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Assessment of nutritional status, dietary behavior and their relationship with physical performance for football players.

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ABSTRACT

This paper evaluates the nutritional status and dietary habits of football players, exploring the intricate connections between these factors and their impact on the physical performance of athletes in the realm of football. One hundred and ten players from Kafr El Sheikh Club, aged 15-19,years were included in this study. Athletes were asked to fill out a questionnaire containing information about personal, social, and economic data, anthropometric measurements "filled in front of the researcher", allergy data, medical data, health practices, dietary behavior data, nutritional history, and a 24-hour recall for 3 days. The speed test was measured for all players. Data were collected and statistically analyzed. Most nutrient intakes, except for potassium, fell below the recommended levels. Significant positive correlations were observed between parental education and protein as well as calcium intake, emphasizing the pivotal role of nutrition education in enhancing athletes' performance. Soccer players exhibited a normal body mass index and consumed a diverse range of foods. Factors such as eating with family, meal size, use of artificial sweeteners, quantity of artificial sweeteners, and high-fat food intake were identified as contributors to improved athletic performance. The study also revealed that nutrient intake of energy, protein, carbohydrate, sodium, potassium, calcium, iron, and vitamin C positively influenced soccer performance. It is recommended to enhance nutritional education with a focus on proteins, minerals, and vitamins to elevate athletic soccer performance. Additionally, it is recommended to encourage athletes to consume a diverse range of foods, particularly those rich in proteins, energy, vitamins, and minerals, to enhance their overall performance. Moreover, it is recommended to prioritize maintaining a standard body weight and promoting the consumption of healthy, nutrient-enriched foods to positively impact the physical activity and well-being of football players. It is also recommended that a professional dietitian follow up with soccer athletes.

Key words: Nutritional status, dietary behavior, physical performance, soccer, BMI, energy, protein

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INTRODUCTION

Football, or "soccer" as it is known in the USA, is generally regarded as the most popular sport in the world **(Matheson, 2003).** It has more supporters and spectators across the globe than any other sport and it has spread widely from its roots in Great Britain and Europe throughout the rest of the globe. Soccer in Africa, and particularly soccer in Egypt, has also seen its popularity rise over the past centuries. First introduced and practiced by the British military during the occupation of Egypt in 1882, the sport rapidly became commonplace among the locals. In 1883, the first match between the British and Egyptians was played **(Onwumechili and Akindes, 2014).**

Football is a globally popular game that is constantly evolving and seeking new requirements in terms of physical, tactical, and technical demands. Nutrition plays an important role in achieving high performance during the season. The science task is to provide guidelines for elite players' crucial aspects such as periodization of nutrition, body composition, travel environment of football players, cultural diversity, rehabilitation, and return to play **(Rajić and Karišik, 2021).**

Elhisadi *et al*., (2023) showed that as long as no dietitian supervises young players and their diet the players do not eat a balanced diet that meets their needs to perform the exercises to the fullest. Also found was a lack of carbohydrate consumption, which is the main fuel for the body, and the consumption of large amounts of processed fats, oils, and sugars.

Dietary protein is required to support recovery and adaptation following exercise training. While prior research demonstrates that many athletes meet their total daily protein needs, intake seems to be predominantly skewed toward the evening meal. An even distribution of protein doses of $\geq$0.24 g/kg BW consumed throughout a day is theorized to confer greater skeletal muscle anabolism outcomes compared to a skewed pattern of intake. Protein quality is also an important dietary consideration for athletes, with the amino acid leucine seemingly serving as the primary driver of the postprandial anabolic response **(Kwon *et al*., 2023).**

Ghazzawi *et al*., (2023) found that vitamins and minerals are crucial for an athlete's health and physical performance, and no single micronutrient is more important than others. Micronutrients are necessary for optimal metabolic body functions such as energy production, muscle growth, and recovery, which are all important for sports performance. Meeting the daily intake requirement of micronutrients is essential for athletes, and while a balanced diet that includes healthy lean protein sources, whole grains, fruits, and vegetables is generally sufficient, athletes who are unable to meet their micronutrient needs due to malabsorption or specific deficiencies may benefit from taking multivitamin supplements. However, athletes should only take micronutrient supplements with the consultation of a specialized physician or nutritionist and avoid taking them without confirming a deficiency.

Staśkiewicz *et al*., (2023) found that athletes who are better conscious of their nutritional needs during competition experience less muscle loss and exhibit more consistent body weight and BMI levels. Football players' body composition suffers detrimental alterations throughout the transition period. Higher nutritional knowledge reduces the negative modifications to body composition consisting of muscle mass reduction and fat gain. Nutritional knowledge influences the stability of body composition during preparation, competition, and transition.

The dietary intake of soccer players (SP) may differ according to the playing position and competition level, possibly due to different metabolic demands in training and competition **(Chryssanthopoulos *et al*., 2024).** The dietary practices of athletes play a crucial role in shaping their body composition, influencing sports performance, training adaptations, and overall health. However, despite the widely acknowledged significance of dietary intake in athletic success, there exists a gap in our understanding of the intricate relationships between nutrition, body composition, and performance. Furthermore, emerging evidence suggests that many athletes fail to adopt optimal nutritional practices, which can impede their potential achievements **(Martín-Rodríguez *et al*., 2024).** Thus, this study aimed at assessing nutritional status, dietary behavior and their relationship with physical performance for football players.

MATERIALS AND METHODS:

Design:

A cross-sectional descriptive study was conducted from December 2020 to March 2021.

The study subjects:

One hundred and ten male football players at Kafr El-Sheikh Club in Kafr El-Sheikh Governorate participated in this study.

Inclusion criteria:

1. Male soccer players range in age from 15 to 19 years old.

Ethical consideration:

This study protocol was approved by the ethics committee of the faculty of home economics at Al Azhar University. Written consent was obtained from the clients to participate after explaining the purpose of the study, ensuring that their identification was kept confidential, and the data collected was used strictly for research purposes.

Methodology:

1. Interview questionnaire:

The interview took 30 minutes or less, depending on the player's readiness and ability to answer. The clients were interviewed individually. An interview with a football player was performed to obtain information about:

a) Socio-demographic characteristics of players: age, number of progeny, number of family members, father, and mother education, pocket money, living with others, kind of home, place of residence, and home status according to (**Park and Park, 1979**). b) Player medical history; suffering from a food allergy, drugs used or food supplements, health practices. c) Dietary history; dietary habits, 24-hour recall, and the Food Frequency Questionnaire (FFQ) (**Shim *et al*., 2014)**. The 24-hour recalls are relatively quick assessment modalities to obtain the most recent information about food intake (**Bingham *et al*., 1994**) (**Kathleen and Escott 2008)**The 24-hour recall was analyzed by using the Diet Organizer program (version 3.1).

2. Anthropometric measurements:

Anthropometric indices are combinations of measurements. They are essential for the interpretation of measurements. In adolescents, the four most commonly used indices are weight-for-height, height-for-age, weight-for-age, and BMI-for-age. Anthropometric measurements assist providers in selecting appropriate treatment options for children and adolescents. Two of the most important health indicators for children are their growth pattern and their weight-to- height relationship, which are determined by accurate serial anthropometric measurements. Abnormal linear growth or weight gain can indicate a variety of medical, psychological, or socio-economic problems and require additional assessment techniques beyond anthropometric measurements. **(Duncan *et al*., 2013).**

a. Weight (wt)

The plate form scale was used to measure the weight of participating adolescents. The scale should be placed on a flat, hard surface. We should make sure that the scale is at zero before measuring prisoners' women's weight. The player should stand in the middle of the scale's platform without touching anything and with the body weight equally distributed on both feet. The weight should be read to the nearest 100g (0.1 kg) and recorded. The subject was asked to wear as light clothes as possible **(WHO, 2007).**

b. Height (Ht)

Height was measured using the Raven Minimeter with a direct reading of height, it was on the floor with the back resting against the upright surface to which the Minimeter was fixed. The players were placed bare footed underneath the measuring arm, Feet parallel, and with heels, buttocks, shoulders, and the back of their heads touching the wall. The head was held comfortably erect and the outer border of the orbit with the external auditory meat was in the same horizontal plane. The measuring arm was brought down on the subject's head with the back plate firmly against the wall. The red cursor line was giving an accurate height measurement according to **(WHO, 2007).**

c. Body Mass Index (BMI)

A BMI application is used to illustrate and construct diagnostic rules, each case in a BMI application belongs to a class (underweight, normal, overweight, or obese), there are 12 attributes in this application, but C 5.0 can handle any number of attributes **(Mardolkar, 2017).**

Body mass index (BMI) was calculated from stature and body mass as a proxy measure of body composition (kg/m2) **(Cole *et al.*, 2000).**

This index was obtained by calculating weight by kg / square height by meter (kg/m²), and BMI was then categorized as underweight(< 18.5 kg/m²), healthy weight (18.5-24.9 kg/m²), overweight (25-29.9 kg/m²), obesity (30-34.9 kg/m²), over obesity (35-39.9 kg/m²) and morbid obese($\geq$40 kg/m²) **(Cole *et al.*, 2000).**

d. Arm Circumference

The SP is standing with the elbow relaxed so that the right arm hangs freely to the side. The examiner stands facing the SP’s right side. The measuring tape is placed around the upper arm at the marked point perpendicular to the long axis of the upper arm (+ from upper arm length). The tape is again held so that the zero end is held below the measurement value. The tape rests on the skin surface but is not pulled tight enough to compress the skin. The arm circumference is recorded to the nearest 0.1cm **(Westat, Inc. 1650 Research Boulevard Rockville, MD 20850 (301) 251-1500., 1988).**

e. Waist Circumference and Waist–Hip Ratio

Waist circumference should be measured at the midpoint between the lower margin of the least palpable rib and the top of the iliac crest, using a stretch-resistant tape that provides a constant 100 g tension. Hip circumference should be measured around the widest portion of the buttocks, with the tape parallel to the floor. For both measurements, the subject should stand with feet close together, arms at the side, and body weight evenly distributed, and should wear little clothing. The subject should be relaxed, and the measurements should be taken at the end of a normal expiration. Each measurement should be repeated twice; if the measurements are within 1 cm of one another, the average should be calculated. If the difference between the two measurements exceeds 1 cm, the two measurements should be repeated (**World Health Organization, 2011).**

3. Speed test

The study aimed to assess the nutritional status of the football players of Kafr El-Sheikh Club and to find out the relationship between nutrition and athletic performance. Therefore, a speed test was conducted by the team captain for all players participating in the questionnaire**.**

A 30-meter speed test measured the players’ speed. Each subject ran the 30-meter three times at a maximum speed, and the best time of each player was recorded (**Nobari *et al*., 2021).**

Statistical Analysis:

A) Descriptive Statistics: arithmetic mean or average, median, and standard deviation. Explore provides more descriptive statistics, including the standard errors, and other descriptive statistics and information

B) The results were analyzed by SPSS statistical package version 15 **(Statistical Package for Social Science, (1994)** and the results were tabulated and used the Harvard graphics package version 4 to represent the results graphically **(Harvard, 1998).**

C) Qualitative variables were expressed as percentages and association measures available within cross tabs were used as tests of independence between the categorical variables, χ^2 test (chi-square) was used for comparison among proportions (**Armitage *et al*., 2002).** Quantitative variables from a normal distribution were expressed as mean ±SD. An independent t-test was used to compare the two sample means and the F-test (One way ANOVA) was used for comparing between groups, there are two assumptions underlying the analysis of variance and corresponding F-test. The first is that the variable is normally distributed. The second is that the standard deviation between individuals is the same in each group. If the F ratio is significant, then SPSS conducts post hoc tests using the LSD test (Least Significant Difference) (**Betty and Jonathan, 2003**).

RESULTS

Socio-demographic data: (Figures from 1-65)

Number of family members:

Most of the sample (48%) consists of 5 people; however, (27%) of the sample consists of 6 people On the other hand (10%) of the sample includes 4 people Only 1% approximately of the sample involves 3 or 9 people

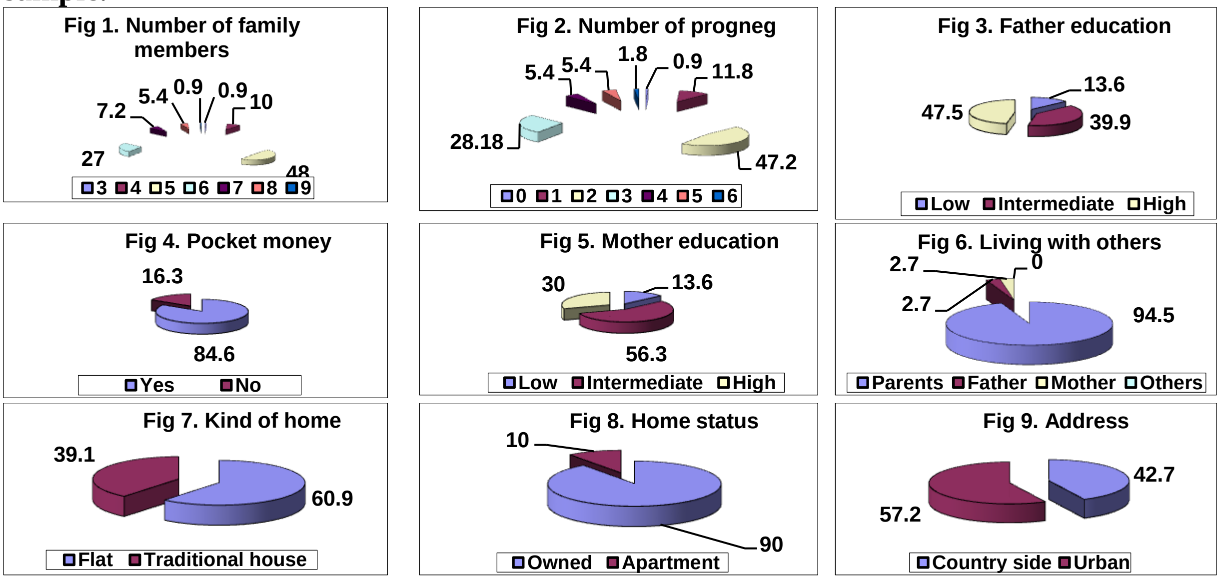
Number of progeny:

The number of brothers in most of the sample (47%) is 2 brothers. On the other hand, (28%) of the sample is composed of 3 brothers, however (11%) of the sample is composed of 1 brother. It was recorded that (5.4%) of the sample involved 4 or 5 brothers and (1.8%) of the sample contained 6 brothers.

Father Education:

Most of the sample (47%) was highly educated, on the other hand (39.9%) of the sample had intermediate education, and (13.6%) had low education.

Figures 1-65: Frequency distribution of several characteristics of the studied sample.**Figures 1-65: Frequency distribution of several characteristics of the studied sample.**



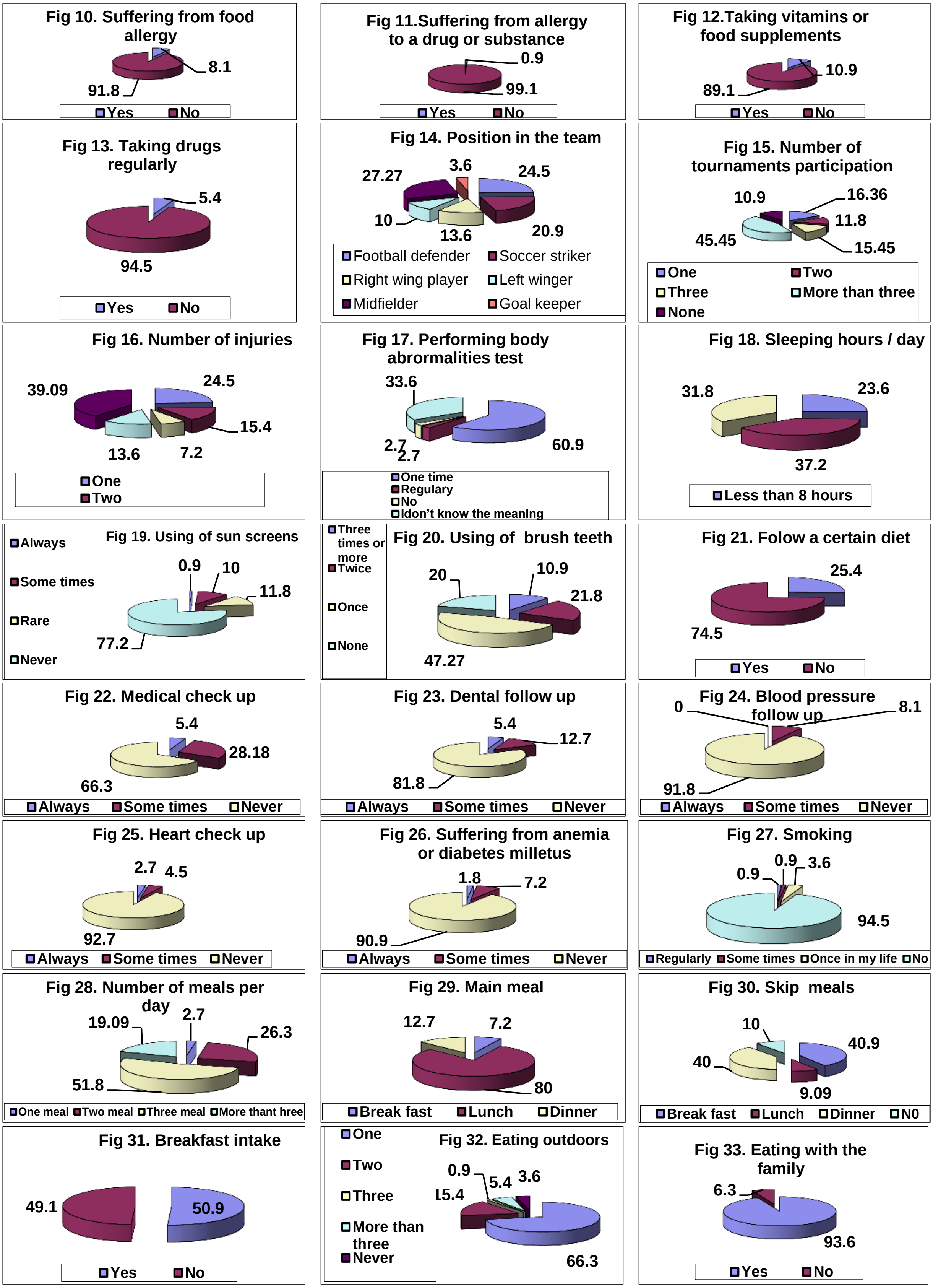


Fig 10. Suffering from food allergy
8.1
91.8
Yes No
Fig 11.Suffering from allergy to a drug or substance
0.9
99.1
Yes No
Fig 12.Taking vitamins or food supplements
10.9
89.1
Yes No
Fig 13. Taking drugs regularly
5.4
94.5
Yes No
Fig 14. Position in the team
27.27
3.6
24.5
10
13.6
20.9
Football defender
Soccer striker
Right wing player
Left winger
Midfielder
Goal keeper
Fig 15. Number of tournaments participation
10.9
16.36
11.8
45.45
15.45
One
Two
Three
More than three
None
Fig 16. Number of injuries
39.09
24.5
15.4
13.6
7.2
One
Two
Fig 17. Performing body abrormalities test
33.6
60.9
2.7
2.7
One time
Regulary
No
Idon't know the meaning
Fig 18. Sleeping hours / day
31.8
23.6
37.2
Less than 8 hours
Always
Some times
Rare
Never
Fig 19. Using of sun screens
0.9
10
11.8
77.2
Three times or more
Twice
Once
None
Fig 20. Using of brush teeth
20
10.9
21.8
47.27
Fig 21. Folow a certain diet
25.4
74.5
Yes No
Fig 22. Medical check up
5.4
28.18
66.3
Always Some times Never
Fig 23. Dental follow up
5.4
12.7
81.8
Always Some times Never
Fig 24. Blood pressure follow up
0
8.1
91.8
Always Some times Never
Fig 25. Heart check up
2.7
4.5
92.7
Always Some times Never
Fig 26. Suffering from anemia or diabetes milletus
1.8
7.2
90.9
Always Some times Never
Fig 27. Smoking
0.9
0.9
3.6
94.5
Regularly Some times Once in my life No
Fig 28. Number of meals per day
19.09
2.7
26.3
51.8
One meal Two meal Three meal More thant hree
Fig 29. Main meal
12.7
7.2
80
Break fast Lunch Dinner
Fig 30. Skip meals
10
40.9
40
9.09
Break fast Lunch Dinner N0
Fig 31. Breakfast intake
49.1
50.9
Yes No
One
Two
Three
More than three
Never
Fig 32. Eating outdoors
0.9
5.4
3.6
15.4
66.3
Fig 33. Eating with the family
6.3
93.6
Yes No

