactical preparation and physical preparation which is entrusted to national or expatriate coaches. The nutrition aspect, essential to good performance and to maintaining good health, is totally neglected by the federal and club leaders.

The Beninese Football Federation (FBF) does not have a nutritionist to offer footballers an adequate diet before and during competitions. Similarly, Beninese footballers do not benefit from the support and follow-up of nutritionists, dieticians or other specialists capable of helping them to have a good nutritional knowledge in order to make the right

choice of food both at home, in the shops and during competitions. In addition, in Benin, there are very few studies on the dietary behavior of athletes in general and young footballers in the first and second league in particular. It is therefore necessary to take stock of the knowledge and dietary practices of Beninese footballers. The objective of this study is to measure the current levels of knowledge and dietary practices among Beninese Division 1 and 2 footballers during and outside of training periods.

## 2. MATERIALS AND METHODS

### 2.1 Subjects

All 502 division 1 and 2 footballers in Benin who met the inclusion criteria were enrolled in an exhaustive manner. The selection criteria were: to have a sports license for the 2020 sports season and to play in a first or second division club; to be willing and available to participate in the survey despite the barriers related to Covid 19; to give informed and written consent. The participants were informed of the conditions for the collection of information and were reassured of the anonymity and confidentiality of the data collected.

### 2.2 Study protocol

This was a cross-sectional study conducted from June to August 2020 in the form of a survey using the questionnaire technique. The questionnaire was self-administered for participants who understood French and were able to answer the questions. The same questionnaire was administered to participants who did not understand French, but using the double translation technique by trained interviewers. Prior to the survey, the questionnaire was pre-tested in two stages with an interval of ten days, with ten footballers not included in the study sample. These ten footballers were not Division 1 or Division 2 footballers during the 2020 sports season. To test the internal consistency of all dimensions of the questionnaire, Cronbach's alpha was calculated. This coefficient was equal to 0.74. A staff of eleven interviewers trained by a technical team from the Sport, Health and Evaluation Research Unit (URSSE) of the National Institute of Youth, Physical Education and Sport (INJEPS) facilitated the data collection.

### 2.3 Data Collection Tool

The tool included a total of 119 questions divided into three parts: socio-demographic characteristics (13 questions); dietary knowledge (15 questions) and dietary practices (91 questions). The technique of double translation was used to facilitate the collection and processing of questionnaires administered to soccer players who did not understand French.

### 2.4 Variables

The variables of the study were related to the athletes' dietary knowledge and dietary practices. In order to facilitate data analysis, the variables were broken down into major and minor criteria. The major criteria were considered to be those questions whose correct answers were always mandatory. Minor criteria were questions that were not always answered correctly. The variables were all dichotomized into "Good" or "Bad" (right answers versus wrong answers). The knowledge of the athletes' diet was assessed through four (04) composite sub-variables, namely: the definition of diet, the composition and organization of meals, hydration, and hand hygiene at the table. Eating practices during and outside the group were assessed through eight (08) composite sub-variables, namely: frequency of meal consumption, regularity of meals, place of consumption of meals, conditions of consumption of meals, use of cutlery at the table, time and duration of meals, hydration, hygiene of hands at the table. In relation to the different sub-variables, the level is good if all the major criteria are met. For each of these sub-variables, the level is poor if only one major criterion is not answered correctly or if all major criteria are answered correctly and none of the minor criteria are answered correctly. The data collected by questionnaire were entered into the Excel software after tabulation. The database had been cleared. Statistical analysis was carried out using SPSS version 21 software.

## 3. RESULTS

The division 1 and 2 players surveyed were  $24 \pm 3$  years old on average; they weighed  $67.5 \pm 7$ kg on average and were  $172\text{cm} \pm 6$ cm tall. The average BMI of all the footballers in the study was normal with a value of  $22.4 \pm 2$  kg/m<sup>2</sup>.

### 3.1 Level of knowledge about sports nutrition

Of the 502 footballers interviewed 357 (71%) could give a good definition of diet but 454 (90.4%) of them did not know the composition of a sportsman's meals. The level of knowledge about hydration was good for 107 (21.3%) of the footballers interviewed. Only 20 (4.0%) had a good level of knowledge of sports nutrition.

### 3.2 Level of dietary practices outside of groupings

Outside of the groups, no footballer interviewed managed to consume eight (08) food groups during the day. There were 142 (28.3%) who ate meals with their family; only 05 (1.0%) respected the timing of each meal and 104 (20.7%) had a good level of hydration practices. In total, none of the 502 footballers surveyed had a good level of eating practices outside of huddles.

