

NUTRITIONAL KNOWLEDGE, DIETARY INTAKE AND NUTRITIONAL STATUS OF ATHLETES UNDERTAKING TRAINING IN NANDI COUNTY

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Abstract

Training and competing in sports involve a range of activities of varying energy demands. Athletics is one of the sports where athletes might face a challenge in balancing their individual energy needs due to inadequate dietary intake and restriction of energy intake to maintain a low body mass and fat level. In addition, understanding of the required practice of sports nutrition will contribute to optimal athletic performance. This study intended to assess the nutrition knowledge, nutritional status and dietary intake of athletes in selected training camps of Nandi County. A descriptive cross-sectional study design was employed where four training camps were purposively selected for the study. A total of 82 athletes were conveniently recruited into the study. A self-administered questionnaire and anthropometric measuring equipment for weight and height were used for data collection. Data was analysed using the statistical package for social sciences (SPSS) version 23. Spearman correlation was used to check for correlations at a significance level of 0.05. From the study findings, nearly all (98.8%) of the respondents had heard about sports nutrition; of these, coaches were leading at 48.8% while nutritionists stood at 18.3%. Generally, dietary intake was adequate. Over three-quarters (82%) of respondents had a normal BMI. A Spearman correlation found no significant correlation ($p > 0.05$) between nutritional status and dietary intake as well as nutritional knowledge of athletes. The study indicated the highest source of nutritional knowledge were coaches with nutritionists being among the least sourced. This might have compromised the accuracy of information received. Therefore, it is crucial for nutritionists to take lead and at the same time coaches, sports managers and scientists be furnished with guidelines on sports nutrition in order to guarantee that athletes are given appropriate and reliable information.

Key words: Athletes, Nutrition, Knowledge, Diet, Training

Introduction

Sports have become very lucrative and the youth look at them as career opportunities. Training and competing in sports involve a range of activities of varying energy demands. According to Condo et al. (2019), athletes face two main challenges in balancing their individual energy needs. The first one is inadequate dietary intake, while the second one is the propensity to restrict energy intake to

maintain a low body mass and body fat level (Condo et al., 2019).

Performance in sports is significantly influenced by one's nutritional status (Campa et al., 2022). Almost all bodily functions involved in generating energy and recovering from exercise are impacted by nutrition (Kathure, Bukhala & Konyole, 2022). Thus, it is a crucial part of any athlete. The athletes' primary

nutritional objective is to consume enough food to enhance their training and performance (Fazilah et al., 2022). To accomplish this, knowledge on nutrition of athletes is required (Bird & Rushton, 2020). This includes being aware of the nutrient requirements, dietary practices and sources foods for their diets. Yet, research on the nutritional awareness of athletes reveals that a large number of collegiate players do not comprehend the fundamentals of nutrition (Bird & Rushton, 2020).

Kenyan athletes are known over the world for their endurance running in middle- and long-distance races. They have won approximately 40% of all major international long-distance races which they have participated in the last decade (Condo et al., 2019). Some elite Kenyan athletes have experienced drop in performance and injuries, which are nutritional related, prior to major international competitions and as a result have dropped out of competitions (Larson-Meyer & Ruscigno, 2019). The injuries and drop in performance might have resulted from negative energy balance and inadequate intake of iron and calcium (Larson-Meyer & Ruscigno, 2019).

The dietary practices of Kenyan athletes consist mainly of their basic staple diets based predominantly on energy-rich foods and these have been presumed to provide adequate nutrition for efficient and effective performance (Larson-Meyer & Ruscigno, 2019). Over and above, there is no structured information on nutrition for their training program. This presents the need to furnish the athletics fraternity with information on the required dietary practices that would help achieve optimal athletic performance and provide lifetime health benefits. Furthermore,

knowledge on dietary intake and nutritional status of athletes will contribute towards the formulation of guidelines on nutrition for sports. Therefore, this study assessed the nutritional knowledge, nutritional status and dietary intake of athletes in selected training camps of Nandi County.