Fig 34. Meal size affected by finds or family members

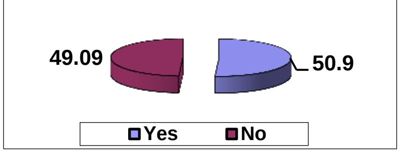


Fig 35. Eating snacks

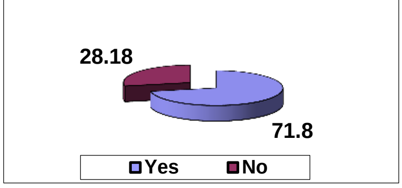


Fig. 36. Number of snacks per day

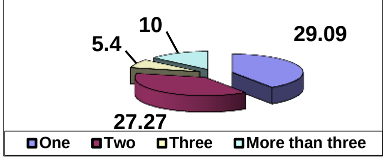


Fig 37. Kind of snacks

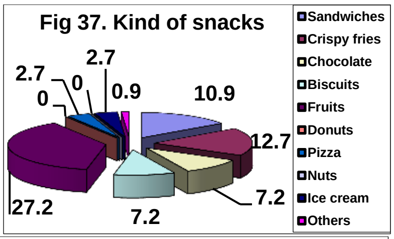


Fig 38. Eating late

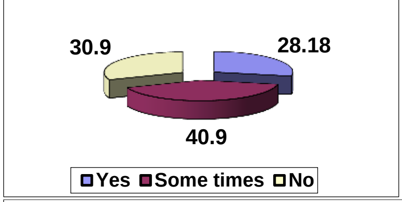


Fig 39. Eating drink during training

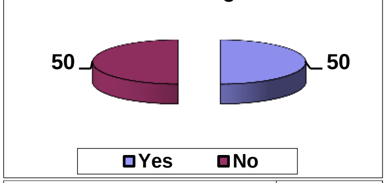


Fig 40. Kind of food during training

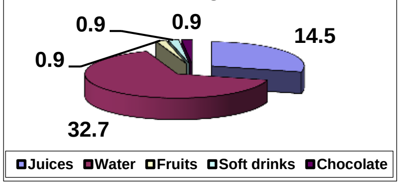


Fig 41. Eating after training

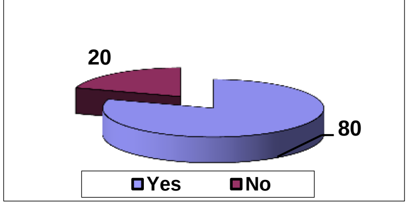


Fig 42. Kind of food after training

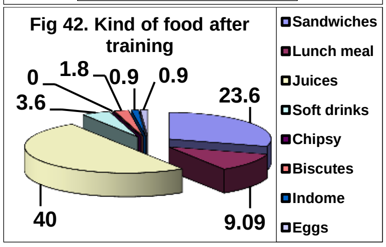


Fig 43. Eating before training

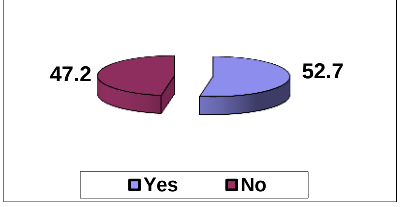


Fig 44.Kind of food before training

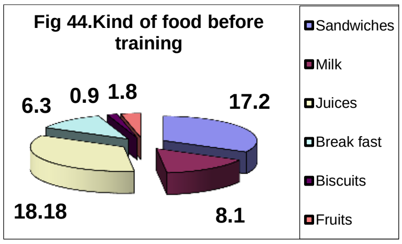


Fig 45. Usual drinks

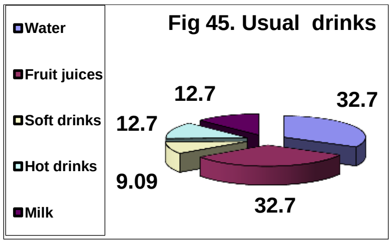


Fig 46. Using artificial sweeteners

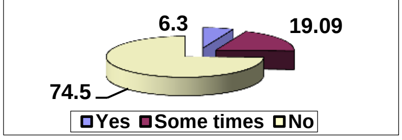


Fig 47. Number of water cups Daily

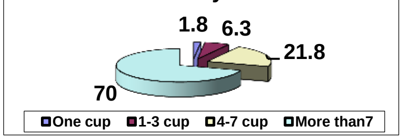


Fig 48. Vegetables and fruits intake

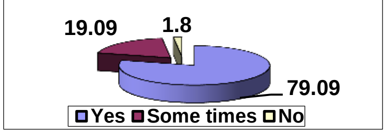


Fig 49. High fat food intake

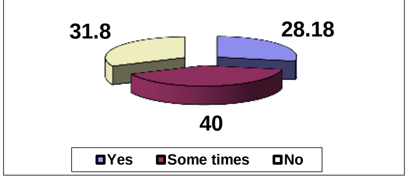


Fig 50. Drinking milk regularly

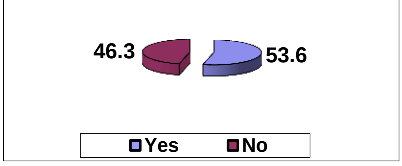


Fig 51. Protein drinks

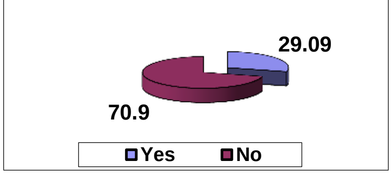


Fig 52. Food intake before tournamet

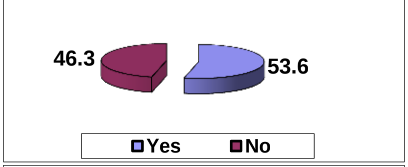


Fig 53. Continue the same diet after tournaments

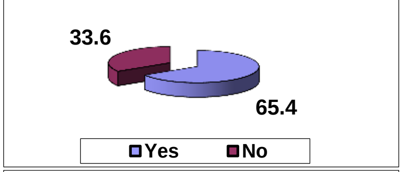


Fig 54. Importance of healthy nutrition for weight loss

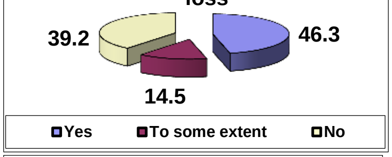


Fig 55. Importance of fixed healthy meals

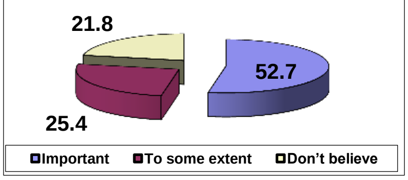


Fig 56. Importance of financial resources for healthy nutrition

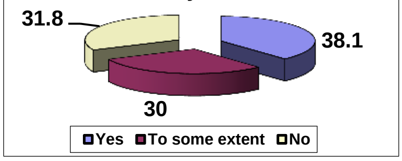
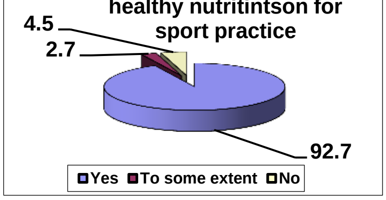


Fig 57. Importance of healthy nutritintson for sport practice



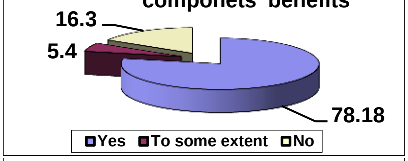


Fig 58. Knowledge of food componets benefits

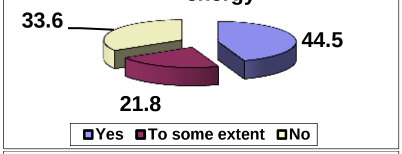


Fig 59. Amount of food and energy

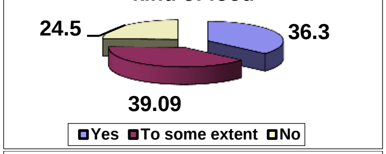


Fig 60. Type of trainig and kind of food

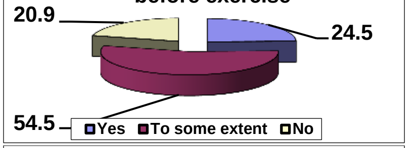


Fig 61. Benefit of not eating before exercise

Fig. 62. Brotein benefit during exercise

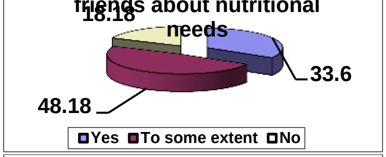


Fig 63. Consulting coach or friends about nutritional needs

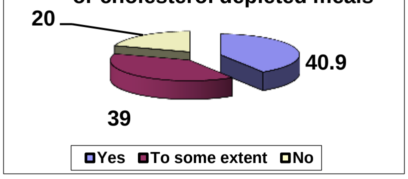


Fig 64. Keening for eating fat or cholesterol depleted meals

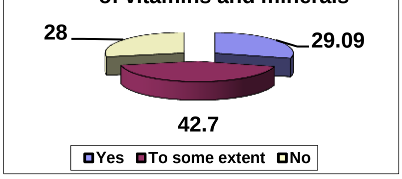


Fig 65. Knowing food content of vitamins and minerals

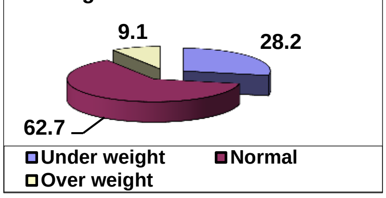


Fig 66. BMI Classification

Mother Education:

Most of the simple (56.3%) have intermediate education. On the other hand (30%) have high education and (13.6%) have low education.

Pocket money:

Most of the sample (84.6%) have pocket money and (16.3%) don't have pocket money.

Living with others:

Most of the sample (94.5%) live with their parents, however (2.7%) of the sample live with their mother or father.

Kind of home:

(60.9%) of the sample was lived in flat, however (39.1%) of the sample lived in Traditional houses.

Home Status:

Most of the sample (90%) lived in owned apartments; however (10%) lived in rented apartments.

Address:

(57.2%) of the sample lives in urban areas, however, (42.7%) live in rural areas.

Monthly income:

Most of the simple (81.8%) Unknown on the other hand (7.2%) Monthly income of more than 4000s and (3.6%) monthly income from 1000 to 4000s.

Suffering from a food allergy:

Most of the sample (91.8%) didn't suffer from food allergies. On the other hand (8.1%) suffered from food allergies.

Food responsible for allergy:

(1.8%) of the sample has an allergy to chocolate, fish, or meat. On the other hand (0.9%) of the sample has an allergy to strawberries mango or eggs.

Suffering from a drug allergy:

Only 0.9% of the sample suffered from analgesic and anti-cough drugs.

Taking vitamins or food supplements:

Most of the sample (89.9%) was not taking vitamins or food supplements, additionally (10.9%) of the sample took vitamins or food supplements.

Taking drugs regularly:
Most of the sample (94.5%) was not taking drugs regularly; however (5.4%) took drugs regularly.

Position in the team
Most of the sample (27.27%) is a midfielder then (24.5%) is a football defender then (20.9%) is a soccer striker,and (13.6% is a right-wing player. On the other hand (10%) is a left winger and (3.6%) is a goalkeeper.

Number of tournament participants
Most of the sample (45.45%) participated in more than three tournaments, (while 16.36%) of the sample participated in one tournament, and (15.45%) of the sample participated in three tournaments. On the other hand (11.8%) of the sample participated in two tournaments and (10.9%) did not participate.

Number of injuries:
(39.09%) was not injured but (24.5%) had one injury. On the other hand (15.4%) had two injuries. (13.6%) had more than three injuries and only (7.2%)of the sample had three injuries.

Performing body abnormality tests:
Only (4.4%) of the sample performed body abnormality tests regularly or for one time.

Sleeping hours/day:
Most of the sample (37.2%) slept 8 hours daily, however (31.8%) slept more than 8 hours, and (23.6%) slept less than 8 hours per day.

Using sunscreens:
Most of the sample (77.2%) never uses sunscreens, however (11.8%) rarely use sunscreens, but (10%) use sunscreens sometimes, and (0.9%) always use sunscreens.

Using brush teeth:
Most of the sample (47.27%) used to brush their teeth once daily, however (21.8%) used to brush their teeth twice daily. On the other hand (20%) didn't use toothbrushes and (10.9%) used toothbrushes three times or more daily.

Follow a certain diet:
Only (25.4%) of the sample follow a certain diet.

Medical checkup:
(28.8%) of the sample sometimes make medical checkups and only (5.4%) always make medical checkups.

Dental checkup:
(12.7%) of the sample sometimes follow dental checkups and only (5.4%) always make dental checkups.

Blood pressure follows up:
Only (8.1%) of the sample sometimes makes blood pressure checkups.

Heart checkup:
Results showed that (4.5%) of the sample sometimes made heart checkups and only (2.7%) always made heart checkups.

Suffering from anemia or diabetes:
It was found that (7.2%) of the sample sometimes suffers from anemia and diabetes; however (1.8%) always suffers from anemia and diabetes.

Smoking:
Results showed that (94.5%) of the sample didn't smoke, however (3.6%) of the sample smoked once in their life. On the other hand, it was found that (0.9%) of the sample sometimes or regularly smokes.

Number of meals per day:
Most of the sample (51.8%) had three meals per day, however (26.3%) of the sample had two meals per day. On the other hand (19.09%) had more than three meals per day and (2.7%) had one meal per day.
Main meal:
For most of the sample (80%) their main meal was lunch, however (12.7%) their main meal was dinner, and (7.2%) their main meal was breakfast.
Skip meals:
Most of the sample (40.9%) skipped breakfast; however (40%) skipped dinner. On the other hand (9.09%) skipped lunch. It was found that (10%) of the sample didn't skip any meal.
Breakfast intake:
Most of the sample (50.9%) took breakfast before leaving the house.
Eating outdoors:
Most of the sample (66.3%) ate one meal outdoors, however (15.4%) ate two meals, and (5.4%) of the sample ate more than three meals outdoors. On the other hand (3.6%) of the sample didn't eat outdoors and (0.9%) ate three meals outdoors.
Eating with the family:
(93.6%) of the sample ate with their families.
Factors affecting meal size:
It was found that (50.9%) of the sample their size meal is affected by friends or family members.
Eating snacks:
Most of the sample ate snacks between meals.
Number of snacks per day:
Most of the sample (29.09%) ate one snack per day; however (27.27%) ate two snacks per day. On the other hand (10%) ate more than three snacks per day and (5.4%) of the sample ate three snacks per day.
Kind of snacks:
Most of the sample (27.2%) prefers fruits, however (12.7%) prefer Crispy fries, and (10.9%) prefer sandwiches (cheese, burger, eggs, and others). On the other hand (14.4%) prefer chocolate or biscuits. Otherwise (2.7%) was found to prefer pizza, (5.4%) of the sample prefer pizza or ice cream.
Eating late:
Most of the sample (40.9%) sometimes ate late before sleeping; however (28.18%) usually ate late before sleeping. On the other hand (30.9%) didn't eat before sleeping.
Eating and drinking before training:
Most of the sample (52.7%) ate before training.
Kind of food before training:
Most of the sample (18.18%) drank juices before training and (17.2%) of the sample ate sandwiches. On the other hand (8.1%) of the sample drank milk before training and (6.3%) of the sample ate breakfast before training. Finally (1.8%) of the sample ate fruits and (0.9%) of the sample ate biscuits before training.
Eating and drinking during training:
Half of the sample (50%) ate during training.
Kind of food during training:
Most of the sample (32.7%) drank water during training and (14.5%) of the sample drank juices, however (2.7%) of the sample drank soft drinks or ate fruits or chocolate.
Eating and drinking after training:
Most of the sample (80%) ate or drank after training.

Kind of food after training:

Most of the sample (40%) drank juices during training; however (23.6%) ate sandwiches. On the other hand (9.09%) of the sample ate lunch meals and (3.6%) drank soft drinks and (1.8%) of the sample ate biscuits. It was found that (0.9%) ate Indomie and (0.9%) ate eggs during training.

Usual drinks:

65.4% of the sample drinks water or fruit juices usually. On the other hand (25.4%) of the sample drinks milk or hot drinks usually. Otherwise (9.09%) usually drink soft drinks.

Using artificial sweeteners:

Most of the sample (74.5%) didn't use artificial sweeteners, (19.09%) sometimes used artificial sweeteners and only (6.3%) of the sample used artificial sweeteners.

Number of artificial sweeteners used:

It was found that (16.3%) of the sample used artificial sweeteners one time per week and (6.3%) of the sample used artificial sweeteners two times per week. On the other hand, it was found that (3.6%) of the sample used artificial sweeteners (3-6) times per week. Only (0.9%) of the sample used artificial sweeteners more than six times per week.

