

**ASSESSMENT OF HEALTH, FOOD CONSUMPTION PATTERN AND PHYSICAL
ACTIVITIES AMONG STUDENTS' ATHLETES IN FEDERAL POLYTECHNIC
BAUCHI**

ABSTRACT

Nutrition and well-being play vital roles in the field of sports and the overall performance of Athletes. The main purpose of nutrition is to ensure the compensation of increased energy consumption and the need for nutrients in the athlete's body, thereby enabling maximum adaption of physical loads. The purpose of this study is to examine the relationship between health, food consumption patterns, and physical activities among student athletes to improve their performance. This will help boost their physical performance. The study aim to improve the effect of sport nutrition intervention on nutritional knowledge and dietary practices among student athlete. A cross-sectional study was used and data was collected from the respondents using a well-structured questionnaire. The respondents were selected using a simple random technique and the data obtained was analyzed using the statistical package for social Science (SPSS) version 20.0. The majority of respondents (58.6%) engaged in moderate physical activity. 44.4% of the respondents ate twice daily 33.6% ate twice daily and 17.7% ate more thrice daily. Most of the respondents (43. 1%%) ate fruits occasionally but 18. 5% of the respondents did not eat fruits daily. 74. 1% of the respondents had not suffered from any of the ailments while 24.1% of the respondents had suffered from a form of ailment. The study revealed that nutrition, physical performance and the level of functional capacity of human beings are interrelated. Athletes must ensure that they take their dietary practices with optimum importance, as it enhances and boost physical performance, overall health and quick recovery.

Keywords: Nutrition, health, food, consumption, parent, physical activities.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Nutrition is the science that interprets the interaction of nutrients and other substances in food (e.g., phytonutrients, anthocyanins, tannins, etc) about the maintenance, growth, reproduction, health, and disease of an organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism, and excretion (NHH, 2014) Nutrition, physical performance and the level of functional capacity of human beings are Interrelated. Any dietary deficiency that adversely affects the health of the individual is likely. to impair his/her physical performance capacity. Thus, nutrition and well-being play a vital role in the field of sports and the over-all performance of an athlete. Different sports involve different levels of exercise sessions and a balanced diet to have an overall good fitness status.

It has been supported by various research that good nutrition has a very important role in maintaining good health and fitness of the sportsperson so that they can train and compete well.

The diet of athletes training for major competitions must meet certain requirements. Only with adequate nutrition can an athlete's body compensate for increased energy loss and nutritional needs and thereby facilitate the maximum adaptation to physical loads. Several studies have shown that increased energy demands are not being properly met in most athletes (Croll et al.2006 Petrie et al., 2014, Purcell et al., 2013). Athletes must understand that their energy needs will be different based on age, growth rate, and level of activity. It is vital to educate athletes on these increased energy needs to avoid deficiencies (Purcell et al., 2013).

Inadequate nutrient intake can lead to decreased sports performance, delayed recovery inability to adapt to training stimuli, health problems, depressed immune systems, and problems with reproductive function (Cupisti, et al., 2002).

Nutrition is an important part of sports performance for young athletes. Macronutrients, micronutrients, and fluids in the proper amounts are essential to provide energy, and proper performance and to allow for optimal growth and development. To optimize performance, young athletes need to learn what when, and how to eat and drink before, during, and after physical activities.

1.2 Statement of the Problem

Adequate dietary intake, including sufficient fluid intake is paramount in ensuring athletic performance at its peak. However, risky behaviors are widely reported among athletes. Self-reported nutritional intakes (as in the case of frequency of food intakes, dietary habits etc.) indicate that athletes tend to consume nutrients in excess or less of their recommendations (Maughan and Burke, 2011).

1.3 Justification of the Study

This study attempted to examine, assess, and improve the effects of sports nutrition intervention on the nutritional knowledge and dietary choices among athletes in The Federal Polytechnic Bauchi, in other to help boost their physical performance.

1.4 General Objective

To study on the relationship between health, food consumption pattern, and physical activities among athletes in The Federal Polytechnic Bauchi.

1.5 Specific Objectives

1. To determine the dietary pattern, nutritional status, and dietary adequacy of sportspersons.
2. To assess the Body Mass Index (BMI) of athletes in The Federal Polytechnic Bauchi using a salter scale (model 109) for measuring of weight and stadiometer for measuring of height.
3. To determine the impact of dietary patterns on the health status of the sportspersons.
4. To determine the association between the physical activities of sportspersons and their dietary pattern.

