

Evaluation of the Dietary Profile of Footballers in Ligue 2 in the Department of Brazzaville

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ABSTRACT

This exploratory study aimed to assess the dietary profile of 2nd division footballers in the departmental league of Brazzaville. Our sample was made up of 120 subjects divided into 3 clubs and aged on average 17.86 ± 1.39 years. Through the standardized and extended nutritional survey (SENS) and food frequency questionnaire (FFQ), we used the 24-hours recall method to assess nutritional status, respect for meal times, types of food consumed, quantity of food and variation of breakfast, lunch, snack and dinner foods. The results obtained showed that the nutritional status was normal at the level of the three (03) clubs (19.95 ± 2.12 kg/m² for Gothia club, 21.60 ± 1.61 kg/m² for Marakana club and 21.31 ± 1.88 kg/m² for Red Star club). However, we first noted a lack of respect for meal times in 52.2% of Gothia players, 72.2% of Marakana players and 81.6% of Red Star players respectively. Similarly, dissatisfaction with competition meals was then noticed in 60.9%, 83.3% and 55.3% of Gothia, Marakana and Red Star players respectively. An insufficient number of meals taken during the day and no dietary variation in 60.9%, 58.3% and 57.9% of the players of the three respective clubs. Similarly, these results showed the intake of an insufficient amount of food respectively in 60.9%, 55.6% and 44.7% of the players of the three respective clubs. In the end, it was revealed an under-information in terms of sports nutrition in 100%, 77.78%, and 68.42% of the players of the three respective clubs. **In conclusion**, the food profile of footballers was inadequate and not controlled by nutritionists. This profile is associated with a nutritional imbalance, which is a factor in poor athletic performance.

Keywords

Food profile, Football players, Performance.

Introduction

The evolution of sports activities in recent years, in particular the intensification of physical engagement, has led to a necessary modification of physical preparation. This evolution had to be accompanied by a more particular attention to the nutrition of the athlete and sometimes to other contributions which can be doubtful as well on the nutritional interest as on the ethical level [1]. The objective to be achieved is of course to optimize performance with increasing requirements from year to year [2].

The practice of football requires the athlete to be physically, mentally, technically and nutritionally fit [3,4]. During a match, the footballer covers an average of about 11km in very intense running, but jumping, accelerating, attacking, defending, turning around and getting up constitute an aggression of the organism causing an additional effort [2]. It is also important to note that lucidity, vigilance, precision, coordination and adequate motor skills are essential factors to complete the panoply of a good football player [5]. These are only possible if the footballer is physically ready and if he has sufficient energy substrates to go after 90 minutes of play. One can easily understand the existence of a good physical, mental, technical and nutrition [6].

It is therefore very important for an athlete to have notions of nutrition in order to know the quality and quantity of foods that are suitable for the energy needs of the activity [7]. The author stipulates that: "all players must choose their foods knowingly and according to the objectives they wish to achieve".

In the Congolese context, there are many players who practice football, but who do not pay attention to the nutritional field. They are ignorant of what to eat and sometimes eat junk food. They lack nutritional guidance and are doomed to any food at any time. For this reason, we wanted to check the contribution of the food and appreciate the quantities and their variation, without which it is difficult to achieve the right results. It is in this perspective that we proposed the following study: The evaluation of the food profile of the footballers of the league 2 of the department of Brazzaville.

Problem

Before, the preparation of an athlete was much more focused on the physical, technical-tactical and mental level. Today, the evolution of football has shown that the nutritional preparation of the athlete is associated with the optimization of performance. However, a balanced and adequate diet provides energy substrates likely to improve the aerobic and anaerobic capacity of the player, which allows him to stay in the game for a long time [7]. It is therefore necessary to make the different foods known or within reach of the players while indicating their nutritional values. These acquired nutritional notions will make it possible to achieve the objectives set. For this reason, players who are trained to be the elite of tomorrow will have to acquire food concepts to become complete athletes and benefit from perfect recovery [8]. This is why many studies have been conducted worldwide to show the

importance of sports nutrition among footballers [9-11].