Number of water cups daily:

Most of the sample (70%) drank more than 7 cups daily and (21.8%) of the sample drank (4-7) cups daily. However, it was recorded that (6.3%) of the sample drank (1-3) cups per day, and only (1.8%) of the sample drank 1 cup daily.

Vegetables and fruits intake:

It was found that (79.09%) intake vegetables and fruits, however (19.09%) sometimes take them but (1.8%) never intake them.

High-fat food intake:

(40%) of the sample sometimes intake food rich in fat, however (31.8%) never intake a high-fat diet and (28.18%) of the sample usually intake fat-rich diets.

Drinking milk regularly:

Most of the Samples drink milk regularly.

Protein drinks:

Results showed that (70.9%) of the sample did not drink proteins, however (29.09%) of the sample drank protein beverages.

Food intake before tournaments:

Most of the sample (53.6%) intake food before tournaments.

Food difference:

Most of the sample (41.8%) intake special food from the club, however only (4.5%) of the sample intake a lot of fruit. On the other hand, 7.2% of the sample intakes different amounts of food before tournaments.

Food pattern after tournaments:

Most of the sample (65.4%) continue the same diet after tournaments.

Food pattern difference:

(32.7%) of the sample intake of large meals, however 1.8 % intake of small meals.

Importance of healthy nutrition for weight loss:

Most of the sample (46.3%) thought that healthy nutrition was necessary for weight loss, however (39.09%) did not think that, and (14.5%) of the sample thought that this was necessary to some extent.

Importance of fixed healthy meals:

Most of the sample (52.7%) thinks that taking fixed healthy meals for all the team is best, however (25.4%) think that to some extent, but (21.8%) do not believe in that.

Importance of financial resources for healthy nutrition:
Most of the sample (38.1%) thinks that healthy nutrition needs high financial support, however, (31.8%) of the sample did not think that, but (30%) of the sample thinks that to some extent.

Importance of healthy nutrition for sports practice:
Most of the sample (92.7%) believes that healthy nutrition is important for sports practice, however (4.5%) of the sample did not believe that, and (2.7%) of the sample believed that to some extent.

Knowledge of food components benefits:
Most of the sample (78.18%) thinks that knowledge of food components is beneficial for eating healthy food, however (16.3%) did not think that healthy nutrition requires knowledge of food components, and only (5.4%) of the sample thinks that to some extent.

Amount of food and energy:
Most of the sample (44.5%) think that eating more food is associated with more energy and vice versa, however (33.6%) of the sample did not believe in that, but (21.8%) of the sample believe in that to some extent.

Type of training and kind of food:
Most of the sample (39.09%) thinks to some extent that each type of training needs a different diet according to the effort expended.

Benefits of not eating before exercise:
Most of the sample (54.5%) believes that they benefit from not eating before exercise to some extent, however (24.5%) of the sample believes in that exactly but (20.9%) did not believe in that.

Protein benefits during exercise:
Most of the sample (74.5%) thinks that protein intake during exercise is beneficial for their bodies, however (14.5%) of the sample believes that to some extent, but (10.9%) don't believe in that.

Consulting a coach or friends about nutritional needs:
It was found that 48.18% of the sample to some extent consulted a coach or their friends about their nutritional needs, however (33.6%) of the sample occasionally consulted a coach or their friends, but (18.18%) of the sample didn't consult anyone.

Keening for eating fat or cholesterol-depleted meals:
Most of the sample (40.9%) were keen on eating fat-depleted meals, however (39%) of the sample did that to some extent, but (20%) of the sample wasn't keen on that.

Knowing the food content of vitamins and minerals:
Most of the sample (42.7%) knows the food content of vitamins and minerals to some extent, however (29.09%) of the sample exactly knows the food content of vitamins and minerals but (28%) of the sample didn't

Nutrients intake:
Results in Table (1) showed that athlete's intake of water amounted to 61.1% of the standard. Concerning energy, they intake 76.7% of the standard. However, athletes intake protein with a magnitude of 84.5% of the standard. Also, carbohydrate intake was 84.3% of the standard. Data showed that athletes' intake of 32.5% and 50.8% of fat and fiber standards respectively.
Micronutrients intake by athletes amounted to 71.1, 104, 56, 66.9, 51.1, 70.3, 54.7, 0.3, 49.8, 69.2, 59.7, and 51.7% of the standards of sodium, potassium, calcium, phosphorus, magnesium, iron, zinc, copper, vitamin A, vitamin C, thiamin and riboflavin respectively.

Table 1: Mean ± S.D. of nutrient intake of studied subjects compared with DRI.

Nutrients	Main intake		DRI		%St.
	Mean	± SD	Mean	± SD	
Water	1447.30	± 518.28	2368.36	± 329.69	61.1
Energy	2836.48	± 677.63	3700.0	± 0.00	76.7
Protein	69.31	± 7.12	82.00	± 0.00	84.5
Fat	97.60	± 42.91	300.0	± 0.00	32.5
Fiber	14.67	± 5.29	28.90	± 5.98	50.8
Carbohydrate	139.05	± 16.15	165.0	± 0.00	84.3
Sodium	355.52	± 291.15	500.0	± 0.00	71.1
Potassium	2080.00	± 2733.49	2000.0	± 0.00	104.0
Calcium	727.44	± 189.04	1300.0	± 0.00	56.0
Phosphorus	836.41	± 387.81	1250.0	± 0.00	66.9
Magnesium	204.59	± 79.61	400.0	± 0.00	51.1
Iron	7.73	± 1.85	11.00	± 0.00	70.3
Zinc	6.02	± 2.44	11.00	± 0.00	54.7
Copper	2.02	± 0.86	577.73	± 211.35	0.30
Vitamin.A	447.92	± 210.58	900.0	± 0.00	49.8
Vitamin.C	62.31	± 18.48	90.0	± 0.00	69.2
Thiamin	0.72	± 0.19	1.20	± 0.00	59.7
Riboflavin	0.67	± 0.14	1.30	± 0.00	51.7

Food consumption:

Athletes consumed in average 2437 g/week rice, 2285 g/week local bread, 1344 g/week tangerine, 1217 g/week orange, 1185 g/week tomato, 1124 g/week apple, 1123 g/week guava, 1117 g/week banana, 1095 g/week cucumber, 955 g/week fish, 920 g/week carrots, 901 g/week pears, 882 g/week lettuce, 869 g/week fig, 737 g/week bean, 681 g/week pasta, 651 g/week chicken, 616 g/week cheese, 578 g/week yogurt, 558 g/week Vino bread, 550 g/week meat, 352 g/week shami bread, 307 g/week peas, 303 g/week liver, 298 g/week arugula, 175 g/week okra, 158 g/week zucchini, 127 g/week toast, 124 g/week spinach, 106 g/week lentil, 92 g/week ghee, 77 g/week cream, 62 g/week butter, and 10 g/week chickpeas (Table 2).

Concerning oils, they consume 101 ml/week of corn oil, and 55 ml/week of olive oil. Concerning beverages, they consume 12 cups/week of coffee, 10 cups/week of juices, 8 cups/week of tea, 6 cups/week of Nescafe, and 5 cups/week of tea with milk.

Table 2: Mean ± SD. Of frequency of food consumed/week of studied subjects.

Variables	Mean	± SD
Local bread (gm)	2284.60	± 1576.51
Shami bread (gm)	352.68	± 577.15
Vino bread (gm)	558.48	± 1101.21
Toast (gm)	127.48	± 351.50
Rice (gm)	2436.64	± 1271.31
Pasta (gm)	680.86	± 836.58
Meat (gm)	549.85	± 658.40
Chicken (gm)	651.27	± 351.43
Fish (gm)	955.09	± 1019.50
Liver (gm)	302.91	± 224.58
Bean (gm)	737.18	± 383.03

Lentil (gm)	**105.82**	**± 110.93**
Chickpeas(gm)	**10.36**	**± 18.46**
Milk (gm)	**1575.73**	**± 977.33**
Yogurt (gm)	**578.36**	**± 432.32**
Cheese (gm)	**615.86**	**± 456.60**
Tomatoes (mg)	**1185.45**	**± 1079.04**
Cucumber(gm)	**1095.00**	**± 1040.29**
Lettuce (gm)	**882.00**	**± 854.26**
Carrots (gm)	**920.86**	**± 651.91**
Spinach (gm)	**124.27**	**± 191.87**
Arugula (gm)	**297.82**	**± 333.41**
Peas (gm)	**307.37**	**± 299.21**
Green Beans (gm)	**180.49**	**± 183.75**
Zucchini (gm)	**158.50**	**± 164.03**
Okra (gm)	**174.77**	**± 190.21**
Apple (gm)	**1124.82**	**± 1018.50**
Banana (gm)	**1116.82**	**± 1035.08**
Orange (gm)	**1217.00**	**± 1123.29**
Tangerine(gm)	**1344.09**	**± 1195.09**
Guava (gm)	**1122.73**	**± 1193.73**
Pears (gm)	**901.73**	**± 988.13**
Fig (gm)	**869.73**	**± 1052.08**
Tea (ml)	**1971.68**	**± 2847.92**
Coffee (ml)	**583.77**	**± 669.16**
Nescafe (ml)	**1337.09**	**± 1045.77**
Tea with milk (ml)	**1231.45**	**± 1217.08**
Juices (ml)	**2286.36**	**± 1114.94**
Ghee (gm)	**91.82**	**± 76.48**
Butter (gm)	**62.36**	**± 66.00**
Corn oil(gm)	**101.36**	**± 75.05**
Olive oil(gm)	**54.55**	**± 66.04**
Cream (gm)	**77.15**	**± 100.44**

Anthropometric measurements:

Athletes have an average height of 171.37 ± 10.12 cm, a weight of 62.64 ± 11.26 kg, a body mass index of 21.4 ± 2.65 kg/m^2, a waist circumference of 87.12 ± 10.51 cm, a hip circumference of 94.56 ± 7.09 cm, a waist/hip ratio of 0.9 ± 0.05% and an arm circumference of 25.45 ± 2.47 cm (Table 3).

Table 3: Mean ± S.D. of anthropometric measurements of studied subjects.

Variables	Mean	± SD
height(cm)	171.37	± 10.12
Weight (kg)	62.64	± 11.26
BMI (kg/m^2)	21.40	± 2.65
Waist circumference (cm)	87.12	± 10.51
Hip circumference (cm)	94.56	± 7.09
Waist / hip Ratio (%)	0.90	± 0.05
Arm circumference (cm)	25.45	± 2.47

Distribution of studied subjects according to BMI classification:

Figure (66) shows that most of the sample (62.7%) has a normal body mass index (20-25 kg/m^2). It was found that (28%) of the sample was underweight (<20 kg/m^2). On the other hand (9.09%) of the sample was overweight (25-30 kg/m^2).

Correlation coefficients between social variables and nutrient intake:
According to the results in Table (4) the number of family members was significantly negatively correlated ($p<0.05$) with energy intake. Also number of progeny was found to correlate negatively ($p<0.05$) with energy intake. On the other hand father education was found to correlate significantly positively ($p<0.05$) with protein and calcium intake and significantly negatively ($p<0.05$) with phosphorus and vitamin C intake.
Concerning mother education, it correlated significantly positively ($p<0.05$) with protein, calcium, and zinc intake. However, the pocket money variable was found to correlate significantly negatively ($p<0.05$) with energy intake. Living with others correlated significantly negatively ($p<0.05$) with energy, ash, fiber, vitamin C, and riboflavin intake.
Regarding the kind of home, it correlated significantly positively ($p<0.05$) with potassium intake. However, place of residence characteristics were found to correlate significantly negatively ($p<0.05$) with protein intake.

Table 4: Correlation coefficients between Social variables and nutrients intake.

	Number of family members	Number of progeny	Father Education	Mother Education	Pocket money	Living with others	Kind of home	Home status	Place of Residence
Water	**.090**	**.060**	**.060**	**-.013**	**.031**	**-.063**	**.061**	**.030**	**.019**
Energy	**-.152***	**-.182***	**-.039**	**-.023**	**-.153***	**-.152***	**-.020**	**.116**	**.015**
Protein	**-.063**	**-.067**	**.227***	**.112***	**-.058**	**-.033**	**.121**	**.079**	**-.163***
Fat	**.075**	**.059**	**.027**	**.008**	**-.041**	**-.090**	**-.060**	**.014**	**.045**
Ash	**.115**	**.090**	**.007**	**-.078**	**-.024**	**-.174***	**.043**	**.038**	**.039**
Fiber	**.020**	**-.008**	**-.018**	**-.092**	**.008**	**-.141***	**-.025**	**.093**	**.000**
Carbohydrate	**-.055**	**-.068**	**-.019**	**-.005**	**-.048**	**-.106**	**.050**	**.098**	**-.047**
Sodium	**-.032**	**-.021**	**-.036**	**-.011**	**-.075**	**-.053**	**.120**	**-.008**	**.128**
Potassium	**-.004**	**-.005**	**-.093**	**-.124**	**-.089**	**.087**	**.145***	**-.063**	**-.039**
Calcium	**.129**	**.107**	**.216***	**.202***	**.017**	**-.043**	**-.028**	**.073**	**-.040**
Phosphorus	**-.030**	**-.035**	**-.173***	**-.112**	**-.124**	**-.071**	**.031**	**.026**	**.080**
Magnesium	**.003**	**-.029**	**.041**	**-.059**	**-.046**	**-.069**	**-.036**	**-.001**	**-.007**
Iron	**.006**	**.003**	**-.094**	**.008**	**-.067**	**.043**	**-.024**	**.107**	**-.085**
Zinc	**.013**	**.030**	**-.132**	**.192***	**.015**	**-.057**	**.091**	**.060**	**-.074**
Copper	**-.067**	**-.091**	**.083**	**-.016**	**.049**	**-.077**	**-.040**	**.097**	**.018**
Vitamin A	**-.061**	**-.062**	**.042**	**.045**	**-.083**	**-.003**	**.030**	**-.035**	**-.030**
Vitamin C	**.101**	**.103**	**-.142***	**-.125**	**.007**	**-.176***	**-.057**	**.071**	**-.077**
Thiamin	**-.047**	**-.059**	**.067**	**-.041**	**.101**	**-.101**	**.112**	**-.011**	**-.057**
Riboflavin	**-.081**	**-.062**	**.050**	**.019**	**-.025**	**-.140***	**-.065**	**.015**	**-.006**

(-)Negative correlation (*) $P<0.05$

Correlation coefficients between anthropometric measurements and food habits:
With regard to height (Table 5), results indicated that it correlated significantly positively ($p<0.05$) with artificial sweeteners, the number of water cups per day, and knowing the food content of vitamins and minerals. However, it correlated significantly negatively ($p<0.05$) with eating outdoors, eating late, type of training, and kind of food. Concerning weight, it correlated significantly positively ($p<0.05$) with drinking milk regularly and food pattern difference after tournaments but correlated highly significantly negatively ($p<0.01$) with the number of water cups/day and knowing the food content of vitamins and minerals and

correlated significantly negatively (p<0.05) with eating out doors, type of training and kind of food and the benefit of not eating before exercise.

Body mass index (BMI) was found to correlate significantly highly positive (p<0.01) with food pattern differences after tournaments, and positively significant (p<0.05) with the kind of snacks, eating during training, food pattern difference before tournaments, and knowledge of food components and benefits. On the other hand, BMI correlated negatively significant (p<0.05) with the benefits of not eating before exercise and knowing the food content of vitamins and minerals. Waist circumference correlated highly positively (p<0.01) with the kind of food after training, and significantly positively (p<0.05) with eating outdoors, the importance of fixed healthy meals, and knowledge of food components and benefits.

According to table 5, hip circumference correlated significantly positively (p<0.05) with artificial sweeteners, food pattern differences after tournaments, knowledge of food components and benefits, and protein benefits during exercise. Hip circumference was found to correlate highly significantly negatively (p<0.01) with the number of water cups/day, and significantly negatively (p<0.05) with eating outdoors, type of training and kind of food,the benefit of not eating before exercise and knowing the food content of vitamins and minerals.

Waist/hip ration was found to correlate significantly positively (p<0.05) with the number of snacks, eating late, number of artificial sweeteners used, and protein drinks. On the other hand, this ratio was highly significantly negative (p<0.01) with breakfast intake and significantly negative (p<0.05) with skip meals, vegetables and fruit intake, and food patterns before tournaments. Concerning arm circumference, it correlated significantly positively (p<0.05) with the number of snacks, artificial sweeteners, number of water cups/day, and food pattern difference after tournaments, but correlated highly negatively (p<0.01) with the benefit of not eating before exercise and knowing the food content of vitamins and minerals, It also correlated significantly negatively (p<0.05) with skip meals ,type of training and kind of food.

Table 5: Correlation coefficients between anthropometric measurements and food habits .