1.6 Scope of the study

This study is restricted to only student athletes in the Federal Polytechnic Bauchi State.

DEFINITION OF TERMINOLOGIES

Assessment: In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning, progress, skill acquisition, or educational needs of students.

Nutrition: It is simply the study of food and health. As defined by the Food and Nutrition Council (of the American Medical Association) nutrition is the science of food, nutrients and other substances therein, their action, interaction, and balance about health and disease, and the processes by which the organism ingests, digests, absorbs, transports, utilizes, and excretes food substances.

Health: WHO defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

Athlete: An athlete (also sportsman or sportswoman) is a person who is proficient in sports such as track or field and other forms of gaming activities and who is trained or gifted with natural ability in physical exercises or contests involving physical agility, stamina, or strength.

Nutritional Consumption: It refers to the nutritional content or relative specific content of food consumed by an individual.

Physical Activity: It is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. It encompasses all activities, at any intensity, performed during any time of the day or night. It includes exercise and incidental activity integrated into daily activity.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Nutrition in School Athletes

Nutrition is simply the study of food and health as identified by the Food and Nutrition Council of the American Medical Association. Nutrition is also the science of food, health and disease, and the process by which the individual ingests, digests, absorbs, transport, utilizes, and excretes food substances (Alabi, 2012).

Nutrition can also be defined as the science that interprets the interaction of nutrients and other substances in food (e.g., phytonutrients, anthocyanins, tannins) about the maintenance, growth, reproduction, health, and disease of an organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism, and excretion (NHHH, 2014).

Nutrition is a significant component of an athlete's training regimen. Nutrient demands are high during adolescence related to the rate of growth at this stage of life (Sam (Society of Adolescent Medicine) Position Statement, 2009). Athletes have additional requirements to meet the demands of training. School athletes often experience peer pressure, concerns about physical appearance, and a strong desire to excel in sports, all of which can affect their nutritional intake (ADA, 2006; Steen, 2010). Nutritional deficiencies, including inadequate energy or nutrient intake, can affect growth development, and performance, and possibly lead to injuries (Petrie, Stover, and Horswill, 2014).

Diet and nutrition are fundamental in maintaining the overall health of athlete. Diet refers to the total amount of food, consumed by an individual; whereas nutrition is the process of utilizing food for growth, metabolism and repair of tissues. The relationship between diet, nutrition and health is 2-way; health status can be affected by nutrient deficiency and vice versa.

Based on the amount required by the human body for normal metabolism, growth and physical, well-being, nutrients are divided into 2 categories: macronutrients consisting of proteins, carbohydrates and fat: and micronutrients consisting of vitamins and minerals. Fats are the most energy-dense, macronutrient; whereas carbohydrates are quantitatively the most important dietary energy source for most populations. Proteins are vital structural and functional components within every cell of the body.

Several barriers can compromise meeting the increased energy and nutrient needs of athletes. Environmental barriers include lack of time, inconvenience and expense of eating properly, and lack of a sense of urgency (Story and Resnick, 2006), along with hunger and food cravings, food appeal, amount of time to eat, convenience/food availability, parental influence, media, cost, and perceived benefits (Neumark Sztainer, Story, Perry, and Casey, 2009). Athletes may also face additional environmental barriers such as time constraints, travel, and sport-specific eating-related attitudes (Croll, Neumark Sztainer, Story, Wall, Perry, & Harnack, 2006). For example, athletes in aesthetic sports (gymnastics, dance, and figure skating) traditionally place more emphasis on weight or appearance and may compromise food and fluid intake to look thin and theoretically perform better (Croll et al, 2006; Golden, 2002; Benardot, 2006).

2.2 Macronutrients

Athletes have unique macronutrient needs related to the intensity and duration of the exercise, the gender of the athlete, and the athlete's nutritional status before exercise (ADA, 2010). Although minimal research has been performed on the protein and carbohydrate needs of children and adolescents, these macronutrient requirements are likely greater due to increased physical activity (Institute of Medicine, 2010).

2.4.1 Carbohydrate

Carbohydrate is an important substrate for high-intensity training; as the intensity of physical activity increases, so does the body's reliance on carbohydrate as a fuel (Petrie et al., 2014). To maintain blood glucose levels during exercise and replenish muscle glycogen, it is recommended that the carbohydrate intake of athletes be 6-10 g/kg body weight per day (ADA, 2000). The exact amount depends upon the athletes' total energy expenditure, type of exercise, sex, and environmental conditions (ADA, 2010).

