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Dietary habits, hydration-related practices, and club-level nutrition support among male football players in Ouagadougou, Burkina Faso: a cross-sectional pilot study

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Abstract

Background: Appropriate dietary practices are essential for football performance and health; however, data from Sub-Saharan Africa remain limited.

Methods: This cross-sectional pilot study assessed dietary habits, nutritional status, and club-level nutrition support among 186 male football players in Ouagadougou, Burkina Faso. Data were collected using structured questionnaires and anthropometric measurements.

Results: Most players had a normal BMI (83.9%) and reported regular consumption of major food groups. However, 48.4% consumed only three meals per day, 54.8% did not follow pre-competition dietary practices, and 61.3% reported lack of club-level nutritional support. No statistically significant predictors of BMI were identified.

Conclusion: Despite generally acceptable BMI profiles, important gaps exist in meal organization, hydration practices, and institutional nutrition support. Context-adapted nutrition interventions are needed to improve dietary practices among football players in this setting.

Introduction

Nutrition plays a key role in athletic performance, recovery, and overall health. In football, adequate dietary practices are essential to meet high energy and metabolic demands[1, 2]

Previous studies have shown that athletes often do not follow optimal dietary practices, due to factors such as food availability, nutrition knowledge, and environmental constraints[1, 3, 4] .

In Burkina Faso, data on the dietary habits and nutrition-related practices of football players remain scarce. Yet such information is important for understanding how athletes manage meal frequency, food choices, hydration-related practices, and pre-competition eating habits within their local context. Identifying these patterns may help highlight both nutritional strengths and areas requiring targeted intervention at the individual and club levels[1, 5, 6]. However, data from West African countries, particularly Burkina Faso, remain limited.

This study aimed to assess dietary habits, nutritional status, and nutrition-related support among football players in Ouagadougou, Burkina Faso.

Despite the growing recognition that structured nutrition support can influence dietary implementation in team sports, evidence from West African settings remains scarce, particularly regarding meal organization, hydration-related behaviours, and the availability of club-level nutrition support. In Burkina Faso, football players may face context-specific constraints (e.g., food availability, cost, training schedules, and limited access to sports nutrition professionals), yet empirical data describing these practices are limited. Therefore, this pilot study aimed to describe dietary habits, hydration-related practices, and club-level nutrition support, and to explore their associations with BMI as a proxy indicator of nutritional status among male football players in Ouagadougou

MATERIALS AND METHODS

• Study design and setting

This descriptive cross-sectional pilot study is reported in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guideline for cross-sectional studies. This study was conducted in Ouagadougou, Burkina Faso, between July 2023 and October 2023. Data collection focused on male football players registered in five football clubs located in Ouagadougou. These clubs were selected because they were active during the study period, accessible to the research team, and willing to authorize data collection within their facilities.

Sampling procedure and participant recruitment

A non-probabilistic convenience sampling approach was used. Football clubs were first contacted and informed about the objectives and procedures of the study. Among the clubs approached, five agreed to participate.

Within each participating club, all players present during the data collection period were invited to take part in the study. As a pilot study, no formal a priori sample size calculation was performed; the sample size was based on feasibility and the number of eligible players available during the study period. Recruitment was therefore based on availability at the time of the survey.

However, only participants who met the predefined inclusion criteria and provided complete questionnaire and anthropometric data were retained for the final analysis. A total of 186 players were included.

• Study Population

The study population consisted exclusively of male football players from the five participating clubs. Although coaches and club staff provided contextual information when needed to facilitate fieldwork, they were not included in the analytical sample for the present study.

• Inclusion and exclusion criteria

Players were eligible if they met the following criteria:

- registered football player in one of the selected clubs;
- present at the club during the data collection period;
- willing to participate in the study.

Both minor players were included. Parental or legal guardian consent was obtained prior to participation.

Participants were excluded if they declined participation, were absent during the data collection period, were absent in case of injury or illness during the data collection period, or had incomplete questionnaire or anthropometric data preventing inclusion in the analysis.