### 3.3 Level of eating practices during training camps

During groupings (the main period of the survey), none of the footballers surveyed consumed all eight food groups during the day, 437 (87.1%) adhered to meal schedules, and 175 (34.9%) had a good level of hydration practices. In total, none of the 502 soccer players surveyed had a good level of eating practices during the groupings.

**Table I: Level of knowledge and practice of sports nutrition among division 1 and 2 soccer players (n = 502)**

Variables	Modalities	
	Good Number (%)	Bad Number (%)
Definition of nutrition	357 (71.1)	145 (28.9)
Composition of meals	48 (09.6)	454 (90.4)
Hydration	107 (21.3)	395 (78.7)
Hygiene	287 (57.2)	215 (42.8)
<b>KNOWLEDGE</b>	<b>20 (4.0)</b>	<b>482 (96.0)</b>
Frequency of meal consumption	00 (0.0)	502 (100.0)
Regularity of meals	316 (62.9)	186 (37.1)
Place of consumption of meals	142 (28.3)	360 (71.7)
Condition of meal consumption	13 (2.6)	489 (97.4)
Use of cutlery at the table	154 (30.7)	348 (69.3)
Timing and duration of meals	05 (1.0)	497 (99.0)
Hydration	104 (20.7)	398 (79.3)
Hygiene	298 (59.4)	204 (40.6)
<b>PRACTICES OUTSIDE OF GROUPINGS</b>	<b>00 (0.0)</b>	<b>502 (100.0)</b>
Frequency of meal consumption	00 (00.0)	502 (100.0)
Regularity of meals	316 (62.9)	186 (37.1)
Place of consumption of meals	502 (100.0)	00 (00.0)
Condition of meal consumption	502 (100.0)	00 (00.0)
Use of cutlery at the table	154 (30.7)	348 (69.3)
Timing and duration of meals	437 (87.1)	65 (12.9)
Hydration	175 (34.9)	327 (65.1)
Hygiene	395 (78.7)	204 (40.6)
<b>PRACTICES AT GROUPINGS</b>	<b>00 (0.0)</b>	<b>502 (100.0)</b>

#### 4. DISCUSSION :

The objective of this study was to measure the current levels of knowledge and dietary practices among soccer players during and outside of training periods. This study is original because it seems to be one of the first studies carried out in Benin that allows us to assess the level of knowledge of footballers about food and to evaluate their dietary practices through a questionnaire. This questionnaire, composed of 109 questions, showed good internal consistency with a Cronbach's alpha coefficient of 0.74. To avoid translation bias, the double translation technique was used.

The results of this survey showed that fewer of the 502 footballers from Division 1 and 2 clubs surveyed (only 4.0%) had a good level of knowledge of sports nutrition. This low level of knowledge of the nutrition of the registered sportsman can be explained by the low level of education of the studied footballers in general. It should be noted that half of the footballers (50%) had primary education at the most and almost a third (35.7%) of them had secondary education. Very few (14.3%) had higher education. The low level of knowledge of the surveyed footballers could also be explained by the fact that the sources of information of the footballers such as coaches, doctors, friends and peers are not reliable. The latter are not specialists in the field of sports nutrition. In general, the respondents stated that they get information on sports nutrition from these sources, which are not specialists in dietetics, because the Beninese Football Federation (FBF) and the clubs do not have nutritionists to provide this information. Some people also look for information on the internet, but the cost and quality of the connection does not always facilitate access to this source of information and the low level of education does not allow access to magazines or platforms specialized in this field.

It has been proven that the higher the level of education and sport practice, the better the athlete's knowledge of sports nutrition (Manore 2017). This knowledge can then impact their food choices and lead to better practices. It is therefore necessary that the athlete has reliable sources of information or is advised by specialists in sports nutrition (Manore, 2017).

The low level of knowledge of footballers recorded in this study is similar to that recorded among Moroccan footballers. Less than 25% of these footballers had good knowledge of sports nutrition (Derouiche et al., 2016). These scores are lower than those recorded in studies conducted in Europe (Tawfik, 2016; Werner, 2020). Although the score of these studies is higher than that of the present study, it remains average and varies from 55% to 74%. The gap in knowledge level between the footballers in the other studies and those in this study can be attributed to the difference in educational level between the study populations. In Europe, the availability of information is greater and clubs generally use specialists to deal with the nutrition of athletes. However, regardless of the population studied, the problem remains, that of the low level of knowledge of footballers in sports nutrition. It is therefore imperative to consider nutritional information and education sessions to instruct these footballers on sports nutrition.