2.4.2 Protein

Heavy training increases protein requirements; however, protein needs in young athletes are almost always met through normal dietary intake of protein (Petrie et al., 2014). The RDA for protein for adolescents is 0.85 g/kg/day (Institute of Medicine, 2015). It is recommended that adolescent athletes consume slightly more protein (1.2-2.0 g/kg/day) (Jenkins and Reaburn, 2010); however, some sports may require more. Protein recommendations for adult male endurance athletes (i.e. long distance runners and cyclists) are 1.2-1.4 g/kg body weight per day (ADA, 2010; Meredith Zackin, Frontera, and Evans, 2009); and those for adult male strength-trained athletes (i.e. experienced male body builders and weight trainers) are even higher at 1.6-1.7 g/kg body weight per day (ADA, 2010 Tarnopolsky, Atkinson, MacDougall, Chesley, Phillips, and Schwarcz, 2006).

2.4.3 Fat

Dietary fat provides the essential fatty acids and fat-soluble vitamins, as well as adequate energy for weight maintenance (ADA, 2010). The recommended intake for athletes is 20-25% of energy. Restricting fat intake below 15% of energy provides no performance or health benefit (ADA, 2010).

2.7 Nutrition Knowledge

Acquiring nutrition knowledge is a cumulative process. Lack of practical knowledge and poor understanding of nutrition principles are factors that prevent sound nutrition practices by athletes (Burke, 2015). Several studies indicate that athletes lack adequate nutrition knowledge (Wiita, Stombaugh, and Buch, 2015; Wiita and Stombaugh, 2016; Perron, 2015; Cupisti, D'Alessandro, Castrogiovanni, Barale, and Morelli, 2012; Brook and Tepper, 2017). Additionally, those with misinformation may make nutrition choices that negatively affect their performance (Rosenbloom et al, 2012).

2.7.1 Weight loss weight gain

Common factors adolescent athletes identify as motivation to enhance their knowledge and applications of sound nutrition include weight control and level of performance (Chapman et al., 1997). Some athletes want to be thinner (i.e.gymnastics, track, and wrestling), believing that it

will improve their performance (Cotugna, Vickery, and McBee, 2005; Brook and Tepper, 2017); while some want to gain weight (i.e. football). However, athletes lack appropriate knowledge about food, nutrition, and dieting. More than half (54%) and a third of college athletes (35%) incorrectly believed that a reduced diet should not contain bread or potatoes (Wiita et al. 2015).

3.0 METHODOLOGY

3.1. Study Area

The study was conducted at The Federal Polytechnic Bauchi Nigeria. The Federal Polytechnic Bauchi was established in July 1979 by decree number 33 (Act 3) Federal Republic of Nigeria. It occupies 750 hectares of land in Gwallameji village Bauchi Dass road in Bauchi Metropolis.) The study adopted survey design. According to Olaniyi and Anayo (2007) stated that, the survey research design is one which the entire population or representative sample, is studies by collecting and analyzing data from group studies through the use of questionnaire. Survey design usually adopted qualitative research methodology. According to Joseph (2002) quantitative research typically goes hand in hand with the methods known as “experiment” or survey methods. In quantitative research, researcher collect numerical date and analyze it statistically to draw conclusion.

3.2. Study Design

A cross-sectional design involving one-point time data collection of athletes was used for the study.

3.3. Study Population

The target population of this research comprised of adolescents and adults on the sports team at The Federal Polytechnic Bauchi.

3.4. Ethical Approval

Approval was obtained from the management of The Federal Polytechnic Bauchi Department of Nutrition and Dietetics and the management of the sports association of The Federal Polytechnic Bauchi.

3.5. Informed Consent

Consent was sought from individuals who participated in this study voluntarily and the Benefit of the study was explained to the respondents orally and also in a written form attached to the questionnaire.