However, in Congo Brazzaville, few studies have been conducted on the diet of elite footballers [11], long-distance and middle-distance runners [12,13]. These studies have shown the importance of combining diet with sports practice in order to achieve good performance. It is in this respect that we asked ourselves the question of whether the food profile of Congolese footballers was adequate and could also allow them to achieve good performance?

Methodology

The exploratory study was conducted from August 10 to September 30, 2022 in Brazzaville (republic of congo) within league 2 football clubs.

The sample of our study was made up of 120 players, including 46 players from the Gothia center, 36 players from the Marakana center and 38 players from the Red Star club whose average age was 17.86 ± 1.39 years.

Data Collection Method

A Food Frequency Questionnaire (FFQ) design and validation sheet for nutrition and food intake assessment, adapted by García Rodríguez et al., [14] was used to collect food data and verify the achievements of footballers on sports nutrition.

This survey method based on the "24-hour recall" of Cloë et al., [15] allowed us to collect dietary data from players.

Statistical Analysis

IBM SPSS software version 22 allowed us to do all the statistical analyzes and the processing of the results.

Results

Table 1: Anthropometric data.

Variables	Gothia ($\bar{X} \pm \sigma$) (n = 46)	Marakana ($\bar{X} \pm \sigma$) (n = 36)	Red Star ($\bar{X} \pm \sigma$) (n = 38)	Multiple comparison
Age (year)	17.65 \pm 1.22	17.67 \pm 1.21	18.26 \pm 1.74	NS
Weight (kg)	58.83 \pm 8.42	63.22 \pm 6,32	63.26 \pm 5.65	Gp 2 >Gp1 ; Gp 3>Gp 1
Size (m)	1.71 \pm 0.06	1.71 \pm 0,07	1.72 \pm 0.06	NS
BMI (kg/m ²)	19.95 \pm 2.12	21.60 \pm 1.61	21.31 \pm 1.88	Gp 2 >Gp 1 ; Gp 3>Gp 1

Légende : \bar{x} = mean; σ = standard deviation; BMI = body mass index; Gp= group

Table 2: Practical experience in football and frequency of meals per day.

Variables Responses	Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P	
Experience of Practice	6 months	0 (0)	2 (5.6)	9 (23.7)	29.91	<0.001
	1 year	7 (15.2)	10 (27.8)	2 (5.3)		
	2-3 years	13 (28.3)	4 (11.1)	16 (42.1)		
	4 years and +	26 (56.5)	20 (55.6)	11 (28.9)		
Number of meal times/day	1 meal	0 (0)	2 (5.6)	2 (5.3)	6.89	>0.05
	2 meals	32 (69.6)	16 (44.4)	20 (52.6)		
	3 meals	14 (30.4)	18 (50.0)	16 (42.1)		

Table 3: Respect of meal times, variation of food and treatment.

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Respect meal times	Yes	22 (47.8)	10 (27.8)	7 (18.4)	11.47	<0.01
	No	24(52.2)	26 (72.2)	31 (81.6)		
Diet variation	Yes	18 (39.1)	15 (41.7)	16 (42.1)	3.31	>0.05
	No	28 (60.9)	21 (58.3)	22 (57.9)		
Support	Parents	44 (95.7)	34 (94.4)	34 (89.5)	1.37	>0.05
	Self	2 (4.3)	2 (5.6)	4 (10.5)		
	Club	0(0)	0(0)	0(0)		

Table 4: Quality and quantity of food consumed.

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Food quality	Good	18 (39.1)	10 (27.8)	13 (34.2)	8.87	>0.05
	Bad	2 (4.3)	2 (5.6)	2 (5.3)		
	Don't know	26 (56.5)	24 (66.7)	23 (60.5)		
Quantity of food	Sufficient	8 (17.4)	6 (16.7)	6 (15.8)	3.33	>0.05
	Insufficient	28 (60.9)	20 (55.6)	17 (44.7)		
	Don't know	10 (21.7)	10 (27.8)	15 (39.5)		

Table 5: Access to food and satisfaction with competition meals.

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Food access	Easy	15 (32.6)	18 (50)	8 (21.1)	6.97	<0.05
	Difficult	31 (67.4)	18 (50)	30 (78.9)		
Satisfaction with competition meals	Yes	18 (39.1)	6 (16.7)	17 (44.7)	7.29	<0.05
	No	28 (60.9)	30 (83.3)	21 (55.3)		

Table 6: Number of meals, number of times eaten per day, consumption and sugary drink.