Indeed, it has been proven that athletes who have little knowledge of sports nutrition are exposed to inappropriate food choices that could be the cause of an inflection of their performance while exposing them to potential health risks and increased risk of injury (Werner, 2020).

Nutritional education taking into account the role of nutrients, vitamins and minerals (Gina, 2016) is necessary because in our study, the results showed the difficulties of footballers to identify the food groups to be consumed and to define the principles and basis of a balanced diet. In addition to all these aspects, there is a lack of knowledge about hydration. Only 21.3% of our footballers have a good knowledge of hydration. Yet hydration is a fundamental notion for the athlete. Indeed, a dehydration of about 1% and 2% of the body mass can lead to a decrease in performance of 10% to 20% respectively. And dehydration above 5% can be lethal to the athlete (Judge et al., 2016). The dangers associated with dehydration can result in increased body temperature above 39.5°C (Moran et al., 1998), the threshold for acute hyperthermia, causing thermoregulatory difficulties, cardiovascular problems, and potentially leading to heat exhaustion or heat stroke (Judge et al., 2016).

Previous studies have shown that soccer players have fairly good hydration knowledge with scores ranging from 50% among Moroccan soccer players (Derouiche et al., 2016), 69.4% (Judge et al., 2016) and 81.8% (Nichols, 2005) among American Division 1 soccer players. The low level recorded in this study still reflects the urgency of hydration education to demonstrate good practice.

The low level of knowledge about sports nutrition and hydration among Division 1 and 2 soccer players in Benin could negatively influence the dietary and hydration practices of these athletes. Some studies have shown that the nutritional knowledge of high-level athletes and their coaches is inadequate (Zinn, 2006; Gina, 2016), hence the need to train coaches on the concepts of sports nutrition so that they can in turn advise their athletes to adopt good practices. Therefore, in this case, it is necessary to improve the knowledge of soccer players so that they can adopt good dietary practices.

##### 4.1 Dietary practices of Division 1 and 2 players

The results of our study showed that none of the footballers surveyed had a good level of dietary practice, either outside or during the group. Thus, no association is possible between knowledge and dietary practices.



These results can be justified by the fact that in Benin, to our knowledge, no nutritional education session on food is offered to footballers. Also, no club has a dietician to accompany the players during their training. It should be noted that in the Beninese context, footballers spend most of the sports season with their families, where they eat like any other member of the family. During the few days of training for a competition organized by club officials or the FBF, the footballers are fed by a restaurant owner who is responsible for proposing a menu to the footballers. The restaurant owner's role is limited to serving the meals, and the footballers have no opportunity to learn about the nutrition that a sportsman should have.

Indeed, there is a real association between good knowledge and good practices (Woromogo, 2020). It has also been proven that poor knowledge of sports nutrition can have negative impacts on dietary practices and that lack of knowledge in sports nutrition is considered one of the causes of poor dietary practices (Spronk, 2015; Gina, 2016). These poor dietary practices do not allow soccer players to provide the necessary nutrients for a balanced diet fundamental to achieving good performance. If the athlete's diet is unbalanced, potential health risks and performance decline can occur. A lack of minerals such as calcium, magnesium or sodium can for example negatively affect sports performance. The same is true for poor hydration, especially in a hot and humid environment where dehydration negatively affects sports performance (McDermott et al., 2017; Belval et al., 2019).

It is of paramount necessity that athletes have good knowledge of sports nutrition to select and consume the appropriate foods for their energy needs in order to achieve good performance and maintain good health beyond the sports career (Michael, 2016).

This study, which took place in a global context marked by the Covid-19 pandemic, seems to be a first in the Beninese soccer world and shows the low level of knowledge in sports nutrition and the bad practices of footballers outside of and during the gatherings. It also suggests the implementation of appropriate strategies for a change in the behavior of athletes so that they adopt good dietary practices in the long term.

## 5. CONCLUSION :

The knowledge and practices in sports nutrition of footballers of division 1 and 2 of Benin are weak. The results obtained confirm that it is essential to improve the level of knowledge of soccer players in order to modify their dietary practices. Strategic support from qualified sports nutrition professionals should be sought to strengthen the knowledge of Beninese footballers.

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