3.6. Sample Size

There are different criteria usually that were needed for determining the appropriate sample size, the level of precision, the level of confirmation, and the degree of the attribute being measured (Glenn 1992). The minimum sample size using the level of precision and the total population was obtained from the formula by Cochran (Isreal, 1990). 92). The minimum sample size was determined by the Formula indices $n = Z^2 \times p(1-p) / d^2$

$$n = (1.96)^2 \times 0.20(1-0.20) / 0.05^2$$

$$n = 3.8416 \times 0.20 \times 0.80 / 0.0025$$

$$n = 0.6146560 / 0.0025$$

$$n = 245.8624$$

$$n = 250$$

Where,

n is the minimum sample size

Z= the confidence level 1.96

P= the prevalence of dietary intake of athletes =20%

1= is constant

d-the confidence interval or alpha level (0.05)

3.7. Sampling Method

Simple random sampling was used

3.8. Method of Data Collection

A well-structured 232 questionnaire was used for the collection of data. This section was used for the collection of data with the following:

- A. Socio-demographic section.
- B. Assessment of Anthropometric measurements.
- C. Dietary intake assessment.
- D. Physical activity level.
- E. Knowledge about sports nutrition.

3.8.1 Data Collection Instruments and Procedures

Instruments that were used for data collection included:

- **Height:** A stadiometer comprising of a vertical rod, which had a fixed measuring tape and a flat platform on which the student athlete stood erect. The height was then read off the stadiometer and recorded in centimeter to two decimal places.
- **Weight:** A portable Salter scale (model 109) was used. The weight was then read off the scale recorded to the nearest 0.1kg.

3.8.2 Socio-Demographic Section

This consisted of questions regarding age, gender, educational background, and department. The participants chose from predetermined Options and wrote their answer if it was not among the predetermined ones. For example, in question five, "Religion" there was two predetermined option; Christian and Muslim. If the respondent had another religion, he/she wrote it beside the option "others specify".

3.8.3 Anthropometric measurements

Anthropometric measurement of the participants was taken.

Height: A stadiometer was used comprising of a vertical height measuring tape and a flat platform on which the respondents stood. A flat headpiece was placed on the head of the height meter and recorded in centimeters to two decimal places.

Weight: This was taken with a bathroom weighing scale, which was placed on the ground and checked to return were measured without their footwear, hands naturally hung from their sides with minimum clothing, and measurement was taken to the nearest 0.1kg before each measurement was taken.

The most common measurement of overall adiposity is the body mass index (BMI=Weight in 0Kg/Height in m²). BMI cut-off values commonly applied are BMI <18.5 as being underweight, 18.5- 24.9 as normal, 25.0-29,9 as overweight, and 30.0 and above as being obese. Notable, BMI is only a measure of body weight adjusted for height and a direct measure of fatness and fat distribution (Olumakaiye et al., 2010). BMI is calculated as weight in (kg) divided by height in (ms²). Hence the BMI of the participants was calculated using the above formula.

3.8.5 Physical Activity Level

Evaluation of the physical activity level was carried out by administrating a well-structured questionnaire for the respondents to indicate the level of their physical activities (if it is high, moderate, or low), the type and level of sports they engage in, number of hours spent on sports activities, their means of transportation to school and the number of years they have been an athlete.

3.8.6 Knowledge About Nutrition

This concerns knowledge about nutrition as regards their health and overall physical activities and consists of about 10 questions, The participants chosen determined options are "yes", "no" and "others specify".

3.9 Sampling Techniques

A simple random sampling technique was used to select the research unique was used to select the research respondents, while the selected individuals were served with a well-structured adapted questionnaire.

3.10 Data Analysis

The data obtained was analyzed using the statistical package for Social Science (SPSS) version 20.0. Data collected from the questionnaires was analyzed using simple descriptive statistics (frequency and percentage) and inferential statistics (Mean, median, and mode), tables, and bar charts.

3.11 Limitations

Some athletes were unwilling to participate even after persuasion and assurance of confidentiality. Some questionnaires were not returned. Some of the questions were not answered.

4.0 RESULT

PRESENTATION, ANALYSIS AND INTERPRETATION

DATA PRESENTED

Table 4.2.1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

A. 4:2.1 above shows the frequency distribution of the age categories

Table 4.2.1 above shows (16-25) has the highest frequency of 164 respondents while the category (0-25) is more involved in sports than the other age category frequency of 164 respondents with 70.7%. This shows that 4.2.1 above shows the frequency distribution of the gender involved in the sport.

4.1 DIETARY AND HEALTH ASSESSMENT OF THE RESPONDENTS

The above shows the frequency distribution of the number of times the respondents eat in a day.

Table 4.4 above shows Three times a day is the highest with a frequency of 103 (44.4%), and two times a day with a frequency of 78 (33.6).