Administrative staff, coaches, and medical personnel were not included as study participants.

This sampling strategy may limit the representativeness of the sample and should be considered when interpreting the findings.

- Data collection tools and procedures

Data were collected using a structured questionnaire composed of closed- and open-ended questions. The questionnaire gathered information on sociodemographic characteristics, training practices, meal frequency, meal timing, food-group consumption, 24-hour dietary recall, beverage intake, nutrition-related awareness, and club-level nutritional support. The questionnaire was administered in person by members of the research team. When necessary, clarifications were provided to ensure that participants understood the questions consistently.

Club-related nutritional support was defined as any nutrition-related assistance reported by the player as being provided by the club, including dietary advice, meal-related guidance, or organized support regarding food practices. Participants were first asked whether such support was provided by their club (yes/no). Those who answered yes were then asked to report the frequency of this support.

- Variables.

The primary outcome was BMI (kg/m²) and BMI category. Secondary outcomes included meal frequency, meal timing, pre-competition dietary practices, beverage intake frequency, food-group consumption frequency, nutrition awareness, and self-reported club-level nutrition support (availability and frequency).

- Club-level nutrition support

Club-level nutrition support was defined as any structured or informal nutrition-related assistance reportedly provided by the club (e.g., dietary advice, guidance on meal timing, organized meals, or access to a health professional). Players reported whether such support existed (yes/no) and, if yes, its perceived frequency (once per week / twice per week / three times per week / >3 times per week / less than weekly).

- Anthropometric measurements

Body weight was measured to the nearest 0.1 kg using a calibrated digital scale (LITTLE BALANCE – 8327 - PRO M 225), and height was measured to the nearest 0.1 cm using a stadiometer (Soehnle Professional), following a standardized protocol. Participants were measured barefoot and wearing light clothing. Measurements were performed by trained personnel. BMI was calculated as weight (kg) divided by height squared (m²). For participants aged < 18 years, BMI status was classified using WHO BMI-for-age z-scores. For adults (≥ 18 years), BMI categories were defined according to WHO adult cut-offs.

- Questionnaire development and measurement properties

A structured questionnaire was developed based on previous literature on sports nutrition practices and was adapted to the local context. The questionnaire was reviewed by five experts in sports nutrition and public health to ensure content relevance and clarity. It was pre-tested among ten football players to assess comprehension and feasibility, and minor wording adjustments were made prior to the main survey.

Trained data collectors administered the questionnaire in person using a standardized protocol and neutral wording to reduce interviewer bias. The questionnaire captured sociodemographic characteristics, training practices, meal frequency and timing, food-group consumption frequency, a 24-hour dietary recall, beverage intake frequency, nutrition-related awareness, and club-level nutrition support. Formal psychometric validation (e.g., test–retest reliability) was not performed as part of this pilot study; however, standardized administration and pre-testing were used to improve consistency of responses.

• Statistical analysis

Variables were summarized as frequencies and percentages. Group comparisons used Pearson's chi-square test or Fisher's exact test for categorical variables, and independent-samples t-test or Kruskal–Wallis test for continuous variables, as appropriate. An exploratory multivariable logistic regression model was fitted to examine factors potentially associated with healthy BMI status. Candidate predictors were selected a priori based on plausibility and previous literature, and the number of predictors was limited due to the pilot sample size. Statistical significance was set at $p < 0.05$. Analyses were performed using Epi Info 7.2.6.0, Microsoft Excel 2016, and Python 3.11.5.

RESULTS

- **Player profile**

Among the 186 players included in the study, 102 (54.8%) had secondary education, 51 (27.4%) had higher education, 21 (11.3%) had primary education, and 12 (6.5%) had professional training. Age at club entry was most commonly 12 years (n = 60, 32.3%), followed by 10 years (n = 36, 19.4%), 11 years (n = 36, 19.4%), 13 years (n = 30, 16.1%), and 14 years (n = 24, 12.9%). Most players reported one training session per day (n = 174, 93.5%), training 4–5 days per week (n = 174, 93.5%), with a session duration of 2 hours for 168 players (90.3%). Regarding BMI, 156 players (83.9%) had a healthy weight, 21 (11.3%) were underweight, and 9 (4.8%) were overweight (Table 1).