	Height	Weight	BMI	Waist circumference	Hip circumference	Waist / hip Ratio	Arm circumference
Number of meals/day	-.100	-.061	.035	-.072	.007	.038	.027
Main meal	.004	.028	.048	-.029	.051	-.112	.036
Skip meals	-.073	-.085	-.040	-.004	-.058	-.198*	-.163*
Breakfast intake	-.059	-.022	-.029	-.008	-.038	-.284**	-.100
Eating outdoors	-.160*	-.144*	-.082	.194*	-.175*	-.053	-.056
Eating with family	.050	.041	.030	.085	.121	-.065	.003
Size of meal	.114	.126	.111	-.038	.094	.014	.063
Eating snacks	.005	.056	.007	.038	.007	-.106	-.024
Number of snacks per day	-.106	-.048	.059	-.082	-.111	.141*	.191*
Kind of snacks	.045	.103	.144*	.118	.007	.082	.127
Eating late	-.169*	-.071	.035	-.011	-.021	.142*	.050
Eating during training	-.015	.076	.160*	.018	.103	-.004	.081
Kind of food eating during training	.065	-.022	-.129	.036	.003	.135	-.009
Eating after training	.023	.045	.046	.110	.027	.084	-.065
Kind of food after training	.004	.079	.115	.401**	.043	-.071	.116
Eating Before training	-.079	-.008	.129	.113	-.015	.107	.027
Kind of food eating before training	.022	.049	.076	-.021	.044	-.022	-.101
Usual drinks	-.107	-.077	.009	.004	-.045	-.028	.029
Using of artificial sweeteners	.154*	.113	.032	.065	.205*	-.037	.221*
Number of artificial sweeteners used	-.051	-.091	-.130	-.125	.005	.222	.108
Number of water cups/day	.356*	-.353**	-.220*	-.029	-.259**	.075	.182*
Vegetables and fruits intake	-.001	.014	.041	.119	.020	-.231*	-.037
High Fat food intake	-.135	-.048	.065	-.113	.022	-.042	.009
Drinking milk regularly	.139	.143*	.057	.118	.120	-.125	.102
Protein drinks	-.058	.001	.048	.152	-.014	.175*	-.004
Food pattern before tournaments	.103	.112	.120	-.045	.108	-.158*	.083
Food pattern difference before tournaments	.006	.074	.149*	.077	.085	.073	.029

Food pattern after tournaments	-.036	-.083	-.124	.008	-.080	-.118	-.037
Food patterns difference after tournaments	.015	.208*	.334(**)	.010	.156*	-.081	.188*
Importance of healthy nutrition for weight loss	.064	.051	.013	-.077	.072	-.047	.090
Importance of fixed healthy meals	-.035	.020	.043	.164*	.105	-.055	.062
Importance of financial resources for Healthy nutrition	-.049	-.005	.023	-.124	-.008	-.107	.013
Importance of healthy nutritintson for sport practice	-.002	.008	.018	.082	.112	-.052	-.001
knowledge of food components and benefits	.022	.118	.174*	.170*	.217*	.068	.084
Amount of food and energy	-.033	.001	.055	.130	.065	.024	-.027
Type of training and kind of food	-.223*	-.173*	-.039	-.058	-.214*	-.115	-.206*
benefit of not eating before exercising	-.068	-.171*	-.203*	-.136	-.171*	-.112	-.285**
Protein benefit during exercise	.101	.107	.034	.108	.149*	-.136	.018
Consulting about nutritional needs	.101	.049	-.048	.088	.067	-.139	.017
Eating meals low in fat and cholesterol	-.050	-.033	.017	.108	.017	.033	-.061
Knowing food content of vitamins & minerals	.264*	-.289**	-.213*	.017	-.244*	-.018	-.266**

(-)Negative correlation (*) P<0.05 (**)P<0.001

Correlation coefficients between anthropometric measurements and nutrient intake:

Results indicated that athletes' height correlated highly significantly (p<0.01) with energy, protein, carbohydrate, and riboflavin intake. It correlated significantly positively (p<0.05) with water, potassium, calcium, and iron consumption. Concerning athletes' weight, it correlated highly significantly (p<0.01) with energy and carbohydrate intake and correlated significantly positively (p<0.05) with water and protein intake. On the other hand athletes' weight was found (table 6) to be highly significantly negative (p<0.01) with riboflavin intake and significantly negative (p<0.05) with potassium, calcium, and iron consumption. With respect to body mass index parameters, it has a significant negative correlation with energy and riboflavin intake. Waist circumference correlated highly significantly (p<0.01) with potassium intake.

Table 6: Correlation coefficients between anthropometric measurements and nutrient intake .

	Height	Weight	BMI	Waist circumference	Hip circumference	Waist / hip Ratio	Arm circumference
Water	.185*	.164*	.054	.119	.085	.175*	.067
Energy	.392**	.337**	-.147*	-.014	.306**	.030	-.122
Protein	.322**	.238*	-.054	.019	-.115	-.039	-.109
Fat	.045	.008	-.041	-.007	-.086	.103	.036
Ash	-.012	-.053	-.077	.128	-.127	-.200*	.006
Fiber	.119	.078	.004	.096	-.003	-.242*	.073
Carbohydrate	.371**	.266**	-.061	-.012	.213*	-.001	-.176*
Sodium	.067	.019	-.045	.019	.108	-.082	-.067
Potassium	.207*	-.156*	-.053	.327**	-.180*	-.034	-.140*
Calcium	.203*	-.179*	-.063	.032	-.250**	-.006	-.100
Phosphorus	-.044	-.059	-.042	-.006	-.054	-.027	-.059
Magnesium	.116	.087	-.012	.033	-.006	.129	.127
Iron	.207*	-.183*	-.071	-.086	-.168*	.005	-.133
Zinc	.035	.022	.052	.025	.048	-.022	-.051
Copper	-.039	-.084	-.099	.076	-.123	.068	.030
Vitamin A	.005	-.035	-.104	.135	-.088	.066	.028
Vitamin C	-.096	-.056	-.019	.057	-.041	.056	.085
Thiamin	-.118	-.006	.090	.080	.001	.031	.034
Riboflavin	.352**	-.369**	-.237*	-.104	-.290**	.051	-.248**

(-)Negative correlation (*) P<0.05 (**)P<0.001

As shown in Table 6, hip circumference correlated highly significantly positive ($p<0.01$) with energy intake, but correlated highly significantly negatively with phosphorus and riboflavin intake. Meanwhile, it correlated significantly negative with potassium and iron intake. theWaist/hip ratio was recorded (table 6) to correlate significantly positively ($p<0.05$) with water intake but significantly negatively with ash and fiber intake. Finally, arm circumference correlated highly significantly ($p<0.01$) with riboflavin intake and significantly negatively with carbohydrate and potassium intake.

Correlation coefficients between anthropometric measurements and food consumption patterns:

It was found that athletes' height correlated significantly positively ($p<0.05$) with arugula and peas consumption, however it correlated significantly negatively ($p<0.05$) with baladi bread and pasta consumption (Table 7). Concerning athletic weight, it correlated significantly positively ($p<0.05$) with toast, pasta, beans, peas, and guava consumption, but correlated significantly negatively ($p<0.05$) with consuming baladi bread. Body mass index correlated significantly positively ($p<0.05$) with pasta, yogurt, banana, guava, pears, and fig consumption. Waist circumference was found to correlate significantly positively ($p<0.05$) with consuming baladi bread, apple, banana, corn oil, olive oil, and cream, however, it correlated significantly negatively ($p<0.05$) with lentils, carrots, and zucchini consumption.

Table 7: Correlation coefficients between anthropometric measurements and food consumption pattern .

	Height	Weight	BMI	Waist circumference	Hip circumference	Waist / hip Ratio	Arm circumference
Baladi bread	-.174*	-.160*	-.092	.211*	-.133	.101	-.016
Shami bread	.045	.034	-.030	-.055	-.013	.052	-.092
Fino bread	-.058	-.054	-.034	-.050	-.010	.034	-.064
Toast	.133	.148*	.081	.070	.133	.043	.133
Rice	-.030	-.005	.026	-.113	-.077	.149*	.035
Pasta	-.141*	.191*	.203*	-.134	.247**	.179*	-.118
Meat	-.138	-.132	-.068	-.109	-.137	-.012	-.086
Chicken	-.056	-.039	.014	.045	-.051	.194*	-.047
Fish	-.003	.061	.099	.002	.031	-.068	.047
Liver	-.133	-.004	.132	-.030	.066	.014	.053
Bean	.123	.144*	.082	-.013	.180*	-.016	.197*
Lentil	-.132	-.108	.027	-.159*	-.121	-.066	-.155*
Chickpeas	-.096	-.037	.048	-.066	-.041	-.023	-.059
Milk	-.078	-.080	-.035	-.021	-.137	.093	-.108
Yogurt	.002	.114	.195*	.001	.152*	.083	.103
Cheese	.024	.101	.133	.074	.111	.192*	.088
Tomatoes	.064	.011	-.051	.027	.046	-.106	-.003
Cucumber	.023	-.057	-.106	-.025	.002	-.234*	-.050
Lettuce	-.011	-.058	-.092	-.019	-.082	-.066	-.141*
Carrots	-.042	.033	.066	-.140*	-.038	.055	-.031
Spinach	-.114	-.034	.070	-.038	-.068	-.208*	-.127
Arugula	.186*	.031	-.108	-.065	-.016	.048	-.079
Peas	.170*	.169*	.091	.034	.172*	.137	.187*
Green Beans	-.086	-.060	.027	-.138	.037	-.168*	-.055
Zucchini	-.046	-.032	.000	-.181*	-.050	-.086	-.153*
Okra	.062	.105	.120	-.033	.081	.008	.070
Apple	.051	.107	.119	.152*	.168*	.111	.164*
Banana	.029	.110	.146*	.180*	.147*	.091	.153*
Orange	.030	.084	.122	.109	.157*	-.018	.146*
Tangerine	.008	.079	.120	-.025	.128	.003	-.193*
Guava	.042	.141*	.151*	.012	.187*	.033	.140*
Pears	.034	.123	.164*	-.027	.156*	-.029	.062
Fig	-.097	.051	.164*	-.038	.108	.007	.128
Tea	.030	.086	.097	.083	.078	.109	.005

Coffee	**-.018**	**.060**	**.131**	**.068**	**.054**	**-.016**	**-.043**
Nescafe	**.133**	**.108**	**.080**	**.101**	**.097**	**.076**	**-.068**
Tea with milk	**-.075**	**-.105**	**-.111**	**-.055**	**-.071**	**-.175***	**.212***
Juices	**-.032**	**-.056**	**-.079**	**.023**	**-.151***	**.089**	**-.121**
Ghee	**.077**	**.132**	**.098**	**.104**	**.114**	**.104**	**.038**
Butter	**-.003**	**.056**	**.086**	**-.031**	**.034**	**.075**	**.027**
Corn oil	**.068**	**.115**	**.090**	**.142***	**-.025**	**.006**	**.045**
Olive oil	**.059**	**.139**	**.125**	**.168***	**.092**	**.017**	**.084**
Cream	**-.004**	**.010**	**.054**	**.170***	**.105**	**.007**	**.015**

(-)Negative correlation (*) P<0.05 (**)P<0.001

Hip circumference was found to correlate highly significantly positively (p<0.01) with pasta consumption and significantly positively (p<0.05) with bean, yogurt, peas, apple, banana, orange, guava, and pears consumption, however, it correlated significantly negatively (p<0.05) with juice consumption. With regard to waist-hip ratio, it correlated significantly positively (p<0.05) with rice, pasta, chicken, and cheese consumption, however, it correlated significantly negatively (p<0.05) with consuming cucumber, spinach, green beans, and tea with milk. With respect to arm circumference, it correlated significantly positively (p<0.05) with consuming beans, peas, apples, bananas, oranges, guava, and tea with milk but it correlated significantly negatively (p<0.05) with lentils, lettuce, zucchini, and tangerine consumption.

Correlation coefficients between health practices and food habits:

It could be noticed (Table, 8) that position in the team correlated highly significantly positive (p<0.01) with eating snacks and correlated significantly positive (p<0.05) with breakfast intake, eating after training, kind of food after training, drinking milk regularly, food pattern after tournaments, protein benefit during exercise and knowing the food content of vitamins and minerals. On the other hand, position in the team was found to correlate highly negatively (p<0.01) with the number of water cups daily and significantly negatively (p<0.05) with the size of meals and vegetables and fruit intake. Concerning the number of tournaments, it correlated highly significantly (p<0.01) with the main meal, eating during training, food patterns before tournaments, knowledge of food components, and benefits. It correlated significantly positively (p<0.05) with the number of meals per day, eating snacks, eating after training, food pattern after tournaments, importance of healthy nutrition for weight loss, amount of food and energy, consulting about nutritional needs and knowing the food content of vitamins and minerals. The number of tournaments participants correlated highly significantly (p<0.01) negatively with high fat food intake and significantly negatively (p<0.05) with artificial sweeteners, and the number of artificial sweeteners used.

With respect to "previous injuries", it was highly significantly positive (p<0.01) with eating late and significantly positive (p<0.05) with the number of meals/day, number of artificial sweeteners used, high-fat food intake, food pattern difference before tournaments, the importance of fixed healthy meals, and knowledge of food components and benefits. On the other hand, previous injuries correlated significantly negatively (p<0.05) with usual drinks, food pattern differences after tournaments, and the benefit of not eating before exercise. With regard to performing body abnormality testes, it was significantly positive (p<0.05) with eating outdoors, eating after training, kind of food before training, high-fat food intake, and type of training and kind of food. However, the performance of body abnormalities testes was found to be highly significantly negative (p<0.01) with food pattern differences after tournaments and significantly negative ((p<0.05) with eating snacks, the number of snacks/day,the number of water cups/day, the importance of healthy nutrition for weight loss. Sleeping hours/day was found to correlate highly significantly positive (p<0.01) with eating before training and significantly positive (p<0.05) with eating after training, kind of food before training, protein drinks, type of training, and kind of food.

The use of sunscreen was found to correlate significantly positively ($p<0.05$) with the number of meals per day, eating outdoors, eating late, kind of food during training, kind of food before training, artificial sweeteners, number of artificial sweeteners used, and protein drinks. It was correlated highly negatively ($p<0.01$) with eating during training and was correlated significantly negatively ($p<0.05$) with food pattern differences before tournaments, food pattern difference after tournaments, the benefit of not eating before exercise, and protein benefit during exercise. Concerning using brush teeth, it was found to be significantly positive ($p<0.05$) with the kind of food during training, the kind of food after training, usual drinks, drinking milk regularly, and food patterns after tournaments. However, the use of brush teeth was significantly negatively ($p<0.05$) with mean meals, eating during training, number of artificial sweeteners used, number of water cups daily, high-fat food intake, food pattern difference before tournaments, food pattern difference after tournaments, type of training and kind of food.

Regarding following a certain diet, it was significantly positively correlated ($p<0.05$) with skip meals, kind of food after training, usual drinks, artificial sweeteners, food pattern before tournaments, the importance of healthy fixed meals, and the amount of food and energy. On the other hand, it was correlated significantly negative ($p<0.05$) with eating late. Data showed that medical checkups were correlated significantly positive ($p<0.05$) with the kind of food before training, food pattern before tournaments, food pattern after tournaments, the importance of healthy fixed meals, and knowledge of food components and benefits. A medical checkup was found to be significantly negatively correlated ($p<0.05$) with eating snacks, the kind of snacks, the number of artificial sweeteners used, and consulting about nutritional needs. According to Table (8), dental follow-up was significantly positive ($p<0.05$) with the kind of snacks, usual drinks, the importance of healthy fixed meals, benefit of not eating during exercise. On the other hand, it was correlated significantly negative ($p<0.05$) with mean meals, food pattern difference before tournaments, and consulting about nutritional needs.

Table 8: Correlation coefficients between health practice and food habits.

	Position in the team	Number of Tournaments	Number of Injuries	Performing body abnormalities' tests	Sleeping hours/ day	Using of Sun screen	Using of Brush teeth	Follow a certain Diet	medical Check up	Dental follow up	Blood pressure check up	Heart check up	Suffering from Anemia or DM	Smoking
Number of meals/day	-.058	.174*	.153*	.048	.129	.157*	.004	.016	.135	-.039	-.038	.110	-.016	-.027
Main meal	-.011	.323**	.104	.089	.010	-.002	-.147*	.022	-.012	-.168*	-.186*	-.032	-.037	.027
Skip meals	.015	-.013	-.040	.071	.020	-.027	-.028	.167*	.040	-.015	.009	-.113	.200*	.006
Breakfast intake	.170*	.136	.002	.057	-.028	-.009	.056	.115	.034	-.008	.028	-.220*	.144*	.020
Eating outdoors	-.110	.050	.086	.143*	-.079	.163*	-.101	-.059	.117	.066	-.086	-.068	-.109	.135
Eating with family	.110	-.006	-.074	.040	.091	.076	.069	.067	.110	-.093	.078	-.029	.078	-.041
size of meal	-.141*	.110	-.063	-.106	-.053	-.062	.097	-.011	.034	.093	-.171*	.115	.243*	-.028
Eating snacks	.291**	.183*	.041	-.196*	-.102	.050	-.060	-.051	-.167*	.125	-.034	.005	-.034	.081
Number of snacks/day	-.125	.022	.080	-.174*	-.030	.059	-.017	.028	-.088	.070	-.127	-.079	.058	-.045
Kind of snacks	-.093	.015	-.053	-.073	.075	-.055	.060	-.073	-.165*	.182*	-.071	.048	-.016	-.150*
Eating late	-.046	.131	.329**	.128	-.094	.171*	.049	-.169*	.124	-.006	.011	.072	.011	.100
Eating during training	.118	.294**	.097	-.057	.101	-.288**	-.244*	.000	.015	-.034	-.100	-.215*	.100	.071
Kind of food during training	-.067	-.102	-.024	-.076	-.028	.172*	.252*	-.076	-.096	.026	.089	.383**	-.166*	-.188*
Eating after training	.217*	.172*	.065	.155*	.234*	-.111	.031	.031	-.054	.093	-.182*	.012	.149*	-.012
Kind of food after training	.253*	.010	.088	.015	-.174	.003	.204*	.199*	.047	-.012	-.094	.094	.039	.009

Eating Before training	-.005	.056	-.136	-.058	.271**	.052	-.035	.135	.010	.078	.017	-.038	.034	.059
Kind of food before training	.065	.110	.133	.228*	.285*	.186*	-.111	.062	.260*	-.116	.291*	-.126	.048	.106
Usual Drinks	.114	.036	-.225*	.070	-.016	.093	.225*	.223*	-.002	.142*	.010	.028	.022	.127
Using of artificial sweeteners	-.037	-.169*	-.057	-.013	.090	.266*	.134	.146*	.061	-.008	-.105	.102	.135	.086
Number of artificial sweeteners used	-.070	-.203*	.174*	.062	-.090	.177*	-.192*	-.049	-.236*	-.062	-.133	-.228*	-.044	.272*
Number of water cups daily	-.276**	.027	-.066	-.151*	-.004	-.110	-.141*	.036	.049	.108	-.019	.083	-.079	-.082
Vegetables and fruits intake	-.144*	.028	-.001	-.041	-.008	-.067	-.024	.062	-.008	-.040	.003	.130	.093	.105
High Fat food intake	.046	-.330**	.178*	.149*	.073	.023	-.145*	-.107	-.009	-.001	-.157*	-.049	.175*	-.051
Drinking milk regularly	.196*	.127	-.040	.022	.113	-.045	.180*	.030	.048	-.040	-.061	.096	.123	-.043
Protein drinks	.075	.099	-.045	.056	.209*	.201*	-.035	.131	.085	.053	.101	.095	-.082	.176
Food intake before tournaments	.090	.311**	.042	.104	.065	.069	.042	.208*	.153*	.002	-.055	.053	.078	-.087
Food difference	-.118	-.104	.160*	.022	-.023	-.163*	-.208*	.152	-.052	-.152*	-.079	.058	.007	.004
Food pattern after tournaments	.141*	.157*	.001	-.068	-.076	.031	.149*	.073	.158*	-.001	.147*	-.060	.060	.005
Food patterns difference	.061	-.033	-.240*	-.404**	.084	-.179*	-.254*	.082	.037	.101	0.00	-.098	-.105	-.050
Importance of healthy nutrition for weight loss	-.105	.153*	.038	-.143*	-.094	-.025	-.065	.067	-.052	-.071	-.060	-.073	.084	-.145
Importance of fixed healthy meals	.027	.037	.227*	.041	-.105	-.126	-.064	.190*	.167*	.167*	-.073	-.012	.009	-.140
Importance of financial resources for healthy nutrition	.058	.114	.107	-.109	.079	.009	-.130	-.020	.227*	.068	.097	.037	.007	-.158
Importance of healthy nutritintson for sport practice	-.062	.026	.061	-.086	-.074	-.015	.071	.109	.038	.118	-.070	.016	-.033	.057
knowledge of food components and benefits	-.070	.289**	.219*	-.064	-.024	.131	-.015	.130	.173*	-.002	-.157*	.038	.052	.108
Amount of food and energy	-.120	.213*	.134	-.031	.082	.043	.037	.237*	.058	.138	-.037	.076	.048	.081
Type of training and kind of food	-.062	.123	.041	.165*	.239*	-.110	-.199*	.019	-.102	.020	-.046	.022	.083	.151
Benefit of not eating before exercise	.059	.030	-.186*	.059	-.046	-.144*	-.090	-.063	.010	.152*	-.016	-.121	-.016	-.011
Protein benefit during exercise	.222*	.040	-.051	-.023	.139	-.160*	-.069	.099	-.123	.137	.013	-.071	.013	.045
Consulting about nutritional needs	.004	.146*	-.004	-.052	.093	-.091	-.130	-.069	-.146*	-.217*	.123	-.126	-.030	-.047
Eating meals low in fat and cholesterol	.054	.044	-.072	.112	-.059	-.034	-.033	.115	.021	.125	.049	.022	-.182*	-.028
Knowing food content of vitamins & minerals	.169*	.143*	.100	.032	.015	.063	.051	.131	.033	.106	.128	.155*	.029	.060

(-)Negative correlation (*) P<0.05 (**)P<0.001

With regard to blood pressure follow-up, it was found to be significantly positive (p<0.05) with the kind of food before training, and the food pattern after tournaments. Otherwise, it correlated significantly negatively with the mean meal, size of the meal, eating after training, high-fat food intake, and knowledge of food components and benefits. Concerning heart checkups, it was found to be highly significantly positive (p<0.01) with the kind of food during training and significantly positive (p<0.05) with knowing the food content of vitamins and minerals. It correlated significantly negatively (p<0.05) with breakfast intake, eating during training, and the number of artificial sweeteners used. With respect to suffering from anemia or diabetes mellitus, it was significantly positive (p<0.05) with skip meals, breakfast intake, size of meal, eating after training, and high-fat food intake On the other hand it was significantly negatively correlated (p<0.05) with kind of food during training and eating meals low in fat and cholesterol. Smoking was found to be significantly positive (p<0.05) with the number of artificial sweeteners used but significantly negative (p<0.05) with the kind of snacks, and kind of food during training.