Table 4.4 above shows the frequency distribution of the respondents' daily fruit eating. The table shows that 100 (43.1%) of the respondents eat fruits occasionally, 83 (35.8%) of the respondents eat fruits daily and 43 (18.5%) of the respondents don't eat fruits daily.

Table 4.4 above shows the frequency distribution, of the respondents who have suffered any form of ailment.

The table shows that 172 (74.1%) of the respondents have not suffered any form of ailment while 56 (24.1%) of the respondents have suffered a form of ailment.

HYPOTHESIS 1

There is an association between the Body Mass Index (BMI) of the student athlete and their physical performance.

DECISION

Since the p-value 0.002 is less than 0.05, we reject the null hypothesis

CONCLUSION

There is a strong connection between the Body Mass Index (BMI) of the student athlete and their physical performance (i.e., the alternative hypothesis)

HYPOTHESIS 2

There is an association between food consumption pattern of student athlete.

DECISION

At a level of 0.05, we reject the null hypothesis since a p-value of 0.002 is less than the level of significance (i.e., $p < \alpha$).

CONCLUSION

There is a relationship between the dietary pattern, nutritional status, and dietary adequacy of sportspersons. (i.e., the alternative hypothesis).

HYPOTHESIS 3

There is an association between the physical activities of student athlete and their dietary pattern. There is an impact of dietary patterns on the health status of the student athlete.

DECISION

At a level of 0.05, we reject the null hypothesis since a p-value of 0.000 is less than the level of significance (i.e., $p < \alpha$).

CONCLUSION

There is an association between the physical activities of sportspersons and their dietary pattern. (i.e., the alternative hypothesis).

SUMMARY CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The study was on "Assessment of Health, Food Consumption Pattern and Physical Activities Among Students' Athletes in Federal Polytechnic Bauchi". Firstly, I undertook a study and prepared a background study and the analysis of the result was done.

Federal Polytechnic Bauchi was where the research was carried out. An instrument for data collection was selected. 250 well structured questionnaires were distributed. The completed Questionnaires were 232. The returned questionnaires, and eligible respondents were 232. A total

of 232 responses were analyzed.

Analysis was performed on the data using Descriptive statistics to get the frequency distribution of the data and the Chi-Square test to get the relationships of variables (test of independence). 205 (88.4%) of the respondents are males and 27 (11.6%) of the respondents are females. The age category (16-25) has the highest frequency of 164 respondents with 70.7%. This shows that the age category (16-25) is more involved in sports than the other age categories. Football has the highest frequency of 120 respondents with 51.7%. This shows that football is more engaged than other sporting activities. The moderate level of physical activity was shown to be the highest level with 136 (58.6%) respondents, and the high level with 74 (31.9%) respondents.

Three times a day is the highest with a Frequency of 78 (33.6). The research shows that 100 (43.1%) of the respondents eat fruits occasionally, 83 (35.8%) of the respondent eat fruit weekly and 49 (21.5%) of the respondents don't eat fruits daily. The research also shows (74.1%) of the respondents have not suffered any form of illness. The average sportspersons BMI is 24.0761kg/m, 18.5-24.9ke/m is said to be a normal BMI.

We therefore conclude that the sportspersons are in good shape. We also have the median as 25.0+ONE mode as 25.5500kg/m², and the standard deviation is 3.6634. There is a relationship between the dietary pattern, nutritional status, and dietary adequacy of sports persons. There is an impact of dietary patterns on the health status of sportspersons. There is an association between the physical activities of sportspersons and their dietary pattern.

5.2 CONCLUSION

We have created an attempt to review the "Assessment of Health, Food Consumption Pattern and Physical Activities Among Students' Athletes in Federal Polytechnic Bauchi". The study revealed that nutrition, physical performance, and the level of functional capacity of human beings are interrelated. Athletes must ensure that they take their dietary plan with optimum importance as it enhances and boosts physically performance.

5.3 RECOMMENDATION

1. Sports Federations and coaches should educate athletes on these increased energy needs to avoid deficiencies.
2. Athletes should understand that good nutrition is important for their optimum health, high performance rate and quick healing of their injuries.

5.4 AREAS FOR FURTHER STUDY

This research established the need for the relationship between health, food consumption pattern and physical activities among student-athletes. It is therefore suggested by the researcher that further efforts, studies and researches should be carried out by other researchers in other areas of sport nutrition that might not have been captured in this research work. This is to ensure that every area related to sport nutrition is covered, in other to achieve optimum health and high performance among student athletes.

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