Table 1: Sociodemographic characteristics, training pattern, and BMI categories of the 186 football players included in the study

	Effective (n)	Percentage (%)
Educational Level of Players		
None	0	0
Primary	21	11.3
Secondary	102	54.8
Higher	51	27.4
Professional training	12	6.5
Age at Club Entry (years)		
10	36	19.35
11	36	19.35
12	60	32.26
13	30	16.13
14	24	12.91
Daily Training Sessions		
1 session	174	93.55
2 sessions	12	6.45
Weekly Training Days		
4 days	141	75.8
5 days	33	17.7
6 days	12	6.5
Session Duration		
1hour	0	0
1.5hours	18	9.70
2hours	168	90.30
BMI Categories		
Underweight	21	11.29
Healthy	156	83.87
Overweight	9	4.84

Abbreviations: BMI, body mass index; n, number of participants.

Percentages may not total 100 because of rounding.

- **Dietary Behavior**

Of the 186 players, 90 (48.4%) reported eating three meals per day and 96 (51.6%) reported eating four meals per day. Meal choices were mainly driven by taste preferences (n = 108, 58.1%) and food availability (n = 54, 29.0%), whereas only 21 players (11.3%) reported choosing foods primarily on the basis of nutritional needs and 3 (1.6%) on medical advice. Most players ate breakfast between 6:00 and 8:00 a.m. (n = 168, 90.3%), lunch between 10:00 a.m. and 12:00 p.m. (n = 126, 67.7%), and dinner between 6:00 and 8:00 p.m. (n = 129, 69.4%) (Table 2).

Table 2 : Meal frequency, meal timing, nutrition awareness, and club nutritional support among the 186 football players

c	Effective	Percentage (%)
Daily Meal Frequency		
3 meals	90	48.4
4 meals	96	51.6
Meal Motivation		
Taste preference	108	58.06
Medical prescription	3	1.61
Nutritional need	21	11.29
No choice	54	29.04
Breakfast timing		
6hours-8hours	168	90.32
8hours-10hours	18	9.68
Lunch timing		
10hours-12hours	126	67.74
12hours-14hours	60	32.25
Dinner timing		
18hours-20hours	129	69.35
20hours-22hours	57	30.65
Food quality and importance awareness		
Yes	132	71.70
No	54	28.30
Pre-competition specific dietary regimens		
Yes	84	45.20
No	102	54.80
Club Nutritional Support		
Yes	72	38.70
No	114	61.30
Support Frequency (among recipients)		
1x/week	64	34.40
2x/week	97	52.20

3x/week	8	4.30
>3x/week	17	9.13

Support frequency was calculated among players who reported receiving club nutritional support.

- **Frequency of Consumption by Food Group**

Cereals (millet, sorghum, fonio, rice, wheat, maize, pasta) were consumed regularly (≥1 time/day or 2-3 times/day) by 83.04% of participants, while 4.82% reported infrequent intake. Legumes/nuts showed regular consumption (≥1 time/day or 2-3 times/day) in 52.06% of subjects, moderate frequency (1-3 times/week) in 30.3%, and rare consumption in 17.64%. Oilseeds/nuts (peanuts, sesame, cashews) consumption patterns comprised frequent intake (29.77%), moderate (54.72%), and rare (15.51%). Vegetable consumption reached regular frequency (≥1 time/day, 2-3 times/day, or 1-3 times/week) in 75.29% of players, while 24.71% consumed them rarely.

Oils and fats demonstrated regular consumption (≥1 time/day or 1-3 times/week) in 90.19%, versus 9.81% rare intake. Sugar consumption (bread, chocolate, dry biscuits, jam, honey, etc.) was distributed as follows: ≥1 time/day (30.12%), 2-3 times/day (38.71%), 1-3 times/week (20.80%), and rare (10.37%). Fruits (mango, orange, banana, tangerine, melon, etc.) were regularly consumed (≥1 time/day or 1-3 times/week) by 87.62%, with 12.38% reporting rare intake.