Correlation coefficients between health practice and nutrient intake:

Position in the team was found to be highly significantly positive (p<0.01) with riboflavin intake (Table, 9). It correlated significantly positively (p<0.05) with vitamin A intake but correlated significantly positively (p<0.05) with water and fiber intake. With regard to the number of tournament participants, it correlated significantly positively (p<0.05) with vitamin C intake, however, it correlated significantly negatively ($p<0.05$) with phosphorus intake. Concerning the number of injuries, data indicated that it correlated significantly positively ($p<0.05$) with carbohydrate intake, otherwise, it correlated highly negatively ($p<0.01$) with energy intake. Injuries number was also significantly negatively correlated (($p<0.05$) with water, protein, iron, and zinc intake. With respect to performing abnormality testes, it correlated significantly positively ($p<0.05$) with zinc and riboflavin intake, however, it correlated highly negatively ($p<0.01$) with water, energy, protein, fiber, carbohydrate, phosphorus, magnesium, and iron intake and correlated significantly negatively ($p<0.05$) with fat, ash and potassium intake.

Sleeping hours/day were found to be significantly positively correlated ($p<0.05$) with fiber and calcium intake. On the other hand, it correlated significantly negatively ($p<0.05$) with carbohydrate and riboflavin intake. Athletes using sunscreen were found to be highly significantly positive ($p<0.01$) with riboflavin intake and correlated significantly positive ($p<0.05$) with iron intake. On the other hand, it correlated highly significantly negative ($p<0.01$) with water intake, and correlated significantly negative ($p<0.05$) with fiber and magnesium intake. Results showed that using of athletes for brush teeth was correlated significantly positive ($p<0.05$) with vitamin C intake. However athletes following a certain diet was found to be correlated significantly positive ($p<0.05$) with fat and ash intake, but correlated significantly negative ($p<0.05$) with iron intake. A medical checkup for athletes was found to correlate significantly positively with ($p<0.05$) thiamine intake, but significantly negatively ($p<0.05$) with water and calcium intake. Blood pressure follow up for athletes was found to be significantly negatively correlated ($p<0.05$) with riboflavin intake. Acheckup for the heart of athletes was found to be significantly positive ($p<0.05$) with energy, iron and thiamine intake. With regard to athletes suffering from anemia or diabetes mellitus, it correlated significantly positively ($p<0.05$) with zinc and copper. Smoking for athletes was found to be significantly positive ($p<0.05$) with protein, but significantly negative with iron.

Table 9: Correlation coefficients between health practice and nutrient intake

	Position in the team	Number of Tournaments	Number of Injuries	Performing body abrormalities test	Sleeping hours/day	Using of Sun screen	Using of Brush teeth	Follow a certain Diet	medical Check up	Dental follow up	Blood pressure follow up	Heart check up	Suffering from Anemia or DM	Smoking
Water	-.181*	-.038-	-.161*	-.342**	0.125	-.296**	-.013	0.055	-.167*	-.017	-.067	-.098	-.002-	-.029
Energy	0.083	-.081	-.248**	-.405**	-.031	0.082	0.009	-.036	0.018	0.002	0.053	0.142*	0.036	-.054
Protein	0.133	-.111	-.205*	-.471**	-.051	0.071	-.014	0.05	0.019	-.005	0.051	-.043	-.035	0.172*
Fat	-.082	0.085	0.023	-.177*	0.029	-.080	-.027	0.174*	-.056	0.017	0.001	-.026	0.108	-.022
Ash	-.097	0.087	-.034-	-.145*	0.092	-.048	-.011	0.147*	-.122	-.018	-.046	-.054	0.069	-.060
Fiber	-.214*	-.036	-.120-	-.332-**	0.152*	-.172*	-.126	0.032	-.100	-.032	-.052	-.058	-.017	-.033
Carbohydrate	0.12	-.079	.222*	-.416**	-.145	0.074	-.115	-.050	0.044	0.04	0.069	0.066	0.028	0.08
Sodium	0.106	0.044	0.076	0.09	-.117	-.069	-.039	-.055	-.078	-.009	-.015-	-.070	0.013	0.024
Potassium	0.052	0.071	0.07	-.195*	0.032	0.043	-.046	-.114	-.130	-.079	-.055	-.044	-.052	-.039
Calcium	-.042	-.109	-.088-	0.101	0.147*	0.068	0.028	-.052	-.143*	-.132	0.068	-.075	-.071	-.090
Phosphorus	-.046	-.168-*	0.034	-.270**	0.03	0.085	-.025	0.006	-.033	0.019	0.004	0.005	-.036	0.006
Magnesium	-.075	-.058-	-.106-	-.328-**	0.136	-.145*	0.084	0.103	-.128	0.087	0.028	-.080	0.024	0.024
Iron	-.024	0.031	-.203*	-.271**	-.109	0.14*	0.021	-.192*	0.031	0.071	-.066	0.157*	0.081	-.177*
Zinc	-.032	-.010	-.235*	0.173*	-.074	0.104	-.042	0.018	0.017	0.051	-.040	-.071	0.172*	-.065
Copper	-.099	0.057	-.048	-.119	0.091	-.062	0.007	0.11	0.013	-.075	-.085	-.004	0.165*	-.087

Vitamin A	**0.159***	**-.080**	**-.006**	**-.016**	**-.076**	**-.042**	**0.124**	**-.005**	**0.04**	**0.019**	**0.064**	**0.118**	**-.015**	**-.002**
Vitamin C	**-.054**	**.194***	**0.023**	**-.091**	**0.032**	**-.058**	**0.171***	**0.149**	**0.083**	**-.096**	**-.040**	**-.074**	**0.076**	**-.046**
Thiamin	**0.062**	**0.074**	**0.029**	**0.128**	**-.122**	**0.129**	**0.114**	**0.01**	**0.153***	**0.108**	**0.071**	**0.175***	**0.104**	**0.09**
Riboflavin	**.278****	**-.033**	**0.004**	**0.145***	**-.182***	**.257****	**0.007**	**-.023**	**0.073**	**0.134**	**-.194***	**0.017**	**-.015**	**0.014**

(-)Negative correlation (*) P<0.05 (**)P<0.001

The correlation coefficient between nutrient intake and food habits:
The correlation coefficient between nutrient intake and food habits:

Results showed that athletes' water intake correlated significantly positively (p<0.05) with the size of the meal, number of water cups/day, vegetables and fruit intake, food pattern difference before tournaments, and food pattern difference after tournaments. On the other hand, it had a significant negative (p<0.05) correlation with the kind of food during training and food intake before tournaments (Table, 10).

Table 10: Correlation coefficients between nutrient intake and food habits.

	Water	Energy	Protein	Fat	Ash	Fiber	CHO	Na	K	Ca	P	Mg	Iron	Zinc	Copper	Vit. A	Vit. C	thiamine	riboflavin
Number of meals/day	.007	.115	.106	-.072	.073	.013	.085	.037	-.030	.027	.068	-.097	.095	-.059	.068	-.060	.127	.098	.044
Main meal	-.029	-.055	.012	-.016	-.007	.049	-.027	-.039	.092	.199*	.018	-.090	-.105	.081	-.052	.003	-.124	.093	-.111
Skip meals	-.115	.108	.113	.038	-.092	-.195-*	.154*	-.063	.016	.071	.049	-.029	.176*	.004	-.089	-.204-*	-.009	-.109	.097
Breakfast intake	-.031	.013	.048	-.003	-.028	-.140*	.034	.109	.188*	-.031	-.088	-.009	-.007	-.080	.042	-.020	.010	-.053	.122
Eating outdoors	-.092	.002	.081	-.051	-.054	-.054	.098	.102	-.071	.054	-.022	-.069	-.125	-.063	-.061	-.082	-.095	.029	-.027
Eating with family	-.052	-.035	-.032	-.348-**	-.205-*	-.090	-.108	.052	.043	-.109	-.009	.240*	.017	-.030	-.022	-.145*	-.063	-.059	-.110
Size of meal	.180*	-.170*	-.192-*	-.037	.063	.034	-.174	.086	-.207-*	-.149*	-.174*	.033	-.018	.039	.098	.130	-.097	.174*	-.050
Eating snacks	.044	-.025	.046	.015	.067	-.092	.135	.055	.131	-.122	-.083	.047	.027	.036	.009	.145*	-.035	.057	.049
Number of snacks/day	.050	.004	-.154*	.164*	.137	.032	-.034	-.114	.008	.124	-.060	.111	.002	.040	.085	.111	.032	-.196*	-.132
Kind of snacks	.053	.100	.010	.049	.067	.138	.006	.048	.220*	.163*	-.006	.003	.131	.179*	.090	.240*	-.072	-.009	.036
Eating late	-.124	.214*	.298**	-.071	-.041	-.041	.281**	-.028	.207*	-.078	.013	-.115	.221*	.139	.028	.135	.110	.294**	.154*
Eating during training	-.005	.209*	-.086	.014	-.046	-.003	-.065	.168*	.196*	-.097	-.118	-.121	.247**	-.111	.052	-.116	-.181*	-.084	-.071
Kind of food during training	-.143*	.351**	-.255*	-.024	-.080	-.127	-.221*	.020	.054	-.126	-.252*	-.075	.062	-.045	-.089	-.105	-.161*	-.142*	-.058
Eating after training	.051	-.042	.102	.095	.112	-.034	.091	.065	.103	-.060	-.077	.084	-.012	.012	.097	.100	.046	.003	.021
Kind of food after training	-.073	.019	-.012	.202*	.126	-.087	.016	.065	.005	-.056	.031	.018	-.097	.015	-.023	.078	-.011	.013	.091
Eating Before training	.038	-.049	.015	.038	.108	-.037	-.087	-.078	.179*	-.062	.005	-.025	-.001	.105	.018	.038	-.114	.099	-.081
Kind of food before training	-.255*	-.121	.081	-.134	.264*	.348**	.161*	.182*	.008	-.142*	.095	.368**	-.036	.076	.286*	-.174*	.312*	-.056	.093
Usual Drinks	-.030	-.053	.018	.022	.086	-.082	-.030	-.011	-.129	-.015	-.058	-.026	-.101	-.013	.042	.045	-.002	-.055	.197*
Using of artificial sweeteners	-.036	-.055	-.006	-.088	-.139	-.026	.196*	-.076	-.110	-.129	.016	-.076	-.011	-.032	.050	-.174*	.073	-.056	-.016
Number of artificial sweeteners used	-.026	-.088	-.002	-.200*	-.143*	-.160*	.010	-.165*	-.121	-.134	.096	.209*	-.215*	-.077	.015	-.043	.003	.077	.159*
Number of water cups daily	.155*	-.048	.199*	.057	.050	.173*	-.048	.056	-.170*	.045	.011	.170*	-.165*	.016	.044	.069	-.163	-.055	-.192-*
Vegetables and fruits intake	.146*	.072	.046	.016	.018	.083	.065	.020	.092	.017	-.007	.050	.089	.044	.050	.088	-.032	.005	.075
High Fat food intake	.072	-.038	.063	-.079	.011	-.034	-.001	.148*	-.050	.021	-.161*	-.041	.068	.054	.025	.005	.015	.005	-.081
Drinking milk regularly	.026	-.134	-.125	.122	.041	-.141*	-.117	-.107	-.026	.025	-.154*	.090	-.116	-.037	-.058	-.038	-.020	.110	-.057
Protein drinks	-.063	.093	.049	.053	.092	.056	-.035	-.077	.186*	.022	.027	.055	-.031	-.120	.102	-.079	.052	.031	.072
Food intake before tournaments	-.159*	-.078	-.043	.042	-.063	-.146	-.031	.061	-.016	.024	-.069	-.049	-.085	.042	.006	-.023	-.193-*	.031	-.095
Food pattern difference before tournaments	.183*	-.085	-.163*	-.052	-.115	-.038	-.146*	.010	-.248*	.022	-.126	-.035	-.161*	-.171*	-.036	-.023	-.118	-.367**	-.016
Food pattern after tournaments	.007	-.117	-.142*	.024	.103	-.045	-.134	-.116	.016	.095	-.005	-.002	-.140*	-.060	.021	.040	.075	.143*	-.046
Food pattern difference after tournaments	.238*	-.213*	-.177*	.224*	.247*	.318*	-.253*	.011	-.089	-.020	-.068	.264*	-.034	.008	.134	-.113	.116	-.072	-.084

Importance of healthy nutrition for weight loss	.135	-.100	-.100	.053	.085	.063	-.108	.069	-.023	-.030	-.109	.092	.069	-.090	.035	.009	-.121	-.085	-.276**
Importance of fixed healthy meals	-.089	.070	.072	-.110	-.095	-.042	.126	-.009	.165*	-.145*	-.117	-.176	.147*	.152*	.055	.014	.036	-.063	-.044
Importance of financial resources for healthy nutrition	-.020	-.174*	-.138	-.063	-.090	-.087	-.159*	-.003	-.028	.054	-.057	-.067	-.083	-.004	.043	.041	-.059	-.075	-.046
Importance of healthy nutritintson for sport practice	-.080	-.029	.058	-.190*	-.143*	-.080	.016	.032	.050	.209*	-.034	.242*	-.036	.081	-.058	-.076	-.067	-.033	-.100
knowledge of food components and benefits	-.109	-.015	.101	-.109	-.136	-.174*	-.024	.066	.085	-.178*	.069	-.131	-.043	.092	-.100	-.035	-.096	.010	-.089
Amount of food and energy	.023	.001	.161*	-.038	-.032	-.054	-.025	.036	.202*	-.084	.096	-.056	.129	.053	-.056	-.088	-.107	-.047	-.015
Benefit of not eating before exercise	.067	-.111	-.113	.103	.048	-.045	.050	.065	-.013	-.012	-.014	-.053	.060	.015	-.135	-.036	-.068	.014	-.071
Protein benefit during exercise	.039	-.063	-.006	.015	-.014	-.106	.061	.092	.099	-.065	.051	-.048	-.059	.060	-.226*	-.045	-.147	.092	-.041
Consulting about nutritional needs	-.009	-.030	-.078	-.057	-.025	-.026	.026	.009	.220*	.182*	.071	-.043	-.132	.032	-.022	-.026	-.015	.005	-.203*
Eating meals low in fat and cholesterol	-.054	.030	.017	-.078	-.005	.001	.035	-.008	-.056	-.045	-.003	-.120	-.062	-.078	-.093	.007	-.037	-.158*	.032
Knowing Food content of vitamins & minerals	-.050	.040	.084	.029	.007	-.104	.033	-.100	.186*	.044	-.019	-.106	.105	-.100	-.015	.077	-.078	-.079	.057

(-)Negative correlation (*) P<0.05 (**)P<0.001

With respect to ach intake of athletes, it was significantly positive (p<0.05) with the kind of food before training and the food pattern difference after tournaments. Otherwise, it was significantly negatively correlated (p<0.05) with eating with family, the number of artificial sweeteners used, and the importance of healthy nutrition for sports practice. With regard to athletic fiber intake, it was highly significantly positive (p<0.01) with the kind of food before training and significantly positive (p<0.05) with the number of water cups/day and food pattern difference after tournaments. However, it correlated significantly negatively (p<0.05) with skip meals, breakfast intake, number of artificial sweeteners used, drinking milk regularly, knowledge of food components, and benefits. Carbohydrate intake for athletes was found to have a high positive correlation coefficient (p<0.01) with eating late and type of training and kind of food consumed and has a positive correlation coefficient (p<0.05) with skipping meals, kind of food before training and artificial sweeteners. On the other hand, it correlated significantly negatively (p<0.05) with the kind of food during training, food pattern differences before tournaments, food pattern differences after tournaments and importance of financial resources for healthy nutrition.

Concerning the athlete's sodium intake, it was correlated significantly positive (p<0.05) with eating during training, the kind of food before training, and high-fat food intake. On the other hand, it correlated significantly negatively (p<0.05) with the number of artificial sweeteners used.

It was found that athletic potassium intake correlated significantly positively (p<0.05) with breakfast intake, kind of snacks, eating late, eating during training, eating before training, protein drinks, the importance of fixed healthy meals, type of training and kind of food, consulting about nutritional needs and knowing the food content of vitamins and minerals. Otherwise, it correlated significantly negatively (p<0.05) with the size of the meal, number of water cups/day, and food pattern difference before tournaments. With respect to athletes' calcium intake, it correlated significantly positively (p<0.05) with the main meal, kind of snacks, importance of healthy nutrition for health practice, and consulting about nutritional needs. However, it correlated significantly negatively (p<0.05) with the size of the meal, the kind of food before training, the importance of fixed healthy meals, knowledge of food components, and benefits.