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Number of meals per day	Breakfast	2 (4.3)	2 (5.6)	2 (5.3)	6.65	> 0.05
	Lunch	13 (28.3)	10 (27.8)	10 (26.3)		
	Collation	8 (17.4)	10 (27.8)	11 (28.9)		
	Dinner	23 (50)	14 (38.9)	15 (39.5)		
Number of times eaten per day	1 time	6 (13.0)	2 (5.6)	13 (34.2)	22.51	<0.01
	2 times	30 (65.2)	21 (58.3)	15 (39.5)		
	3 times	8 (17.4)	13 (36.1)	10 (26.3)		
	4 times	2 (4.3)	0 (0)	0 (0)		
Water consumption	Before	3 (6.5)	4 (11.1)	3 (7.9)	11.45	< 0.05
	During	16 (34.8)	14 (38.9)	9 (23.7)		
	After	27 (58.7)	18 (50)	26 (68.4)		
Sugary drink consumption	Yes	4 (8.7)	17 (47.2)	0 (0)	32.56	<0.001
	No	42 (91.3)	19 (52.8)	38 (100)		

Table 7: Consumption of fruits and intake of vitamin supplements.

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Fruits consumption	Yes	15 (32.6)	12 (33.3)	6 (15.8)	3.83	> 0.05
	No	31 (67.4)	24 (66.7)	32 (84.2)		
Taking supplements	Yes	0(0)	0(0)	0(0)	1.14	> 0.05
	No	38 (82.6)	27 (75)	28 (73.7)		
	Don't know	8 (17.4)	9 (25)	10 (26.3)		

Table 8: Number and duration of training sessions

Variables Responses		Gothia n (%)	Marakana n (%)	Red Star n (%)	χ^2	P
Number of sessions per week	3 times	4 (8.7)	2 (5.6)	14 (36.8)	82.35	< 0.001
	4 times	30 (65.2)	8 (22.2)	2 (5.3)		
	5 times	8 (17.4)	24 (66.7)	4 (10.5)		
	6 times	4 (8.7)	2 (5.6)	18 (47.4)		
Duration of sessions	1 hour	9 (19.6)	7 (19.4)	7 (18.4)	6.44	> 0.05
	1 hour 30	16 (34.8)	20 (55.6)	12 (31.6)		
	2 hours	21 (45.7)	9 (25.0)	19 (50.0)		

Table 9: Knowledge of sports nutrition and sources of information.

Variables	Responses	Gothia ($\bar{X} \pm \sigma$)	Marakana ($\bar{X} \pm \sigma$)	Red Star ($\bar{X} \pm \sigma$)
Nutrition knowledge	Yes	0(0)	8(22.22)	12(31.58)
	No	46(100)	28(77.78)	26(68.42)
Sources of information	Teammate	0(0)	0(0)	2(5.26)
	Documentary	0(0)	0(0)	2(5.26)
	Media	0(0)	0(0)	2(5.26)
	Coach	0(0)	8(22.22)	6(15.79)
	Internet	0(0)	0(0)	0(0)
	None	46(100)	28(77.78)	26(68.43)

Discussion

This study on the evaluation of the food profile was carried out in Congo and interested the footballers of the league 2, in particular those of the department of Brazzaville. This qualitative exploratory study was based on a horizontal comparison of data from these 3 centers mentioned above. Thus, the results obtained were subjected to a confrontation from one center to another based on the established percentages. No scientific work can escape the various limits which are imposed during its realization and this is the case for this exploratory study which had interested only 120 subjects. This study was also limited in time, it should be carried out in both periods (preparation and competition).

The results collected on the independent variables of our subjects (Table 1) attest that the three (03) groups of our study present stature-weight similarities. In view of all these data, it is safe to say that the players are young because the average age was 17.65 ± 1.22 years for Gothia, 17.67 ± 1.21 years for Marakana and 18.26 ± 1.74 years for Red Star.