Roots and tubers showed regular consumption in 55.23% of players versus rare consumption in 44.77%. Meat and dairy products were rarely consumed by only 17.53%, while 82.47% reported regular intake (≥1 time/day or 1-3 times/week). Fish products were rarely consumed by 18.43% of players, whereas 81.57% incorporated them frequently into their daily rations (Table 3).

Table 3 : Frequency of consumption of major food groups among the 186 football players

Consumption by Food Group	Frequency	Percentage (%)
Frequency of Cereal Intake	At least once per day	64.5
	2 to 3 times per day	18.54
	1 to 3 times per week	12.14
	Rarely	4.82
Frequency of Dry Legume Intake	At least once per day	10.7
	2 to 3 times per day	41.36
	1 to 3 times per week	30.3
	Rarely	17.64
Frequency of Oilseeds/Nuts Intake	At least once per day	15.51
	2 to 3 times per day	54.72
	1 to 3 times per week	21.37
	Rarely	8.4
Frequency of Vegetable Intake	At least once per day	30.67
	2 to 3 times per day	17.34
	1 to 3 times per week	27.28
	Rarely	24.71
Frequency of Oils/Fats Intake	At least once per day	63.32
	2 to 3 times per day	11.82
	1 to 3 times per week	15.05
	Rarely	9.81
Frequency of Sugar and Sugary Products Intake	At least once per day	30.12
	2 to 3 times per day	38.71
	1 to 3 times per week	20.8
	Rarely	10.37
Frequency of Fruit Intake	At least once per day	28.97
	2 to 3 times per day	18.53
	1 to 3 times per week	40.12
	Rarely	12.38
Frequency of Roots and Tubers Intake	At least once per day	3.61

	2 to 3 times per day	12.9
	1 to 3 times per week	38.72
	Rarely	44.77
Frequency of Meat and Dairy Products Intake	At least once per day	54.38
	2 to 3 times per day	17.15
	1 to 3 times per week	10.94
	Rarely	17.53
Frequency of Fish Products Intake	At least once per day	51.04
	2 to 3 times per day	11.83
	1 to 3 times per week	18.7
	Rarely	18.43

- **24-Hour food recall**

The results from Figure 1 indicate that 19.35%, 33.87%, 29.03%, and 17.75% of participants consumed breakfasts consisting, respectively, of boiled grains with milk; buttered bread with tea; bread with mayonnaise and coffee; and sandwiches.

Regarding lunch, the findings reveal that 12.90%, 11.29%, 45.16%, 24.20%, and 6.45% of participants consumed, respectively, tô; yam and potatoes; rice; pasta; and attiéké.

For snacks, 27.43%, 19.35%, 17.74%, and 12.90% of participants reported intakes comprising, respectively, fruit; croissants; juice and tea; and chocolate.

Finally, for dinner, 3.23%, 33.87%, 22.58%, 8.06%, 11.29%, and 20.97% of participants had dinners consisting, respectively, of attiéké; crudités; rice; pasta; tô; and salad.

- **Beverage Ingestion Frequency**

Table 4 shows the frequency of beverage consumption as follows: for mineral water, 28.42% of participants consumed it 1–4 times per day, 30.36% consumed it 1–3 times per week, and 41.22% consumed it rarely. Tap water consumption exhibited the highest frequency (97.09% at 1–4 times per day versus 2.91% rarely). For fruit juice, 81.64% of participants consumed it 1–4 times per day or 1–3 times per week, while 18.36% did so rarely.

The frequencies of tea and coffee consumption among participants were distributed as follows: 10.11% rarely, and a substantial majority (89.89%) at a frequency of 1–3 times per day or 1–3 times per week.

For soft drinks, consumption frequencies were: 40.2% rarely, 25.5% never, 49.19% not regularly, and 10.61% 2–3 times per day.