Data showed that athletes' phosphorus intake correlated significantly (p<0.05) with the size of meals, kind of food during training, high-fat food intake, and drinking milk regularly. Concerning athlete's magnesium intake, it was found to be highly significantly positive (p<0.01) with the kind of food before training and significantly positive (p<0.05) with eating with family, the number of artificial sweeteners used, the number of water cups/day, the food pattern difference after tournaments and the importance of healthy nutrition for sports practice. With respect to athlete iron intake, it correlated highly significantly positive ($p<0.01$) with eating during training and significantly positive ($p<0.05$) with skipping meals, eating late, and the importance of fixed healthy meals. On the other hand, it correlated significantly negatively ($p<0.05$) with the number of artificial sweeteners used, the number of water cups/day, and the food pattern difference before tournaments and after tournaments. With regard to athletes' zinc intake, it was found to correlate significantly positively ($p<0.05$) with the kind of snacks and importance of fixed healthy meals. However, it correlated significantly negative ($p<0.05$) with food pattern differences before tournaments.

Concerning athletes' copper intake, it was found to be significantly positive ($p<0.05$) with the kind of food before training but significantly negative ($p<0.05$) with protein benefits during exercise. Vitamin A intake by athletes was found to correlate significantly positively ($p<0.05$) with eating snacks and kinds of snacks. However, it was significantly negatively correlated ($p<0.05$) with skipping meals, eating with family, the kind of food before training, and artificial sweeteners. Vitamin C intake by athletes was found to correlate significantly positively ($p<0.05$) with the kind of food before training but significantly negatively ($p<0.05$) with eating during training, the kind of food during training, and food patterns before tournaments. Concerning thiamine athletes' intake, it was found to correlate highly significantly positively ($p<0.01$) with eating late and significantly positively ($p<0.05$) with the size of meals and food patterns after tournaments. On the other hand, it correlated highly significantly negatively ($p<0.01$) with food pattern differences before tournaments and significantly negatively ($p<0.05$) with the number of snacks, kind of food during training, and eating meals low in cholesterol

Finally, riboflavin intake by athletes was found to have a positive correlation coefficient ($p<0.05$) with eating late, usual drinks, number of artificial sweeteners used. On the other hand, it has a highly negative correlation coefficient ($p<0.01$) with the importance of healthy nutrition for weight loss and a negative correlation coefficient ($p<0.05$) with the number of water cups/day and consulting about nutritional needs.

The correlation coefficient between food consumption patterns and food habits:

Bladi bread athletic consumption was found to be significantly positive ($p<0.05$) with the kind of food after training and eating before training. On the other hand, it correlated significantly negatively ($p<0.05$) with food patterns after tournaments, food pattern differences after tournaments, importance of fixed healthy meals. Consumption of Shami bread by athletes was found to have a significant positive ($p<0.05$) correlation coefficient with the main meal, breakfast intake, eating snacks, kind of food during training, and drinking milk regularly. On the other hand, it has a significant negative ($p<0.05$) correlation coefficient with food pattern differences after tournaments and the importance of healthy nutrition for weight loss.

With regard to fino bread athletic consumption, it had a positive correlation coefficient ($p<0.05$) with the kind of snacks, high-fat food intake, drinking milk regularly, and food pattern after tournaments. However, it had a negative correlation coefficient ($p<0.05$) with the kind of the food before training and food pattern difference after tournaments.

With respect to the consumption of toast by athletes, it had a positive correlation coefficient ($p<0.05$) with drinking milk regularly, food patterns after tournaments, importance of financial resources for healthy nutrition, knowledge of the food components and benefits, amount of food and energy and knowing the food content of vitamins and minerals. On the other hand, it had negative correlation coefficient ($p<0.05$) with the main meal, the kind of food before training, and the number of artificial sweeteners used. Consumption of rice was found to be highly significantly positive ($p<0.01$) with the number of artificial sweeteners used and significantly positive ($p<0.05$) with the kind of food during training. Otherwise, it had a significant negative correlation ($p<0.05$) with food patterns after tournaments, the importance of fixed healthy meals, and the importance of healthy nutrition for sports practice. Concerning pasta consumption, it was found to be highly significantly positive ($p<0.01$) with the number of artificial sweeteners used and significantly positive ($p<0.05$) with eating late and high-fat food intake. However, pasta consumption was found to have a significant negative correlation coefficient ($p<0.05$) with skip meals, kind of snacks, the importance of fixed healthy meals, and consulting about nutritional needs.

Meat consumption was found to have a significant positive correlation coefficient ($p<0.05$) with breakfast intake, eating with family, eating before training, and usual drinks, but a significant negative correlation coefficient ($p<0.05$) with the importance of healthy nutrition for weight loss. Concerning chicken consumption, it had a significant positive correlation coefficient ($p<0.05$) with eating before training, protein drinks, and amount of food and energy. Fish consumption was found to have a significant positive correlation ($p<0.05$) coefficient with the main meal and artificial sweeteners. On the other hand, it had a significant negative correlation coefficient with eating during training, the number of water cups/day, the importance of financial resources for healthy nutrition, knowledge of food components and benefits, and knowing the food content of vitamins and minerals. Liver consumption was found to have a high significant positive ($p<0.01$) correlation coefficient with the kind of food after training and a significant positive ($p<0.05$) correlation coefficient with breakfast intake, number of snacks, kind of food before training, knowing the food content of vitamins and minerals. However, it had a negative correlation coefficient with the size of the meal, the kind of food during training, food pattern after tournaments, and food pattern difference after tournaments.

With respect to bean consumption, it had a highly significant correlation coefficient ($p<0.05$) with the number of artificial sweeteners used and a positive significant correlation ($p<0.05$) coefficient with breakfast intake, eating during training, kind of food after training, usual drinks and drinking milk regularly. Lentil consumption was found to have a highly significant positive ($p<0.01$) correlation coefficient with the importance of financial resources for healthy nutrition and had a significant positive ($p<0.05$) correlation coefficient with the kind of snacks, eating during training, eating before training, food intake before tournaments, food pattern difference after tournaments, importance of fixed healthy meals, amount of food and energy, type of training and kind of food, protein benefit during exercise, knowing food content of vitamins and minerals. However, it had a significant negative ($p<0.05$) correlation coefficient with eating snacks and, kinds of food before training. With regard to chickpeas consumption, it was correlated significantly positive ($p<0.05$) with breakfast intake, eating before training, and usual drinks.

Concerning tomato consumption, it could be noticed that it correlated significantly positively ($p<0.05$) with breakfast intake, number of snacks/day, eating before training, drinking milk regularly, the importance of healthy nutrition for weight loss, the importance of financial resources for healthy nutrition, the amount of food and energy and knowing the food content of vitamins and minerals. On the other hand tomato consumption was found to be significantly negatively correlated ($p<0.05$) with the number of artificial sweeteners used. With respect to cucumber consumption, it correlated significantly positively ($p<0.05$) with high-fat food intake and the importance of healthy nutrition for weight loss. However, it correlated significantly negatively ($p<0.05$) with the kind of snacks, and eating meals low in fat and cholesterol. Data showed that lettuce consumption correlated significantly positively ($p<0.05$) with eating with family, high-fat food intake, the importance of healthy nutrition for weight loss, the importance of financial resources for healthy nutrition, and type of training and kind of food. On the other hand, lettuce consumption correlated highly significantly negative ($p<0.01$) with the amount of food and energy and correlated significantly negative

($p<0.05$) with food pattern difference before tournaments, food pattern after tournaments, and the importance of fixed healthy meals.

Carrot consumption was found to correlate significantly positively ($p<0.05$) with the kind of food during training, high-fat food intake, and food pattern difference after tournaments. Otherwise, it correlated significantly negatively ($p<0.05$) with the importance of healthy nutrition for sports practice, knowledge of food components, and benefits. Spinach consumption was recorded to correlate highly significantly positive ($p<0.01$) with vegetable and fruit intake and food pattern difference after tournaments and significantly positively correlated ($p<0.05$) with food pattern difference before tournaments and benefit of not eating before exercise. On the other hand, spinach consumption was found to be correlated significantly negatively ($p<0.05$) with the main meal, the kind of food after training, and drinking milk regularly. Arugula consumption correlated highly significantly positive ($p<0.01$) with eating outdoors and number of snacks/day and correlated significantly positive ($p<0.05$) with size of meal, kind of snacks, kind of food after training, food pattern difference before tournaments, benefit of not eating before exercise. However, it correlated significantly negative ($p<0.05$) with the importance of fixed healthy meals.

Peas consumption was found to correlate highly significantly positive ($p<0.01$) with the kind of food before training and to correlate significantly positive ($p<0.05$) with the kind of food during training, number of water cups/day, knowledge of food components and benefits and knowing food content of vitamins and minerals. Otherwise, it correlated significantly negative ($p<0.05$) with the number of meals/day, kind of snacks, food pattern after tournaments, and benefit of not eating before exercise. Green bean consumption correlated significantly positive ($p<0.05$) with eating late and eating during training, However, it correlated significantly negative ($p<0.05$) with the kind of snacks, kind of food after training, usual drinks, and high-fat food intake. Zucchini consumption was found to be correlated significantly positive ($p<0.05$) with food pattern differences before tournaments and the importance of fixed healthy meals. On the other hand, Zucchini consumption correlated significantly negative ($p<0.05$) with the number of water cups/day, amount of food and energy, consulting about nutritional needs.

Results in Table (11) showed that Okra consumption was correlated highly significantly positive ($p<0.01$) with eating meals low in fat and cholesterol and was correlated significantly positive ($p<0.05$) with the size of meals, eating snacks, eating before training, and high-fat food intake. On the other hand, Okra consumption was correlated significantly negative ($p<0.05$) with the kind of food during training, the kind of food after training, the usual drinks and type of training, and the kind of food. Milk consumption was recorded to be correlated highly significantly positive ($p<0.01$) with the number of snacks/day and correlated significantly positive ($p<0.05$) with skip meals, breakfast intake, eating before training, high-fat food intake, and the benefit of not eating before exercise. On the other hand milk consumption was found to correlate significantly negative ($p<0.05$) with eating meals low in fat and cholesterol. Yogurt consumption was found to have significant positive ($p<0.05$) correlation coefficient with the number of meals/day, the importance of healthy nutrition for weight loss, and knowledge of food components and benefits. However, it correlated significantly negative ($p<0.05$) with eating snacks and kind of food before training.

With regard to cheese consumption, it was found to be highly significantly positive ($p<0.01$) with the kind of food after training and significantly positive ($p<0.05$) with eating before training, the kind of food before training and the importance of healthy nutrition for weight loss. Otherwise, it correlated significantly negatively ($p<0.05$) with food pattern differences before tournaments. Concerning apple consumption, it was found to be highly significantly positive ($p<0.01$) with the kind of food before training, the kind of food after training, and the number of artificial sweeteners used and correlated significantly positively ($p<0.05$) with eating late, eating after training, eating before training, usual drinks, protein drinks, food intake before tournaments, knowledge of food components and benefits and amount of food and energy. On the other hand, it was found to be significantly negatively correlated ($p<0.05$) with food patterns after tournaments and food pattern differences after tournaments. Banana consumption correlated highly significantly positively ($p<0.01$) with the kind of food after training, the number of artificial sweeteners used, and protein drinks and correlated significantly positive ($p<0.05$) with eating snacks, eating late, the kind of food before training, usual drinks, amount of food and energy, eating meals low in fat and cholesterol. However, it correlated significantly negative ($p<0.05$) with food patterns after tournaments and food pattern differences after tournaments.

Table 11: Correlation coefficients between food consumption pattern and food habits

	Baladi bread	Shami bread	Fino bread	Toast	Rice	Pasta	Meat	Chicken	Fish	Liver	Bean	Lentil	Chick peas	Tomatoes	Cucumber	Lettuce	Carrots	Spinach	Arugula	Peas	Green Beans	Zucchini	Okra
Number of meals/day	.094	-.094	-.003	.087	-.066	.125	.106	.075	-.082	.033	.031	.150	-.023	-.136	-.093	-.093	.069	-.089	-.064	-.154*	-.020	-.008	-.106
Main meal	.008	.148*	-.086	-.156*	.068	.052	.134	-.014	.197*	.085	.058	-.083	.042	.011	-.033	.063	-.068	-.187*	-.105	.067	.077	-.019	-.091
Skip meals	-.033	-.033	-.030	-.050	-.079	-.171*	.103	-.071	-.007	.126	.002	.078	.047	.052	.055	-.061	.039	.009	.020	-.080	-.038	-.059	-.058
Break fast in take	.015	.150*	-.104	-.138	-.007	-.085	.146*	.000	-.020	.177*	.242*	.094	.157*	.156*	.090	-.061	.039	.019	-.055	.020	.017	.000	-.073
Eating outdoors	-.095	.053	.041	-.130	-.053	-.093	.020	-.113	.102	.018	.111	-.023	.009	-.049	-.042	.101	.022	.097	.250**	.062	.119	.120	-.024
Eating with family	-.029	.004	-.053	-.039	.113	-.078	.206*	.006	.083	-.097	.031	.098	-.076	.021	.024	.229*	.049	.076	.066	-.119	-.008	.007	.011
size of meal	-.020	.020	-.050	.134	.067	.054	-.003	.028	.059	-.143*	-.118	.066	-.084	.037	.046	.049	.033	-.074	.202*	.069	.139	-.016	.163*
Eating snacks	.115	.244*	-.118	-.097	.025	.129	.005	-.079	-.097	-.049	-.062	-.181*	.001	-.023	-.081	.128	.000	-.022	-.047	-.122	-.107	-.026	.207*
Number of snacks/day	-.055	-.200*	.018	.123	.043	-.074	.054	-.011	.072	.147*	.142	.115	.001	.242*	.040	-.039	-.005	.079	.318**	-.054	-.085	-.083	.055
Kind of snacks	-.094	-.105	.258*	.107	.017	-.197*	-.051	-.034	-.001	-.022	.052	.198*	-.067	.130	-.156*	-.101	-.136	.122	.248*	-.215*	-.199*	.021	-.026
Eating late	.116	.118	.133	-.067	-.004	.173*	-.111	.086	.042	.003	.131	-.037	-.115	-.135	-.077	-.049	-.033	.030	-.010	-.006	.164*	.044	.017
Eating during training	-.051	-.041	-.073	-.054	-.013	-.104	-.028	.095	-.140*	.018	.145*	.215*	-.040	.020	.064	.109	-.027	.030	.014	-.109	.151*	-.102	.067
Kind of food during training	-.035	.143*	.030	.089	.241*	-.016	.090	.081	.004	-.173*	-.010	.097	-.001	-.118	-.131	-.100	.234*	-.103	.072	.148*	.077	-.098	-.218*
Eating after training	.017	.137	.121	.046	.044	.132	-.027	.088	.018	-.012	-.036	.016	-.015	.112	.127	.102	-.019	.115	.084	.072	-.038	.046	.049
Kind of food after training	.255*	-.097	-.033	.115	-.009	.056	-.042	.082	.017	.296**	.238*	-.053	-.021	.133	-.040	-.096	-.088	-.156*	.237*	.019	-.188*	-.057	-.143*
Eating Before training	.180*	-.128	-.111	.132	.015	.086	.143*	.166*	-.031	.031	-.040	.152*	.157*	.236*	.127	.010	.053	-.100	.037	.029	.013	.016	.163*
Kind of food before training	.112	.121	-.157*	-.237*	.063	-.071	.000	-.132	-.103	.248*	-.035	-.145*	-.016	.017	-.075	.018	-.077	-.116	.000	.347**	-.058	-.134	-.067
Usual Drinks	.086	-.032	-.098	-.028	-.070	-.056	.147*	-.073	.093	.075	.234*	.022	.152*	.004	-.060	-.056	-.101	-.097	.076	-.045	-.218*	-.129	-.179*
Using of artificial sweeteners	-.046	-.039	-.041	.053	-.024	-.051	-.025	-.061	.168*	.029	-.013	-.123	.031	.069	.137	-.071	-.017	-.008	-.115	.059	-.051	.062	.076
Number of artificial sweeteners used	.026	.079	.061	-.288*	.347**	.517**	-.132	-.101	.030	-.122	.318**	-.101	.000	-.155*	-.065	.034	-.040	-.041	-.022	.059	.079	.027	-.022
Number of water cups daily	-.055	-.055	.021	.040	-.091	-.060	.077	-.049	-.160*	-.005	.124	.063	-.085	-.012	-.127	.016	.000	-.047	.120	.201*	-.005	-.174*	-.044
Vegetables and fruits intake	.103	.039	.117	.050	.001	-.007	.010	.057	-.098	-.075	.014	.054	-.065	.028	-.023	.006	.043	.293**	.080	.003	-.029	-.113	.001
High Fat food intake	-.128	.029	.202*	-.040	.119	.156*	.084	.034	-.056	-.052	.103	-.047	.081	.048	.218*	.173*	.171*	.007	-.017	.123	-.244*	.103	.213*
Drinking milk regularly	.034	.185*	.146*	.210*	-.093	-.091	.043	-.036	.003	.053	.227*	-.025	.028	.224*	.128	.071	.046	-.163*	.127	.055	.043	-.022	.088
Protein drinks	.085	.136	-.033	-.110	.028	-.036	.028	.192*	.073	.112	.003	.074	.031	.055	-.010	-.020	.109	.094	-.008	-.033	-.036	.021	.069
Food intake before tournaments	.032	.130	-.133	-.128	-.077	-.108	-.081	-.090	-.032	-.017	.060	.186*	.137	.069	.116	.103	.030	-.001	.115	-.023	.040	-.127	-.031
Food difference	-.045	.075	.106	.001	.185	-.098	.054	-.013	-.022	.050	.218	.112	-.077	-.081	-.105	-.189*	.033	.218*	.141*	.128	.102	.141*	.120
Food pattern after tournaments	-.143*	.113	.147*	.153*	-.165*	-.120	-.048	.004	-.071	-.163*	-.120	.101	.113	.089	.102	-.157*	-.074	-.076	.042	-.159*	.084	.065	.085
Food patterns difference	-.191*	-.171*	-.143*	-.079	-.040	-.095	.099	-.077	-.086	-.160*	.008	.261*	-.059	-.137	-.090	-.064	.295*	.479**	.023	.051	.113	-.136	.074
Importance of healthy nutrition for weight loss	.079	-.167*	.093	.138	.121	.064	-.149*	-.137	-.122	-.024	.038	.052	-.028	.189*	.141*	.224*	.111	-.102	.027	-.118	.132	.022	-.097
Importance of fixed healthy meals	-.168*	.000	.093	-.030	-.169*	-.154*	-.094	.093	-.065	.097	.087	.233*	.066	.128	.023	-.163*	.021	.048	-.159*	.029	.003	.248*	-.052
Importance of financial resources for healthy nutrition	-.132	.023	.009	.227*	-.114	-.157	-.045	.128	-.161*	.096	.072	.253**	-.085	.193*	.081	.195*	.004	.111	.106	-.034	.084	.045	.138
Importance of healthy nutrition for sport practice	.042	-.079	.054	.097	-.145*	.056	.089	-.089	.060	.015	.047	.089	.028	.017	-.021	-.124	-.156*	-.049	-.010	-.138	.082	-.035	.021
knowledge of food components and	-.034	-.002	.068	.185*	-.101	.028	-.055	-.056	-.178*	.080	.088	.007	.069	.037	.027	-.080	-.183*	.063	-.035	.208*	.076	.056	.081

benefits																							
Amount of food and energy	.040	-.048	.069	.221*	.030	.013	.007	.169	-.040	.047	.057	.238*	-.033	.143*	.033	-.264**	-.030	-.048	-.052	.059	.028	-.160*	-.049
Type of training and kind of food	-.069	.011	-.040	.026	-.107	-.008	-.066	.000	-.110	-.089	.008	.153*	-.086	-.098	-.078	.157*	-.105	-.115	.042	-.133	.107	-.035	-.144*
Benefit of not eating before exercise	-.058	.035	-.001	.007	-.027	-.058	-.003	-.128	-.075	-.016	-.064	.048	.006	.010	-.002	.005	.101	.175*	.165*	-.165*	.006	-.038	-.046
Protein benefit during exercise	-.137	-.023	.064	.093	.057	-.084	.103	.099	.001	.039	.037	.175*	.018	.106	.073	.108	-.050	.017	.151	.074	.099	-.014	.023
Consulting about nutritional needs	-.030	.108	-.126	-.028	-.034	-.198-*	-.130	-.035	-.044	.020	.035	.029	-.120	.057	.066	-.022	-.051	-.037	.125	-.127	.019	-.150*	-.081
Eating Meals low in fat and cholesterol	.044	-.013	.025	-.093	.016	-.074	-.038	.010	-.051	-.014	-.104	.096	.011	-.086	-.163*	.044	-.057	-.063	.014	-.069	-.098	-.071	.258**
Knowing Food content of vitamins & minerals	.096	-.017	.018	.146*	.048	.103	.038	.118	-.140*	.191*	-.065	.172*	.124	.221*	.181	-.067	.086	-.005	-.112	.256*	.024	.124	-.032