Our subjects, in relation to their age category, still have a lot of potential to access high-level sport. These results corroborate the work of Ferrari and Tesou [2] among professional and trainee French footballers, those of Bintou Coulibaly [16] carried out among Senegalese basketball players and those of Mouhamadou Sylla [17] related to the nutritional factors of the athletic performance.

The observations made on our results attest that our respondents have a nutritional balance. The data reinforces that our footballers enjoy a normal nutritional status because the average BMI was 19.95 ± 2.12 kg/m² for Gothia, 21.60 ± 1.61 kg/m² for Red Star and 21.31 ± 1.88 kg/m² for Marakana. These results are similar to those presented by Koffi Konan [18] on 134 Ivorian footballers, particularly on the minimal, cadets, juniors and hopefuls.

Concerning football practice experience (Table 2), the results show that a good number of players have a minimum of 4 years' experience, i.e. a rate of 56.5% for Gothia and 55.6% for Marakana. These rates are representative for our various subjects apart from Red Star which presents a rate of 42.1% having a minimum experience of three (03) years. We have a strong rising generation. This experience shows the maturity of these players in the practice of football, which would allow them to improve the various parameters related to performance and to assimilate concepts in sports nutrition. The follow-up of athletes on the nutritional level must be essential. The results obtained are contrary to those collected by Keka [19] among Gabonese footballers from an aging class, the majority of whom had more than 10 years of experience.

Regarding table 3, the majority of our players are unaware of the importance of meal times. To this end, the high density was reported at the level of the Red Star club with 81.6% and the Marakana center with 72.2%. Similarly, the players of the Gothia center claim not to have given respect to meal times, a rate of 52.2%. However, it is important to remember that respecting meal times allows good digestion and avoids fatigue and indigestion [2]. It is for this reason that it is important to have a nutritionist within a federation, a center or a club because the dietitian sets up food programs adapted to the needs of each patient [20]. It is rare to see high-level athletes have long careers if they do not have an irreproachable lifestyle allowing them not only to prepare for efforts but also to recover optimally [6].

The data collected in Table 3 also show that many of our respondents do not vary their diet, particularly those from the center of Gothia with a rate of 60.9%, as well as those from the Marakana club (58.3%) and those from the Red Star with a rate of 57.9%. It should be remembered that it is only by varying your diet that you can provide your body with all the nutrients and minerals likely to support physical effort to avoid any inconvenience. Players who drastically limit their energy intake or the variety of their diet are more prone to deficiencies [21]. In fact, any individual who eats properly from varied and nutrient-rich foods and whose diet satisfies the necessary energy supply, meets the protein intake necessary for his body [21]. Players should not only wait for the moments of competition and training to vary their diet. Nutritional balance, like physical training, is a quest not a continuous practice for a day or two before their competition. Performance cannot occur if a player does not maintain an optimal diet during their training and competitive season [20]. Perhaps we should explain to these young people that with a varied and balanced diet, we will not necessarily be a good footballer, but that without it, we are almost sure not to succeed [22].

However, young athletes must favor a balanced diet to maintain good growth and optimize their performance during sporting events. The ideal diet consists of 50% to 55% carbohydrates, 10% to 15% protein, and 30% to 35% fat [23].

The results obtained on support (Table 3) suggest that our respondents are generally supported by parents. The three (03)

groups in our survey have very high rates like the Gothia center 95.7%, Marakana 94.4% and Red Star 89.5%. We can agree that care is not yet established in our federations and clubs, although it is a source of motivation for our young athletes. A federation, center or club must have a restaurant and a dietician to ensure the nutritional monitoring and supervision of players. It is crucial to submit athletes to intensive training without having ensured their nutritional support, whereas Ferrari & Testou [6] indicate that their subjects came from centers and teams that had a restaurant and a nutritionist for the good follow-up of their footballers. She adds that young people in training centers are often supervised on the diet plan with many meals taken on site [24]. This reality is significantly opposed to that of our subjects. The various results of this work show that dietary management and lifestyle is essential in the medium and long term with obvious benefits in terms of performance and health, underline Chen et al., [22].