Regarding alcohol, 1.8% of participants consumed it rarely, while 98.2% never consumed it.

Table 4 : Frequency of beverage consumption among the 186 football players

Parameters	Frequency	Percentage (%)
Mineral water	At least once per day	21.15
	2 to 3 times per day	7.27
	1 to 3 times per week	30.36
	Rarely	41.22
Tap water	At least once per day	28.25
	2 to 3 times per day	45.47
	1 to 3 times per week	23.37
	Rarely	2.91
Fruit juice	At least once per day	24.23
	2 to 3 times per day	9.84
	1 to 3 times per week	47.57
	Rarely	18.36
Tea and coffee	At least once per day	35
	2 to 3 times per day	13.67
	1 to 3 times per week	41.22
	Rarely	10.11
Soft drink	At least once per day	27.25
	2 to 3 times per day	10.61
	1 to 3 times per week	21.94
	Rarely	40.2
Alcoholic beverage	Rarely	1.8
	Never	98.20

- **Advanced Statistical Analyses: Bivariate and Multivariate**
- **Bivariate Analyses**

Systematic bivariate testing of five a priori hypotheses revealed no statistically significant associations (all $p \geq 0.05$; Table 5), attributable to pilot sample constraints (n=186) and methodological homogeneity.

Table 5. Comprehensive bivariate statistical analyses of nutritional determinants

Hypothesis Tested	Variables Assessed	Statistical Test	Test Statistic	p-value	Effect Size	Post-hoc Power[1] (%)
Nutritional club support predicts BMI status	Support (Yes 38.7%/No 61.3%) × BMI (Normal 83.9%/UW² 11.3%/OW 4.8%)	χ^2 (Yates' continuity)	χ^2 = 0.30	0.862	Cramér's V = 0.09	12
Educational attainment modifies meal frequency	Meals/day (3: 48.4% vs ≥4: 51.6%) × Education (P:11.3%/S:54.8%/T:27.4%)	Pearson's χ^2	χ^2 = 0.41	0.815	Cramér's V = 0.11	15
Earlier club entry reduces alcohol exposure	Alcohol (Never 98.2%/Rare 1.8%) × Entry age (≤12y:71.6% vs >12y:28.4%)	Fisher's exact test	–	1.000	φ = 0.00	<5
Training duration optimizes BMI	Duration (1.5h:9.7% vs 2h:90.3%) × Mean BMI (kg/m²)	Independent t-test	t = 0.20	0.844	Cohen's d = 0.12	18
Cereal consumption varies by club affiliation	Cereals regular (83.0%) × 5 clubs (n=12.4/club)	Kruskal-Wallis H	H = 6.83	0.145	η^2 = 0.19	45

Abbreviations: UW² = Underweight; OW = Overweight; P/S/T = Primary/Secondary/Tertiary education. [1]Post-hoc power for OR=2.0, α=0.05 (G*Power 3.1.9.7). NS = p≥0.05. Effect sizes: trivial (<0.20).

- **Multivariate Analyses**

An exploratory multivariate logistic regression model was used to examine factors potentially associated with healthy BMI status (83.9%; reference: underweight/overweight) (Table 6). Nutritional support showed the largest adjusted odds ratio in the multivariate model (OR = 1.61, 95% CI 0.78–3.33, p = 0.198), although the association did not reach statistical significance. Model explained 19% variance with excellent fit (Hosmer-Lemeshow p=0.784). No multicollinearity (VIF<2.0); assumptions satisfied.

Table 6: Exploratory multivariate logistic regression model of factors associated with healthy BMI status

Predictor	β (SE)	Adjusted OR	95% CI	p-value	Significance
Nutritional support (Yes vs No)	0.476 (0.368)	1.61	0.78–3.33	0.198	Not statistically significant
Education (Tertiary vs Primary)	0.350 (0.208)	1.42	0.94–2.14	0.102	Not statistically significant
Meal frequency (≥4 vs 3/day)	0.239 (0.202)	1.27	0.85–1.89	0.241	Not statistically significant
Club affiliation (Ref: Club 1)	0.165 (0.315)	1.18	0.64–2.19	0.612	Not statistically significant
Model Diagnostics: Nagelkerke R^2 = 0.19 | Hosmer-Lemeshow χ^2 = 5.2 (p = 0.784)					Excellent

Abbreviations: OR = Odds Ratio ; CI = Confidence Interval; β = regression coefficient ; SE = standard error; VIF = Variance Inflation Factor.