Table (11): cont'd

	Milk	Yogurt	Cheese	Apple	Banana	Orange	Tangerine	Guava	Pears	Fig	Tea	Coffee	Nescafe	Tea with milk	Juices	Ghee	Butter	Corn oil	Olive oil	Cream
Number of meals/day	.064	.217*	-.021	.011	.024	.022	.061	.064	.118	.055	.003	.044	.108	.037	-.051	.078	.156*	-.061	.186*	.159*
Main meal	.063	.131	.009	.112	.089	.097	.133	.148*	.021	-.028	.011	-.017	.055	-.113	.034	.029	-.095	.069	-.030	-.109
Skip meals	.179*	.032	-.023	-.063	-.067	-.031	-.169*	-.111	-.009	-.058	.110	.119	-.004	.139	-.130	-.014	-.038	-.057	.043	.033
Breafast in take	.178*	-.002	.019	.018	.061	.021	-.093	.010	.019	-.021	.131	.026	-.065	.106	.112	.143*	.063	.152*	.126	.131
Eating outdoors	.128	-.002	-.051	.003	-.009	-.084	-.030	.092	.049	-.046	-.075	-.011	-.032	.086	.121	-.098	-.084	-.161*	-.196*	.034
Eating with family	.110	.112	.020	.167	.118	.109	.130	.113	.105	.062	-.017	.055	.060	.169*	-.139	.036	.247**	-.100	.211*	.201*
size of meal	.137	.067	.029	-.034	-.123	-.077	-.044	-.127	-.079	.055	-.067	-.052	-.008	.021	-.028	-.132	.057	-.014	-.034	.114
Eating snacks	.038	-.153*	-.046	.104	.174*	.184*	.048	.077	-.033	.050	.082	-.081	-.031	-.011	-.117	.060	.023	.017	.043	-.027
Number of snacks/day	.291**	-.042	.019	.009	.014	.046	.000	.025	.033	.036	-.090	-.105	.116	.133	-.030	-.073	.162*	.041	.048	.062
Kind of snacks	.082	-.013	-.068	.042	.132	.098	.082	.025	.179*	.266*	.033	-.090	.140*	.026	-.117	.050	.219*	.141*	.229*	.193*
Eating late	.105	.119	-.078	.166*	.162*	.139	.137	.131	.141*	.156*	.005	-.072	.181*	.017	.112	.159	.102	-.053	-.026	.069
Eating during training	.000	.041	-.050	-.005	-.060	-.112	-.081	.024	.073	.074	-.104	.104	-.047	.138	-.057	.088	-.030	.013	-.144*	.059
Kind of food during training	-.058	-.098	.018	-.137	-.088	-.110	-.118	-.079	-.019	.027	.117	-.038	.024	.106	.138	-.059	.013	-.002	.101	-.085
Eating after training	.137	-.117	.102	.144*	.129	.099	.003	.050	-.049	.062	.119	.159*	.211*	.109	-.061	.009	-.013	-.122	-.090	.020
Kind of food after training	-.046	-.053	.286**	.346**	.449**	.367**	.356**	.241*	.176*	.194*	.368**	.123	-.033	-.049	.107	.176*	-.084	.342**	.166*	.176*
Eating Before training	.186*	-.090	.182*	.167*	.136	.062	.027	.027	.006	.140*	.125	.091	.021	.079	-.010	-.030	-.049	-.180*	.157*	-.001
Kind of food before training	-.096	-.167*	.195*	.338**	.329*	.337**	.146*	.339**	.271*	.142*	.417**	.125	-.089	-.110	-.019	.130	-.049	-.024	-.031	.076
Usual Drinks	.107	.057	.076	.145*	.182*	.224*	.063	.065	.017	.071	.188*	-.076	-.041	.075	-.021	.028	.033	-.084	.113	.100
Using of artificial sweeteners	-.006	.071	-.066	.042	.050	.004	.123	.059	.034	.011	-.101	.001	-.101	.089	-.177*	-.127	.058	-.180*	-.059	-.092
Number of artificial sweeteners used	.005	-.022	-.062	.304**	.309**	.045	-.052	.290*	.080	.097	-.054	.155*	-.106	.040	-.231*	-.172*	.410*	-.495**	-.056	-.154*
Number of water cups daily	-.082	.032	.016	.009	-.034	-.015	-.036	.114	.100	-.031	.097	.027	.124	-.012	.074	-.048	.001	.067	-.026	.000
Vegetables and fruits intake	.016	-.009	.060	-.052	-.048	-.054	-.098	-.038	-.023	.079	.089	.008	.103	.026	.005	.009	-.096	-.239*	.046	.048
High Fat food intake	.145*	.007	-.062	-.094	-.124	-.053	.048	-.060	-.099	-.077	-.103	.012	.188*	-.056	-.012	-.179*	-.104	-.130	-.183*	.014
Drinking milk regularly	.078	-.023	.033	.114	.065	.069	-.009	-.023	-.068	-.036	.191*	.124	.167*	.164*	.080	.027	.002	-.096	.252**	.057
Protein drinks	.098	-.027	.093	.200*	.256**	.135	.141*	.085	-.001	.034	.127	.158*	.043	.063	.088	.161*	.117	-.119	.178*	.018
Food intake before tournaments	.085	.026	-.012	.151*	.128	.108	.063	.091	.099	.169*	-.090	.186*	.120	.140*	.053	.039	.006	.097	.003	.059
Food difference	.119	.073	-.287*	.020	.100	-.022	-.041	.003	-.011	-.046	-.112	-.029	.050	.044	-.112	-.042	-.038	-.126	-.116	.013
Food pattern after tournaments	-.055	.085	-.091	-.206-*	-.175*	-.200*	-.139	-.212*	-.353**	-.155*	-.101	.043	.153*	.044	.153*	.068	.047	-.143*	.050	-.044
Food patterns difference	-.021	.133	-.023	-.208*	-.195*	-.196*	-.172*	-.147*	-.086	-.079	-.102	.111	.008	-.168*	-.176*	-.157*	-.219*	.092	-.215*	-.122
Importance of healthy nutrition for weight loss	.031	.169*	.140*	.086	.064	.138	.141*	.083	.053	.116	.085	-.019	-.032	.086	-.166*	-.090	.188*	-.067	.071	.178*
Importance of fixed healthy meals	.000	.064	.073	.102	.044	.082	.077	.066	-.064	-.036	.107	.086	-.004	-.005	.003	-.077	.136	.112	.095	.032
Importance of financial resources for healthy nutrition	-.022	.209*	-.071	-.002	-.038	-.076	.019	.088	.038	.006	-.057	.038	.070	.090	-.034	.053	.206*	.131	.149*	.056
Importance of healthy nutritintson for sport practice	-.044	.104	.041	.108	.086	.116	.020	.147*	.118	.159*	-.013	.044	-.001	.108	-.099	.098	.179*	.065	-.022	.120
knowledge of food components and benefits	.008	.184*	.117	.145*	.139	.139	.098	.130	.021	.051	-.079	.089	.199*	.197*	.033	.139	.206*	-.038	.221*	.253**
Amount of food and energy	.057	.052	.137	.144*	.142*	.152*	.146*	.137	.079	.110	.070	.115	.206*	.123	.062	.166*	.125	.100	.236*	.092

Type of training and kind of food	.017	-.076	.012	-.054	-.048	-.077	-.060	.029	.082	.093	.061	.089	-.032	.102	-.035	.061	-.199*	-.061	-.177*	-.034
Benefit of not eating before exercise	.169*	.051	-.036	-.111	-.104	-.123	-.123	-.003	.012	.000	-.057	.062	.003	.150*	-.074	.025	.072	.165*	.044	.058
Protein benefit during exercise	.135	.106	.009	.013	.023	-.051	.047	.031	-.015	.007	.047	.181*	.019	-.012	-.058	.106	.048	.126	.194*	.186*
Consulting about nutritional needs	.093	-.056	.009	.032	-.012	-.018	.039	.014	-.064	.017	-.013	.080	.145*	.129	.060	.097	-.030	.091	-.029	.018
Eating Meals low in fat and cholesterol	-.155*	.022	.077	.117	.178*	.096	.065	.099	.048	.168*	.023	.105	-.001	-.061	-.182*	-.040	-.085	.018	-.019	.018
Knowing of Food content of vitamins & minerals	.081	-.020	-.018	.066	.139	.167*	.123	.037	-.080	.028	.095	-.079	-.026	.084	-.011	-.027	.115	-.066	.169*	-.055

(-)Negative correlation (*) P<0.05 (**)P<0.001

With regard to cheese consumption, it was found to be correlated highly significantly positive (p<0.01) with the kind of food after training and correlated significantly positive (p<0.05) with eating before training, the kind of food before training and importance of healthy nutrition for weight loss. Otherwise, it correlated significantly negative (p<0.05) with food pattern differences before tournaments. Concerning apple consumption, it was found to be correlated highly significantly positive (p<0.01) with the kind of food before training, the kind of food after training, and the number of artificial sweeteners used and correlated significantly positive (p<0.05) with eating late, eating after training, eating before training, usual drinks, protein drinks, food intake before tournaments, knowledge of food components and benefits and amount of food and energy. On the other hand, it was found to be correlated significantly negative (p<0.05) with food patterns after tournaments and food pattern differences after tournaments. Banana consumption correlated highly significantly positive (p<0.01) with the kind of food after training, the number of artificial sweeteners used, and protein drinks and correlated significantly positive (p<0.05) with eating snacks, eating late, kind of food before training, usual drinks, amount of food and energy, eating meals low in fat and cholesterol. However, it correlated significantly negative (p<0.05) with food patterns after tournaments and food pattern differences after tournaments.

With respect to orange consumption, it was recorded (Table 11) to be highly significantly positive(p<0.01) with the kind of food before training and correlated significantly positive (p<0.05) with eating snacks, usual drinks, amount of food and energy and knowing food content of vitamins and minerals. On the other hand, it correlated significantly negatively (p<0.05) with food patterns after tournaments and food pattern differences after tournaments. Concerning tangerine consumption, data showed that it correlated highly significantly positively (p<0.01) with the kind of food after training and significantly positively (p<0.05) with the kind of food before training, protein drinks, the importance of healthy nutrition for weight loss and the amount of food and energy. However, it correlated significantly negatively (p<0.05) with skipping meals and food pattern differences after tournaments. Guava consumption correlated highly positively (p<0.01) with the kind of food before training and significantly positive (p<0.05) with the main meal, the kind of food after training, the number of artificial sweeteners used, and the importance of healthy nutrition for sports practice. However, it correlated significantly negative (p<0.05) with food patterns after tournaments and food pattern differences after tournaments.

Pear consumption was found to be correlated significantly positive (p<0.05) with the kind of snacks, eating late, the kind of food after training, kind of food before training but correlated highly significantly negative (p<0.01) with food patterns after tournaments. Results of table 11 Showed that fig consumption correlated significantly positive (p<0.05) with the kind of snacks, eating late, the kind of food after training, eating before training, the kind of food before training, food intake before tournaments, the importance of healthy nutrition for sport practice and eating meals low in fat and cholesterol. On the other hand, fig consumption was found to correlate significantly negative (p<0.05) with food patterns after tournaments. With respect to tea consumption, it was found to be correlated highly significantly positive

($p<0.01$) with the kind of food after training and the kind of food before training and correlated significantly positive ($p<0.05$) with usual drinks and drinking milk regularly. Concerning coffee consumption, it correlated significantly positive ($p<0.05$) with eating after training, number of artificial sweeteners used, protein drinks, food intake before tournaments, and protein benefit during exercise.

With regard to Nescafe consumption, it was found to correlate significantly positive ($p<0.05$) with the kind of snacks, eating late, eating after training, high-fat food intake, drinking milk regularly, food patterns after tournaments, knowledge of food components and benefits, amount of food and energy and consulting about nutritional needs. Tea with milk consumption was found to be correlated significantly positive ($p<0.05$) with eating with family, drinking milk regularly, food intake before tournaments, knowledge of food components, and benefits and benefits of not eating before exercise. On the other hand, it was correlated significantly negative ($p<0.05$) with food pattern differences after tournaments. Juice consumption was correlated significantly positive ($p<0.05$) with food patterns after tournaments. However, it was correlated significantly negative ($p<0.05$) with artificial sweeteners, the number of artificial sweeteners used, food pattern differences after tournaments, the importance of healthy nutrition for weight loss, and eating meals low in fat and cholesterol.

Ghee consumption was found to correlate significantly positive ($p<0.05$) with breakfast intake, eating late, protein drinks, and amount of food and energy. Otherwise, it correlated significantly negative ($p<0.05$) with the number of artificial sweeteners used, high-fat food intake, and food pattern difference after tournaments. Butter consumption correlated highly significantly positive ($p<0.01$) with eating with family and the number of artificial sweeteners used and correlated significantly positive ($p<0.05$) with the number of meals/day, number of snacks/day, kind of snacks, the importance of healthy nutrition for weight loss, the importance of financial resources for healthy nutrition, the importance of healthy nutrition for sports practice and knowledge of food components and benefits. On the other hand, butter consumption correlated significantly negative ($p<0.05$) with food pattern differences after tournaments and type of training and kind of food. Concerning corn oil consumption, it was found to be correlated highly significantly positive ($p<0.01$) with the kind of food after training and correlated significantly positive ($p<0.05$) with breakfast intake, kind of snacks, benefit of not eating before exercise. On the other hand, it correlated highly significantly negative ($p<0.01$) with the number of artificial sweeteners used and correlated significantly negative ($p<0.05$) with eating outdoors, eating before training, artificial sweeteners, vegetable and fruit intake, and food patterns after tournaments.

With regard to olive oil consumption, it could be noticed that it was correlated highly significantly positive ($p<0.01$) with drinking milk regularly and correlated significantly positive ($p<0.05$) number of meals/day, eating with family, kind of snacks, kind of food after training, eating before training, protein drinks, importance of financial resources for healthy nutrition, knowledge of food components and benefits, amount of food and energy, protein benefit during exercise and knowing food content of vitamins and minerals. On the other hand, it was correlated significantly negative ($p<0.05$) with eating outdoors, eating during training, high-fat food intake, food pattern difference after tournaments, and type of training and kind of food. Finally, cream consumption was found to correlate highly significantly positive ($p<0.01$) with knowledge of food components and benefits and correlated significantly positive ($p<0.05$) with the number of meals/day, eating with family, kind of snacks, kind of food after training, importance of healthy nutrition for weight loss and protein benefit during exercise. However, cream consumption correlated significantly negative ($p<0.05$) with the number of artificial sweeteners used.

The correlation coefficient between nutrient intake and food consumption pattern:

There is a positive high significant (p<0.01) correlation coefficient between water intake and pasta and tangerine consumption (Table, 12). Also, water intake correlated significantly positive (p<0.05) with rice, apple, orange, and fig consumption. On the other hand, there are negative correlation coefficients (p<0.05) between water intake and Shami bread, liver, tangerine, Guava Pears, fig, and ghee consumption. With respect to energy intake, it could be noticed that it correlated highly significantly positively (p<0.01) with tangerine and fig consumption and correlated significantly positive (p<0.05) with Baladi bread, apple, banana, orange, and tea consumption. On the other hand, it correlated highly negative (p<0.01) with green beans consumption and correlated significantly negative (p<0.05) with toast, fish, yogurt, arugula, peas, juices, and olive oil consumption. Concerning protein intake, it was found to be correlated highly significantly positive (p<0.01) with orange, tangerine, pears, fig, and ghee consumption. Also, it correlated significantly positive (p<0.05) with Baladi bread, pasta, apple, banana, guava, and tea consumption. However, it correlated highly significantly negative (p<0.01) with carrots and correlated significantly negative (p<0.05) with arugula and olive oil consumption.

Results indicated that fat intake correlated significantly positive (p<0.05) with carrots and cream consumption, but correlated significantly negative (p<0.05) with bean, zucchini, butter, and olive oil consumption. With respect to ash consumption, it correlated significantly positive (p<0.05) with baladi bread and pasta consumption. On the other hand, it correlated highly significantly negative (p<0.01) with zucchini consumption and correlated significantly negative (p<0.05) with shami bread, fino bread, toast, liver, bean, green beans, apple, guava, pears, tea with milk, butter, and olive oil consumption. Fiber intake was recorded (Table, 12) to correlate significantly positive (p<0.05) with rice and orange consumption. On the other hand, it correlated significantly negative (p<0.05) with shami bread, fino bread, liver, milk, apple, banana, tangerine, guava, fig, butter, and olive oil consumption. With regard to carbohydrate intake, it was found to be correlated highly significantly positive (p<0.01) with pears, fig, and tea consumption and correlated significantly positive (p<0.05) with banana, orange, tangerine, and guava consumption. However, carbohydrate intake correlated significantly negative (p<0.05) with toast, tomatoes, cucumber, arugula, and olive oil consumption.