Materials and methods

The study employed descriptive cross-sectional study design. The research was done at four training camps which were purposively selected out of the twelve training camps within Nandi County. The four were selected considering the classification of athletes that is professional, upcoming, scholarship and junior. The study population consisted of athletes who were undertaking training in the selected camps at the time of the study. Convenience sampling was used where all the available athletes during the period of study were recruited as study participants. A total of 82 athletes were studied.

Data collection was conducted using self-administered questionnaires. The questionnaire gathered information on classification of athletes, demographic characteristics, awareness on sports nutrition and dietary intake. Dietary intake was assessed based on its adequacy or inadequacy according to the food guide pyramid. For adequacy: breads, cereals and starches is measured as 6-11 servings, fruits 2-4 servings, vegetables 3-5 servings, milk and milk products 2-3 servings, meat and meat alternatives 2-3 servings and miscellaneous should be utilised sparingly.

The questionnaire was pretested to 30 participants at one of the training camp different from the ones under study. With the help of research assistants, the questionnaires were

handed over to the participants, filled, collected and verified before analysis. Data were analysed using the statistical package for social sciences (SPSS) version 23. A descriptive analysis of data included use of frequencies and percentages. A Spearman correlation test was used at a significance level of 0.05 to check the relationship between the participant's age, income, education level, nutritional awareness and nutritional status. Ethical approval was obtained from the University of Eastern Africa, Baraton Institutional Scientific Ethics, Review Committee (UEAB/ISERC/12/04/2023) in addition permission to carry out the study was obtain from Sports office Nandi County. All personal information from participants was treated with utmost confidentiality .Informed consent was obtained from the study participants before carrying out the study.

Results: Categories of athletes:

Professional athletes

These are individuals who engage in sports as means of their livelihoods. They typically receive compensation for their athletic performances, often through contracts with sports teams, endorsements or prize money from competitions. These athletes dedicate significant time and effort to improve their skills, often competing at the highest levels of their respective sports.

Upcoming athletes

These are individuals who are referred to as young; promising sports talents who are beginning to establish themselves in their respective sports and are expected to make significant strides or achievements in the future.

Scholarship athletes

These are students who receive financial aid in the form of scholarship to support their education while also participating in sports. These scholarships are often provided by universities and colleges and can cover various expenses. In return, the athletes represents their educational institutions in various sports competitions.

Junior

These are young sports enthusiasts who actively participate in competitive sports .they often engage in junior leagues, competitions and tournaments aimed in nurturing their skills and talents in their chosen sport. Junior athletes are at the initial stages of their athletic careers and their participation is essential for their overall development and potential progression into the ranks of amateur and professional sports.

Table 1 shows the distribution of respondents based on the category of athletes.

Table 1: Distribution of athletes based on their category (n=82)

Categories of athletes	Number	Percent
Professional	54	65.8
Upcoming	2	2.4
Scholarship	18	22.0
Junior	8	9.8
Total	82	100

Demographic characteristics

Table 2 shows that over a half (58%) of the respondents were males, slightly over a half (51.2%) aged between the ages of 18-24 years.

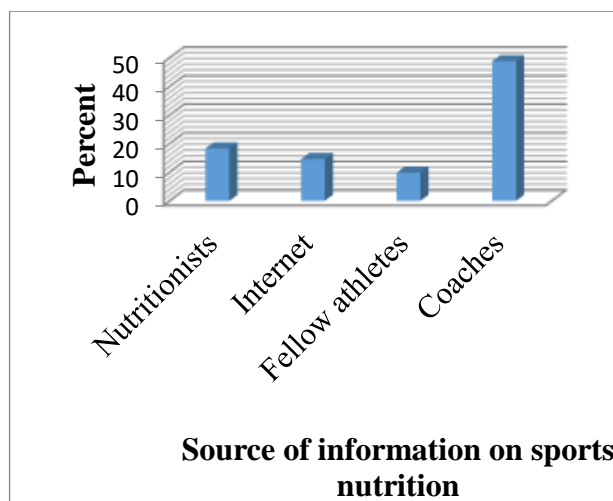
Three-quarters (75.5%) of the respondents attained secondary education, slightly over a third (36.6%) earn less than 5000 and a small proportion (11%) earn either 40000 Kenyan shillings