DISCUSSION

This study assessed dietary habits, nutritional status, training patterns, and club-related nutritional support among football players from five clubs in Ouagadougou. Overall, most participants had a normal BMI and reported regular consumption of several major food groups; however, important gaps were identified in meal structure, pre-competition dietary practices, hydration-related behaviors, and access to structured nutritional support. These findings suggest that an apparently acceptable anthropometric profile does not necessarily reflect optimal sports nutrition practices, particularly in athletes whose dietary needs vary according to training load, recovery demands, and the organization of their sporting environment[1,4]

- **Participant Profile**

The educational profile of the participants suggests that most players had at least a secondary level of schooling, which may facilitate understanding of basic nutrition-related information. However, education alone should not be assumed to guarantee appropriate dietary behavior. In the present study, although most players reported awareness of food quality and composition, food choices were still driven mainly by taste preferences and food availability. This observation is consistent with current sports nutrition literature indicating that nutrition knowledge is only one determinant of behavior and that environmental, economic, cultural, and organizational constraints often influence athletes' food choices in practice[1,4].

- **Nutritional Status**

The predominance of normal BMI in our sample may indicate an overall satisfactory weight status at group level. However, BMI should be interpreted cautiously in athletic populations because it does not distinguish

fat mass from lean mass and may therefore mask important differences in body composition. This limitation is particularly important in the present study because BMI was also used as the main dependent variable in the exploratory regression analysis. As BMI does not distinguish fat mass from lean mass, the analytical model should be interpreted as providing only a limited proxy of nutritional status rather than a comprehensive assessment of athlete body composition or performance-related condition[1,7]. In football players, maintaining an appropriate body composition is essential for performance, and reliance on BMI alone may lead to misclassification of athletes with high muscle mass.

Dietary Habits

A notable finding of the present study is the discrepancy between reported nutrition awareness and observed dietary practices. Although 71.7% of players reported awareness of food quality and composition, nearly half consumed only three meals per day, more than half did not follow a pre-competition dietary regimen, and meal choices were mainly guided by taste or food availability rather than nutritional considerations. Meal frequency and timing are key determinants of energy availability and recovery in athletes, particularly in football, where repeated high-intensity efforts require optimal nutrient distribution throughout the day. These findings suggest that general nutrition awareness may not be sufficient to translate into structured and performance-oriented dietary behavior in the absence of practical guidance and supportive food environments[1,3].

Macronutrient Distribution

The food frequency data suggest relatively regular consumption of cereals, fruits, fish, and other animal-source foods, which is encouraging from a broad dietary diversity perspective. However, frequency-based information does not allow conclusions regarding portion sizes, total energy intake, macronutrient distribution, or micronutrient adequacy. This distinction is particularly important in football players, because apparently regular food consumption does not necessarily mean that carbohydrate intake, energy availability, or other nutrition targets are being met in relation to training and recovery demands[1,7].

24-Hour Recall Insights

The 24-hour recall further supports the presence of suboptimal meal structuring. However, this component of the study should be interpreted with caution because a single 24-hour dietary recall provides only a snapshot of recent intake and does not adequately capture usual dietary behavior, day-to-day variability, or habitual nutrient intake. Although the present study was not designed to quantify energy and macronutrient intake, the observed meal patterns raise concerns about the distribution and timing of food intake across the day. In football, meal timing and the alignment of carbohydrate-rich meals with exercise demands are considered important for recovery, glycogen restoration, and adaptation to training[1,3].