The results of table n°4 show that our players from the centers Gothia (56.5%) and Marakana (66.7%) and Red Star (60.5%) declared to have no idea about the quality of the food they eat. These players ignore the quality of their diet. The latter, when it is well chosen, offers many advantages to athletes. We must not forget that a good diet provides all the energy necessary for the body and the muscles so that they can develop in the best way. It is for this reason that we often hear that bodybuilding is 70% diet and 30% training [25]. These authors emphasize more that the quality of your food will allow the good general functioning of the brain, muscles and organs. For this, it is necessary to determine the daily caloric content and to consume a variety of foods to achieve this [25]. In this sense, food is the life of man and therefore of the athlete as he is.

The prospect of a high-level sporting future can be a real motivation capable of making players aware of the importance of good nutrition [21]. A healthy, varied, balanced and well-adapted diet is a key element in the life of an athlete in general and of a footballer in particular [25].

Regarding the quantity of food consumed, the majority of our players (table 4) have the highest rate of 60.9%, followed by Marakana with 55.6% and finally Red Star with a rate of 44.7% on the insufficiency of food consumed. Our athletes, at the time of consumption, must combine quantity and variety of food [26]. This association has a judicious impact on their sporting future. Arango-Angarita et al. [27] recommend two (02) categories of food to people: the first category is composed of calorie-rich energy foods, the second category contains essential foods or builders that contribute to the proper functioning of the body. They specify that consumption must be quantitative and qualitative; meaning that a training player's basic diet should contain appropriate amounts of all essential nutrients. However, an adequate diet must provide enough nutrients and energy, including water, to meet the metabolic needs necessary for the functioning of the body [20].

The data collected on access to food (Table 5) shows us that there are two (02) groups which present higher percentages of subjects

who have difficulty accessing their food, namely Red Star with 78, 9% and Gothia with 67.4%. It can be said that these subjects come from families with a difficult social situation. It should be noted that the purpose of the diet is to avoid some inconvenience to the athlete, including hypoglycemia, anemia and others [18]. Hard training, especially strenuous exercise twice a day, can almost completely deplete the player's muscle glycogen stores and if they are not adequately replenished daily by a carbohydrate diet, the player becomes chronically deficient. Which leads to a change in performance [20]. This is why eating daily is not enough, to this must be added a balanced and diversified diet to avoid deficiencies and the use of supplements. It is also necessary to associate the respect of the rules of hygiene of life for an optimal performance. Beck et al., [28] point out that a balanced and diversified diet would provide solutions to these problems, probably without resorting to any supplementation. Most of our footballers (table 5) are not satisfied with the meals offered during competitions. We got from Marakana 83.3%, Gothia 60.9% and Red Star 55.3% of those who disparage these meals. These meals should be of good quality, easy to digest and should provide more energy. They must be consumed at a convenient time in relation to training or competition. The pre-match meal is a good opportunity to organize a group meal. It will also ensure a final nutritional and psychological preparation and will allow group discussion of the tactics adopted [29]. At this time, players are being asked to prioritize carbohydrate foods. These are essential nutrients for energy delivery and should be optimized on pre-game days as well as on game days [29]. It is important to know when to take them. Kanerva et al. [30] and Kerksick et al. [31] indicate that you can eat a substantial meal three (03) or four (04) hours before the competition. This allows the stomach to facilitate the digestion of food ingested before the activity.

The established results (Table 6) indicate that an insufficient number of players have access to lunch, this is the case of Marakana (27.8%) and Red Star (26.3%). While many of Gothia (50%), Marakana (38.9%), and Red Star (39.5%) players have much more access to the diner. Many of our respondents are unaware of the importance of the different meals of the day and especially breakfast. A very small number of players take it (i.e. 4.3% for Gothia, 5.6% for Marakana and 5.3% for Red Star). Each of these meals supplies the body with carbohydrates, proteins, fats and vitamins in order to support physical effort. Taken early before 8 a.m., breakfast allows the body to support the morning training and to reach the midday meal without failure [32]. The midday meal provides most of the proteins necessary for general and muscular metabolism in particular. The snack or snack is a meal intended to ensure an energy charge before the end of the day training. It can also help to avoid cravings at the start of the evening before sleeping. The dinner or evening meal also has the possibility of allowing a good sleep not diverting the blood from the muscles and thus ensuring a good elimination of the toxins of the effort, the reconstitution of the reserves in glycogen and the plastic repair of the proteins of the cells muscles [20].