Table 2: Demographic characteristics of study participants (n=82)

Characteristics	Number	Percent
Sex		
Male	48	58.5
Female	34	41.5
Age (years)		
18-24	42	51.2
25-30	32	39.0
31-36	5	6.1
37-42	3	3.7
Level of Education		
Primary	14	17.1
Secondary	62	75.6
Tertiary	6	7.3
Income (Kenya Shillings)		
<5,000	30	36.6
5,000-9,999	16	19.5
10,000-19,999	9	11.0
20,000-39,999	18	22.0
>=40,000	9	11.0

Nutritional knowledge

All the respondents reported that nutrition is important for their performance whereby nearly all (98.8%) of the respondents had heard about sports nutrition; of these, almost a half (48.8%) of the respondents heard about sports nutrition from the couches, 18.3% from nutritionists, 14.6% from the internet, 9.8% from fellow athletes and 8.5% from other sources like churches, radio, books and magazines (Figure 1).



Dietary Intake

Figure 2 shows the levels of adequacy for the different food groups as per the study findings.

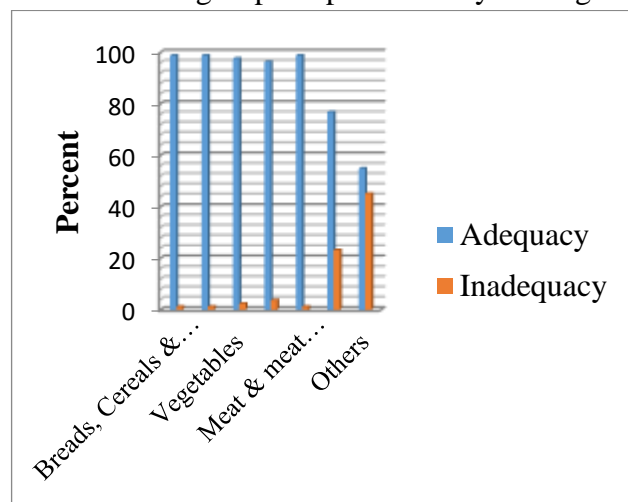


Figure 2: Adequacy of Dietary Intake based on food groups (n=82)

*Others include foods that were reported such as *githeri* (mixture of maize and beans), chips, burger and smokies.

Health complications

Athletes are likely to encounter health problems or injuries either during training or performance. This presents the need to be aware of possible health complications and in case of any encounter the athlete should seek remedies. From the study findings, nearly all (91.5%) athletes were aware of the health complications likely to affect their performance. Tendon injuries, ham string injuries, sore muscles and tight muscles were the complications experienced by the athletes. The athletes sought help from physiotherapists, fellow athletes, coaches and nutritionists in case of the said complications (Table 3).

Table 3: Health complications (n=82)

Variable	Frequency	Percent
Health complications you know		
Yes	75	91.5
No	7	8.5
If yes, which ones?		
Hamstring injuries	30	36.5
Sore muscles	7	8.5
Tendon injuries	27	32.9
Tight muscles	9	11.0
Others	2	2.4
Sought help in case of complications		
Yes	82	100
No	0	0.0
If yes, from whom?		
Nutritionist	8	9.8
Physiotherapist	59	72.9
Fellow athlete	4	4.9
Coach	11	13.4

Nutritional status

Figure 3 shows results of the athlete's nutritional status measured as BMI in terms of underweight (18%) and normal (82%) where the majority had a normal BMI

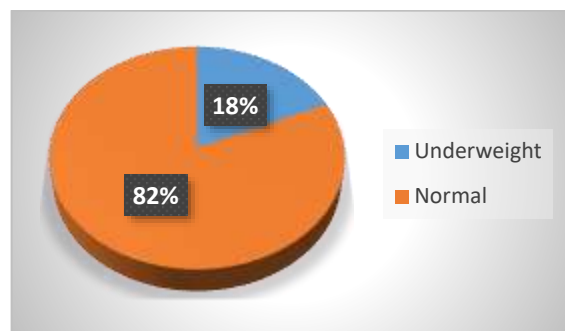


Figure 3: Nutritional status of study participants based on BMI.