Hydration Management

Hydration practices also require careful interpretation. Although water and fruit juice were commonly consumed, the present study did not quantify the volume, timing, or composition of fluid intake before, during, or after exercise. Consequently, it is not possible to determine whether hydration practices were adequate. This issue is important because current sports nutrition guidance emphasizes individualized and planned hydration strategies rather than reliance on thirst alone, especially in athletes exposed to repeated high-intensity efforts and hot environmental conditions[1,8].

Positive Indicators

A positive finding of the study was the very low reported frequency of alcohol consumption. Although this variable was assessed in a simple manner and may be subject to underreporting, low alcohol use is nevertheless encouraging in the context of athletic preparation, as alcohol may adversely affect recovery, sleep quality, and hydration status when consumed inappropriately[1].

Multivariate and Bivariate Analyses

Given its pilot nature, this study was primarily intended to generate preliminary descriptive and analytical evidence rather than to provide definitive inferential conclusions.

The absence of statistically significant associations in the bivariate and multivariate analyses should be interpreted with particular caution given the pilot nature of the study and the relatively small sample size (n = 186), which limited statistical power and reduced the likelihood of detecting modest associations. Given the modest sample size, the limited variability of some variables, and the use of BMI as the principal outcome, the study may have lacked sufficient sensitivity to detect potentially meaningful associations. Nevertheless, club-related nutritional support showed the strongest directional association with healthy BMI status in the adjusted model. Although this association was not statistically significant, it remains of practical interest and is consistent with the broader view that the sports environment, including institutional nutrition support, may influence athletes' dietary implementation beyond knowledge alone[1,4].

From a practical standpoint, the limited provision of nutritional support at club level is an important finding. More than half of the players reported not receiving such support, and among those who did, support was often occasional rather than structured. This suggests that improving the club food environment, access to nutrition advice, and the regularity of nutrition-related follow-up may represent realistic intervention targets in this setting[4,6].

The lack of statistically significant findings should therefore not be interpreted as evidence that dietary habits and nutritional support are unrelated to player nutritional status. Rather, the present results should be viewed as exploratory and hypothesis-generating. They provide useful preliminary evidence for future studies designed with larger samples, more detailed dietary assessment methods, and more specific nutrition-related outcome measures[1,6].

Taken together, our findings are in line with the broader sports nutrition literature showing that football players may present some favorable dietary behaviors while still experiencing important shortcomings in

meal timing, hydration planning, and access to structured nutritional support. In this respect, the present study contributes context-specific evidence from Ouagadougou and underlines the need to interpret athletes' dietary behavior within the realities of local food availability, institutional resources, and club organization[1,6].

This study has several limitations. First, the sample size was relatively small and restricted to players from five clubs in a single city, which limits external validity. Second, the use of convenience sampling may have introduced selection bias. Third, dietary information was self-reported and may therefore have been affected by recall bias and social desirability bias. Fourth, nutritional status was assessed using BMI only, without more precise body composition measurements. Finally, the study did not quantify total energy intake, macronutrient intake, micronutrient intake, or fluid volume, which limits the nutritional interpretation of the reported habits and underscores the need for more comprehensive assessment methods in future research[1,7].

Future research should recruit larger and more diverse samples, apply more detailed dietary assessment tools, and combine dietary data with body composition and performance indicators. Longitudinal and intervention-based studies would be particularly valuable to determine whether structured nutrition education, individualized counseling, and stronger club-level nutrition support can improve dietary practices, hydration behaviors, and performance-related outcomes among football players in this context[1,4,6].

CONCLUSION

This pilot study suggests that football players in Ouagadougou generally had a satisfactory BMI profile and regular consumption of several major food groups, but important shortcomings were observed in meal organization, hydration-related practices, pre-competition dietary routines, and access to structured nutritional support. Because of the limited sample size, the use of BMI as the main nutritional outcome, and the exploratory nature of the analyses, these findings should be interpreted cautiously. Nevertheless, they provide preliminary evidence supporting the need for context-adapted sports nutrition interventions and for larger studies incorporating detailed dietary assessment, body composition measures, and performance-related indicators.