Regarding the data relating to the number of times eaten or

taken meals (Table 8), we find that the majority of players from different clubs consume two (02) meals per day, i.e. 65.2% for Gothia, 58.3% for Marakana and 39.5% Red Star. These results do not match those collected by Ousmane Gueye [33] on high-level footballers in Senegal because the majority of these subjects ate 3 meals a day, i.e. 80% for football internationals and 84% for military internationals, against only 20% who ate two (02) meals a day. Sporting reality shows that a good diet can replenish significant energy reserves, so it is recommended to have three (3) meals and more per day. To have a balanced and adapted diet, it is enough to make 4 structured meals by drawing sportingly from all the food groups. Studies show that the daily ration should be taken 3 to 4 times a day in order to provide a sufficient amount of energy [34].

The results obtained on water needs (Table 6) indicate that our footballers, in particular those of Marakana (50%), Red Star (68.4%) and Gothia (58.7%) consume more water after training. These data are contrary to those found by Ousmane Gueye [33], on top athletes in Senegal. To this end, these respondents consumed water before (80%), during (95%) and after (100%) the competitions. We cannot ignore the benefits of proper hydration. It is important to specify that the water needs of the body before, during and after the sports competition allows access to the best performance as well as to avoid certain incidents that are still too frequent. Water is the most important constituent of the human body, it represents between 60% to 70% of the weight of our body. From a 4% drop in body weight, cardiac output drops, as well as the amount of blood distributed to active muscles decreases, the player feels weak and tired, body movement deteriorates [4].

The results obtained on the consumption of sugary drinks report that a large population of our respondents does not consume sugary drinks because we collected 100% at the level of the Red Star club, 91.3% at the level of the Gothia center and 52.8 % at the Marakana center. We are far from unaware that sugary drinks bring energy to the body in liquid form because they help to build glycogen stores in the muscles quickly. A player should consume 60% to 70% of total calories as carbohydrate to prevent glycogen deficiency [35]. Most players are aware that large fluid losses can be dangerous. However, hard training, in particular exhausting exercises two (02) times a day, can almost completely deplete the player's muscle glycogen stores [36]. However, from the end of the exercise, the immediate consumption of simple carbohydrates in solution, drinks containing glucose and fructose at 60 or 100g / l, at a rate of 0.15 to 0.25g / kg / l every 15 minutes for 2 to 4 hours, allows the greatest resynthesis of glycogen [37]. It should be remembered that the presence of sodium in the drink allows good water retention and therefore effective rehydration, with a lower urine flow. The total volume of drink ingested should reach 1.5 to 2 times the sweat loss [28]. It can be noted that the absorption of energy drinks with a carbohydrate content of approximately 4 to 8% makes it possible to meet both water and carbohydrate needs in most competitions [29].

With regard to the consumption of fruit, this work enabled us

to observe that our subjects (table 7), for the majority, do not consume fruit. This deficit consumption of fruit is justified by the lower rates observed (15.8% for Club Red Star, 32.6% for Center Gothia and 33.3% for Center Marakana). We notice that fruit consumption is not effective and this is slightly balanced between the three (03) groups. We cannot ignore that fruits provide the body with energy, minerals and antioxidant elements favorable to the support of physical effort. It is essential to choose brightly colored foods on your plate in order to guarantee the intake of this group of foods beneficial to health. For this reason, it is important to consume fruits and vegetables and all kinds of colors of the rainbow daily to serve as protection [21].

Regarding vitamin supplements, it should be noted that our players do not know and are not used to taking vitamin products. These athletes presented very high rates against taking these products, ie 82.6% for the Gothia centre, 75% for Marakana and 73.7% for the Red Star club which does not consume vitamin products. It is true that the deficiency of certain elements can oblige an athlete to use these products, provided that this is done according to the opinion of the nutritionist because a food supplement can be prescribed by a nutritionist. In general, a multivitamin and mineral-rich dietary supplement is best indicated in this type of case. However, targeted administration of supplemental nutrients may be necessary for a deficiency [29]. Athletes think in this way to improve their performance, fight against fatigue and fill a deficiency. The studies carried out have for the most part never proven the merits of dietary supplements [38]. Young players who eat a wide variety of foods do not need dietary supplements. They must know that the player do not in any way allow access to glory [21].