Nutritional status and its associated factors

Table 4 shows the results of Spearman correlation test conducted at a significance level of 0.05 to check the relationship between the participant's age, income, education level, nutritional awareness and nutritional status.

Table 4: Factors associated with nutritional status (n=82)

Characteristics	Statistical test
Age	$r_s = -0.092, p = 0.413$
Income	$r_s = -0.143, p = 0.200$
Education	$r_s = -0.100, p = 0.374$
Awareness	$r_s = 0.053, p = 0.639$
There is no significant correlation ($p > 0.05$) between nutritional status and age, income, educational level and nutritional awareness of athletes	

Discussion

From the study findings, slightly over a half (51.2%) of athletes were between the ages of 18

years and 24 years which compares fairly with those in a study by Kathure, Bukhala & Konyole (2022) where most of the athletes were between the ages 22 to 28 years. With regard to nutritional knowledge, there are four main sources where athletes obtain their information. These include nutritionists, coaches, information from the internet and fellow athletes. This information searched and shared among the athletes from the different sources is given individual interpretation by athletes (Jacobson et al., 2013). The reason to this could be that Kenyan diet is presumed to be adequate for long distance runners and nutrition education not seen as important since the performance has been outstanding. Other studies have shown that sports nutrition education has a positive impact on increasing the athletes' knowledge level (Siti et al., 2018; Rossi et al., 2017)

The study established that the athletes at Nandi county training camps had heard about sports nutrition either from nutritionists, fellow athletes, internet and their coaches. According to Crowley et al. (2019), one can get such information from periodicals, coaches, parents, or college courses. Unfortunately, a lot of these resources might not be appropriate and can be untrustworthy (Bird & Rushton, 2020) which can lead to unwise nutritional decisions among athletes. On the other hand, Tam et al. (2019) stated that understanding of nutrition among athletes worldwide have not proven conclusive.

The study findings indicated that all the participants stated that nutrition is important for them. They reported that proteins, carbohydrates, minerals and vitamins are of importance for their performance. Athletes who want to achieve their nutritional demands should

be knowledgeable about nutrition in order for them to choose variety of foods that give their bodies the right quantity of nutrients. It is well recognized that foods high in fat and carbs are effective energy sources for the body.

Athletes were aware of the health complications that affect their performance. Tendon injuries, ham string injuries, sore muscles and tight muscles were the complications experienced by the athletes. For optimal performance with a low risk of injury, good eating practices are essential (Tam et al., 2019). Yet, whether or not athletes have access to accurate and sufficient nutrition information will determine this. It also depends on how well the athletes can apply newly learned nutritional knowledge to actual, healthy eating practices (Tam, Gifford & Beck, 2022).

The findings of this study indicated that athletes had good dietary practice as well as nutritional status. As echoed by Campa et al. (2021) that performance in sports is significantly influenced by one's nutritional status, therefore the stalling performance of the athletes of Nandi County is an indication of their good nutrition practice.

Conclusion and Recommendations

Based on the study, the athletes in the training camps possess a basic understanding of the importance of nutrition for athletic performance. This might have translated satisfactory dietary intake of athletes hence good nutritional status. The study indicated that the highest source of nutritional knowledge were coaches with nutritionists being among the least sourced. This might have compromised the accuracy of information received. Therefore, it is crucial for nutritionists to take lead and at the same time

coaches, sports managers and scientists be furnished with guidelines on sports nutrition in order to guarantee that athletes are given appropriate and reliable information. Additionally, education and awareness programs focusing on specific nutritional requirements for different sports and training phases could be beneficial. It is crucial that trainers, coaches, and players all undergo nutrition instruction as part of their sports training in order to guarantee that athletes are given appropriate and reliable information.

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