Declarations

Ethics approval and consent to participate:

The study was approved by the Health Research Ethics Committee (*Comité d'éthique pour la recherche en santé*), Burkina Faso (approval number: 2023-05-121). Administrative authorization was obtained from the Ministry of Sports and Youth and from each participating club. Written informed consent was obtained from all participants; for minors (<18 years), parental/legal guardian consent and participant assent were obtained. Data were collected anonymously (or de-identified) and stored on password-protected devices

accessible only to the research team. No incentives were provided, and participation or refusal did not affect players' team status.

Declaration of interest:

The authors declare that they have no competing interests

Consent for publication:

Not applicable

Availability of data and material:

Study data are available from the corresponding authors upon reasonable request by investigators.

Funding:

No funding was received for this manuscript.

Consent to participate declaration

All participants were informed about the objectives and procedures of the study, and written informed consent was obtained prior to participation. For participants under 18 years of age, parental or guardian consent was also obtained.

Authors' contributions

I.K., J.A.T.K., A.M., K.K. and H.K.T. conceptualized and designed the study, and participated in data collection, analysis, and interpretation. J.A.T.K. was responsible for writing the manuscript. I.K., J.A.T.K., A.M., K.K., H.K.T. and J.Y.P.Z. provided critical revisions to the article. The final manuscript was approved by M.H.D. All authors have read and approved the final version of the manuscript.

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Figures

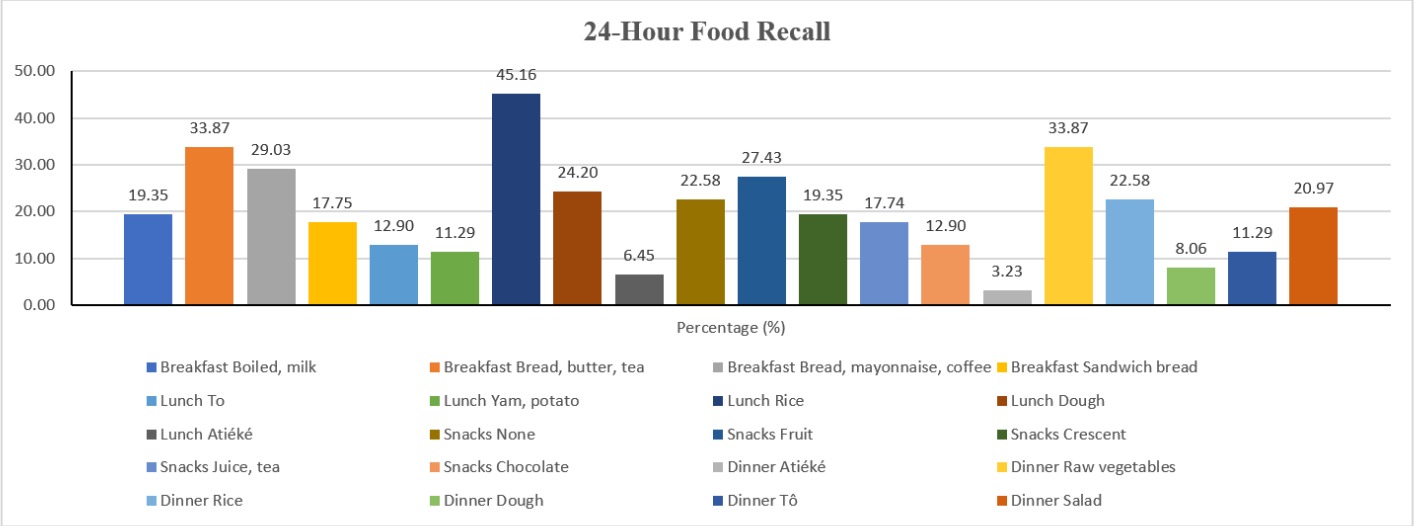


Figure 1

Twenty-four-hour dietary recall showing the main foods consumed at breakfast, lunch, snack, and dinner among the 186 football players

Supplementary Files

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- APPENDIX1.pdf