We found in terms of the number of training sessions (Table 8) that the three (03) groups in our survey do not share the same situation. 24 Marakana players or 66.7% train five (05) times per week, 30 Gothia players or 65.2% train four (04) times per week and 18 Red Star players or 47.4% train six (06) times a week. The training volume varies from one group to another for reasons that depend on the logic of each group. We therefore retain that the Red Star club has a higher training volume than the other two. It turns out that training regularly allows a cumulative improvement of performance parameters, up to a limit determined by genetic factors [39]. It should be remembered that if the training sessions do not follow one another regularly or with too long intervals, the traces left by the previous training sessions disappear, without allowing the effects of these training sessions to be added to each other [40].

The work carried out on the duration of the training sessions (table n° 8) indicates that there are two (02) groups, including Red Star (50%) and Gothia (45.7) which agree for two (02) hours of training, compared to 55.6% of Red Star athletes who train for 1 hour 30 minutes a day. The volume of 2 to 3 hours per day seems best suited for quality training. This volume was highlighted by Moussavou-Nzamba [41] among adolescent soccer players who trained for 120 minutes every day. For high-level or elite training, it is important to have a duration of 2 to 3 hours of training per day

because the results of Koffi Konan [18] on 134 Ivorian footballers meant that they had 3 hours of training per day and the average number of hours was higher in juniors and seniors, respectively 3.84 and 4.66 hours per day.

We have noticed, in table 9, that our footballers do not benefit from nutritional support because the majority do not have knowledge of sports nutrition. This situation is very critical at the level of the Gothia center which presents 100% of players having no knowledge of nutrition and not using any source of information. This remark is the same with other clubs like Marakana which presents 77.78% and Red Star which includes 68.43% of players with a lack of knowledge in sports nutrition and having no source of information. This ignorance constitutes a great danger for the athlete and does not allow him to have a long career [36]. However, the presence of a nutritionist or a dietician within the club is essential and mandatory, as Steven Couture points out [42]. In the absence of a nutritionist, trainers must be prompted and encouraged to use more credible sources of information, such as nutritionists in reference books, credible websites as well as data from scientific literature and participation in certain seminars. In this study, our results show the growing need for nutritional education for managers, coaches and players. This should protect players from ignorance in the field of nutrition in order to know what to eat and when to eat.

Conclusion

Our exploratory study aimed to assess the dietary profile of footballers in league 2 in the department of Brazzaville. The results obtained showed that the footballers did not have a normal nutritional status; the foods eaten by the footballers were not varied; the footballers did not respect meal times and they did not have a high enough level of knowledge on sports nutrition, particularly on their nutritional needs. These results showed that our subjects had many advantages to become top athletes. However, some nutritional deficiencies were noted because the data analysis showed unfavorable eating habits in many of our subjects. Thus, we had noted a poor frequency of meal consumption and the lack of respect for the times of taking these meals. Likewise, the variety, quality and quantity of food was almost non-existent. Especially since access was difficult to good food, leading to dissatisfaction with the foods consumed during training and even competitions. These players did not know what to eat and they ate more at the expense of breakfast and lunch with less frequency of meal intake. They were subjected to a non-monitored and controlled diet by eating at will without any adequate food discipline. Then, the foods eaten at breakfast, lunch, snack and dinner did not reflect the menus of high-level athletes with less consumption of water, sugary drinks and fruit. In the end, we noticed the lack of notions on sports nutrition.

As a result, these players must be well monitored nutritionally to be well trained because these shortcomings are often associated with poor performance.

Based on the above, it is important to suggest that federations,

centers and clubs provide care for these players in order to better situate them in terms of nutrition. Similarly, training centers must organize from time to time seminars on the nutritional education of their athletes or players, which is a guarantee for improving performance.

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Footnote

BEJ designed and conducted the study and wrote the manuscript. MKPR, MSI and NF participated in data acquisition and performed statistical analyses. The study protocol and revision of the manuscript were carried out by BAM, MJM, MD, MO, NE, EM, MV, IOYS and FM.

Ethical considerations

Informed consent from each player was required.

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