Sodium intake was correlated highly significantly positive (p<0.01) with cream consumption and correlated significantly positive (p<0.05) with guava and pears consumption. Otherwise, it correlated significantly negative (p<0.05) with carrots consumption. Potassium intake correlated significantly positive (p<0.05) with Baladi bread, Shami bread, banana, orange, pears, fig, Nescafe, and olive oil consumption but correlated significantly negative (p<0.05) with yogurt and carrots consumption. Concerning calcium intake, it was found to be correlated significantly positive (p<0.05) with spinach, arugula, Nescafe, and juices consumption. On the other hand, calcium intake was found to correlate significantly negative (p<0.05) with guava consumption. Phosphorus intake correlated significantly positive (p<0.05) with toast, and ghee, significantly negative (p<0.05) with green beans consumption. Magnesium intake was correlated highly significantly positive (p<0.01) with tangerine consumption and correlated significantly positive (p<0.05) with apple, orange, guava, pears, fig, and juices consumption.

Concerning iron intake, it correlated highly significantly positive (p<0.01) with orange intake and correlated significantly positive (p<0.05) with milk, tangerine, pears, and fig consumption. On the other hand, iron intake was found to correlate significantly negative (p<0.05) with lettuce and juice consumption. Zinc intake correlated highly significantly positive (p<0.01) with carrots and correlated significantly positive (p<0.05) with milk, pears, Nescafe, and cream consumption. Otherwise, it correlated significantly negative (p<0.05) with green beans consumption. Copper intake correlated significantly positive (p<0.05) with cucumber consumption. On the other hand, copper intake correlated highly significantly positive (p<0.01) with olive oil consumption, and correlated significantly (p<0.05) negative with fino bread, fish, liver, and green beans consumption. Vitamin A intake was found to be correlated significantly positive (p<0.05) with baladi bread and pasta consumption. On the other hand, it correlated significantly negative with fish and liver consumption. With regard to vitamin C, it correlated significantly negative (p<0.05) with tangerine, guava, coffee, and butter consumption.

Concerning thiamine consumption, it correlated highly significantly positive (p<0.01) with shami bread and correlated significantly positive (p<0.05) with Baladi bread, chicken, and cream consumption. However, it correlated significantly negative (p<0.05) arugula consumption. Riboflavin intake was found to be correlated highly significantly positive (p<0.01) with chicken consumption and correlated significantly positive (p<0.05) with cucumber and carrots consumption. On the other hand, it correlated significantly negative (p<0.05) with arugula, Nescafe, and tea with milk.

Table 12: Correlation coefficients between nutrient intake and food consumption pattern.

	Water	Energy	Protein	Fat	Ash	Fiber	Carbohydrate	Sodium	Potassium	Calcium	Phosphorus	Magnesium	Iron	Zinc	Copper	Vitamin A	Vitamin C	Thiamin	Riboflavin
Baladi bread	.049	.187*	.234*	.121	.207*	.079	.064	.078	.141*	.066	.024	.043	-.026	-.089	.132	.196*	-.031	.236*	.138
Shami bread	-.174*	-.077	-.058	-.048	-.167*	-.209-*	.002	-.092	.229*	-.063	-.082	-.119	.050	-.045	-.047	.042	.017	.281**	.132
Fino bread	-.121	-.044	.096	-.071	-.142*	-.179*	.080	-.036	-.086	-.023	-.065	-.056	.107	-.057	-.176*	-.065	.065	-.025	.023
Toast	.021	-.195-*	-.071	-.114	-.157*	-.111	-.181*	-.005	-.077	.050	.156*	-.008	.102	-.017	-.113	.000	.029	.058	-.124
Rice	.200*	-.125	-.074	-.066	-.041	.149*	-.046	.017	-.107	-.097	-.068	.049	-.063	-.071	-.007	.076	-.081	.025	.080
Pasta	.285**	.123	.188*	.022	.141	.162	.095	-.008	-.050	-.138	.039	.129	-.002	-.025	.137	.221*	-.076	.052	.099
Meat	-.006	.053	-.020	.052	.053	-.061	-.061	-.040	.032	-.007	-.003	.042	.018	.138	-.034	.048	-.027	.111	.132
Chicken	-.052	-.002	-.032	-.040	-.059	.005	-.025	-.054	.016	-.117	-.107	-.106	-.002	.108	-.014	-.082	-.169*	.144*	.259**
Fish	-.015	-.170*	-.125	-.072	-.094	-.047	-.022	-.050	.003	-.096	-.005	-.032	.039	-.049	-.157*	-.184*	.139	.014	.131
Liver	-.212-*	.007	.123	-.043	-.184*	-.183*	.129	-.022	-.072	-.067	.077	-.181	-.015	.059	-.148*	-.155*	-.099	-.015	.136
Bean	-.076	-.030	.036	-.170*	-.223-*	-.073	.010	-.116	.077	-.036	-.018	-.064	-.062	-.087	-.080	-.059	-.202-*	-.020	-.071
Lentil	-.054	.117	-.005	.140	.073	.049	-.042	-.055	-.016	-.020	-.020	-.046	-.027	.082	.120	-.096	-.145*	-.016	.045
Chickpeas	-.018	-.099	-.013	-.088	-.017	-.088	-.137	-.120	.018	.024	-.052	.014	.004	.040	-.017	.108	.024	.062	-.007
Milk	-.015	.097	.019	-.061	-.027	-.173*	.060	-.047	.060	.046	-.047	-.089	.157*	.149*	-.082	.003	-.032	.097	-.002
Yogurt	-.058	-.155*	-.061	-.012	-.018	-.038	-.024	-.126	-.147*	-.033	.040	-.074	-.094	-.041	.058	-.075	-.161*	.137	-.025
Cheese	.037	-.015	.009	.060	.092	.014	.077	.037	-.113	-.173	-.014	.062	-.115	-.021	-.012	-.054	-.020	-.062	-.004
Tomatoes	-.038	-.094	-.087	.105	.036	-.059	-.194-*	-.103	.094	-.014	-.116	-.028	-.077	-.007	.161	.039	-.132	-.103	-.115
Cucumber	-.044	-.124	-.081	.132	.029	-.082	-.175*	-.096	.048	.053	-.041	.004	-.046	-.126	.169*	-.029	-.061	-.066	.210*
Lettuce	-.034	.082	.067	.063	.037	.002	.113	-.090	-.042	.021	-.002	.045	-.155*	.023	.117	-.006	-.230*	.043	.017
Carrots	.040	-.121	-.279-**	.163*	.137	.069	-.176	-.156*	-.147*	.127	-.020	.084	.025	.249**	.048	-.127	.023	-.129	.188*
Spinach	.016	-.045	-.033	.025	-.022	.008	.019	-.044	-.069	.149*	.077	.090	-.005	-.083	-.094	-.117	-.060	-.084	.031
Arugula	.098	-.154*	-.239-*	.014	.040	-.032	-.189-*	-.098	-.058	.163*	-.056	.087	-.056	-.047	.011	.128	-.123	-.165*	-.165*
Peas	.034	-.176*	-.100	.032	.008	-.072	-.105	-.124	-.067	-.108	-.128	.063	-.005	-.114	-.072	-.002	-.082	-.086	.064
GreenBeans	-.018	-.273-**	-.110	-.136	-.203-*	-.091	-.054	-.091	.017	-.076	-.161*	-.048	-.028	-.152*	-.149*	-.053	-.075	.085	-.135
Zucchini	-.012	-.050	.085	-.235-*	-.261-**	-.097	.013	.088	-.049	-.016	.017	-.091	-.028	-.023	-.135	.075	.077	.064	.035
Okra	.020	-.090	-.105	-.032	-.103	-.040	-.082	-.061	-.067	-.043	-.029	-.033	-.041	.096	-.055	-.060	-.021	.039	-.025
Apple	.222*	.154*	.170*	-.137	-.159*	-.228-*	.129	-.056	.107	-.100	.044	.217*	.092	.075	-.128	-.025	-.148*	.021	.021
Banana	.139	.179*	.169*	-.055	-.064	-.144*	.151*	.012	.165*	-.025	.066	-.138	.042	.053	-.079	.072	-.082	.015	.019

Orange	.243*	.232*	.270**	-.055	-.115	.224*	.234*	-.002	.170*	-.040	.056	.221*	.261**	.111	-.139	-.037	-.091	-.005	-.026
Tangerine	.256**	.317**	.256**	-.005	-.074	-.148*	.186*	-.005	.038	-.069	.053	.257**	.151*	.111	-.104	-.131	-.217*	.007	.068
Guava	-.170*	.174*	.216*	-.102	-.144*	-.170*	.216*	.145*	.128	-.143*	.107	.209*	.027	.116	-.122	.036	-.169*	-.022	.058
Pears	-.155*	.255**	.264**	-.136	-.211*	-.121	.274**	.188*	.155*	-.160	.100	.244*	.177*	.150*	-.118	-.021	-.086	.085	.114
Fig	.227*	.289**	.277**	-.092	-.126	-.165*	.263**	.135	.161*	-.134	.100	.242*	.218*	.079	-.080	.010	-.100	.124	.118
Tea	-.079	.171**	.185*	.074	.069	-.091	.251**	-.039	.076	-.016	.037	-.094	.120	.095	-.055	-.119	-.075	.061	.114
Coffee	-.089	-.038	-.022	.048	-.012	-.083	.041	-.053	-.099	.094	.074	-.005	-.110	-.079	-.079	-.060	-.148*	-.041	-.106
Nescafe	.101	-.050	-.077	-.040	.006	-.024	-.077	-.101	.150*	.235*	.042	.026	-.032	.140*	-.027	.122	.017	-.028	-.195*
Tea with milk	-.044	-.039	.001	-.120	-.150*	-.126	-.042	.062	-.038	.095	.104	-.080	-.009	-.068	-.021	-.078	-.027	-.123	-.192*
Juices	.053	-.152*	-.097	.116	.058	-.006	-.063	-.129	.120	.190*	-.092	.154*	-.142*	-.106	.061	-.008	-.096	.057	.053
Ghee	-.192-*	-.016	.275**	.031	-.087	-.133	.110	-.006	.084	-.013	.204*	-.139	-.076	.062	-.134	-.079	-.107	.058	.134
Butter	-.137	-.069	-.085	-.162*	-.149*	-.158*	-.106	-.131	.115	.122	.148*	-.100	.112	-.106	-.042	-.087	-.181*	-.075	.043
Corn oil	-.046	-.031	.005	.028	-.028	-.008	-.039	-.012	.063	-.041	.153*	-.076	.095	.033	-.066	.009	.011	-.093	-.026
Olive oil	-.085	-.165*	-.141*	-.168*	-.178*	-.212*	-.238*	-.099	.184*	.082	.175*	-.058	.125	-.032	-.249**	-.058	-.101	-.043	.000
Cream	-.016	.124	.133	.252*	-.107	-.090	.134	.596**	.093	-.027	.150*	-.058	.109	.180*	-.115	.052	.126	.165*	.056

(-)Negative correlation (*) P<0.05 (**)P<0.001

Speed test for different positions:

It could be noticed that the speed test has insignificant (p<0.05) variations for different soccer positions than standard (Table 13), however, these variations were considered below average soccer performance for all positions according to the classification of sport performance categories of speed test <4.0, 4.2-4, 4.4-4.3, 4.6-4.5 and >4.6 seconds indicated excellent, above average, average, below average and poor performance respectively.

Table 13: Speed test for different positions in the team.

Position	Speed test	% difference than standard	F test	P value
Defender	4.51 ± 0.03	12.82 ± 0.87	0.837	0.505
Striker	4.51 ± 0.04	12.76 ± 0.92		
Goal keeper	4.53 ± 0.03	13.13 ± 0.75		
Midfielder	4.50 ± 0.03	12.50 ± 0.85		
Wing	4.50 ± 0.04	12.56 ± 1.07		
Total	4.51 ± 0.04	12.67 ± 0.92		

The correlation coefficient between speed test and food habits:

Results in Table (14) indicated that the speed test correlated highly significantly positive (p<0.01) with the number of artificial sweeteners used and significantly positively (p<0.05) with skip meals, eating with family, size of the meals, eating late, artificial sweeteners and high-fat food intake. On the other hand, it correlated highly negatively (p<0.01) with the type of training and kind of food, and significantly negatively (p<0.05) with the kind of snacks.

Table 14: Correlation coefficients between Speed test and food habits

Variables	Speed test
Number of meals/day	0.059
Main meal	-0.083
Skip meals	0.216*
Breakfast intake	-0.090
Eating outdoors	-0.106
Eating with family	0.181*

Size of meal	0.153*
Eating snacks	-0.082
Number of snackes	-0.076
Kind of snackes	-0.142*
Eating late	0.264*
Eating during training	0.057
Kind of foods during training	0.210
Eating after training	-0.130
Kind of food after training	-0.126
Eating Before training	-0.032
Kind of food before training	-0.188
Usual drinks	0.039
Using of artificial sweeteners	0.246*
Number of artificial sweeteners used	0.324**
Water drinking during training	-0.092
Number of water cup/day	0.083
Vegetables and fruits intake	-0.037
High Fat food intake	0.254*
Drinking milk regularly	-0.100
Protein drinks	0.017
Food intake before tournaments	0.088
Food pattern difference before tournaments	0.093
Food pattern after tournaments	-0.130
Food patterns difference after tournaments	-0.101
Importance of healthy nutrition for weight loss	0.125
Importance of fixed healthy meals	-0.019
Importance of financial resources for healthy nutrition	0.087
Importance of healthy nutritintson for sport practice	0.067
knowledge of food components and benefits	0.121
Amount of food and energy	0.073
Type of training and kind of food	-0.340**
Benefit of not eating before exercise	-0.091
Protein benefit during exercise	-0.021
Consulting about nutritional needs	-0.090
Eating Meals low in fat and cholesterol	-0.045
Knowing of Food content of vitamins & minerals	-0.028

The correlation coefficient between speed test and nutrient intake:

The speed test correlated highly significantly ($p<0.01$) with energy, protein, carbohydrate, potassium, iron, zinc, and riboflavin intake and correlated significantly negatively ($p<0.05$) with sodium, calcium, and vitamin C intake (Table 15).

Table 15: Correlation coefficients between Speed test and nutrients intake

Variables	Speed test
Water	-0.023
Energy	-0.602**
Protein	-0.568**
Fat	0.128
Ash	0.096
Fiber	-0.061
Carbohydrate	-0.751**
Sodium	-0.168*

Potassium	**-0.331****
Calcium	**-0.181***
Phosphorus	**-0.114**
Magnesium	**-0.046**
Iron	**-0.354****
Zinc	**-0.337****
Copper	**-0.019**
Vitamin A	**-0.117**
Vitamin C	**-0.236***
Thiamin	**-0.103**
Riboflavin	**-0.319****

The correlation coefficient between speed test and food consumption pattern:
The speed test was found to be significantly positive ($p<0.05$) with chickpeas, tea, and butter consumption. However, it correlated highly significantly ($p<0.01$) with olive oil consumption and correlated significantly negatively ($p<0.05$) with meat, chicken, milk, yogurt, cucumber, lettuce, orange, pears, and fig consumption (Table 16).

Table 16: Correlation coefficients between Speed test and food consumption pattern.

Variables	Speed test
Baladi bread	-0.020
Shami bread	0.086
Fino bread	0.036
Toast	0.110
Rice	0.063
Pasta	-0.063
Meat	-0.259*
Chicken	-0.273*
Fish	-0.027
Liver	-0.246
Bean	0.003
Lentil	0.026
Chickpeas	0.169*
Milk	-0.269*
Yogurt	-0.295*
Cheese	-0.015
Tomatoes	-0.105
Cucumber	-0.152*
Lettuce	--0.170*
Carrots	-0.108
Spinach	-0.056
Arugula	-0.012
Peas	-0.092
Green Beans	-0.115
Zucchini	-0.083
Okra	-0.050
Apple	-0.030
Banana	-0.075
Orange	-0.150*
Tangerine	-0.077
Guava	-0.112
Pears	-0.215*
Fig	-0.210*
Tea	0.219*
Coffee	0.049
Nescafe	0.102

Tea with milk	**-0.014**
Juices	**-0.032**
Ghee	**-0.039**
Butter	**0.258***
Corn oil	**-0.012**
Olive oil	**-0.302****
Cream	**-0.012**

DISCUSSION

It is well known that there is an inverse relationship between speed test and soccer performance, where speed test is defined as the time taken by a player to travel a distance of 30 meters, As time decreases, velocity increases and accordingly sport performance increases. Thus, as speed tests increased soccer performance decreased and vice versa. Data showed that nutrition affects soccer performance for athletes under investigation (Tables 13-16). Most athletes had below average soccer performance according to Davis et al., (2000). Data revealed that athletes have a decrease in nutritional intake for most nutrients compared with DRI (Table 1).

The skeletal muscles of athletes exhibit remarkable plasticity, promptly responding to both mechanical loading and nutrient availability, leading to condition-specific metabolic and functional adaptations **(Hawley *et al*., 2011).** These adaptations play a crucial role in shaping performance nutrition recommendations, with the overarching objective of optimizing energy systems to efficiently meet the fuel demands of an event. Our results were in line with these findings, where there is a significant negative correlation coefficient between energy intake and speed testing, which means that energy promotes soccer performance for athletes under investigation.

Carbohydrates have garnered significant attention in the field of sports nutrition, owing to several distinctive aspects of their role in training performance and adaptation. Firstly, the body's carbohydrate stores have a relatively limited capacity, allowing for acute manipulation through daily dietary intake or even a single exercise session **(Spriet, 2014).** Secondly, carbohydrates serve as a crucial fuel for the brain and central nervous system, offering a versatile substrate for muscular work across a broad range of intensities. This versatility arises from their utilization in both anaerobic and oxidative pathways. Even during high-intensity activities supported by oxidative phosphorylation, carbohydrates outperform fat as a substrate by yielding a greater amount of adenosine triphosphate per volume of oxygen delivered to the mitochondria, thereby enhancing overall exercise efficiency **(Cole *et al*., 2014).** Thirdly, substantial evidence indicates that strategies maintaining high carbohydrate availability contribute to the improved performance of prolonged sustained or intermittent high-intensity exercise. The results of the present investigation were in line with these findings where there is a highly significant negative ($p<0.05$) correlation coefficient between speed tests and carbohydrate intake in athletes.

It has been revealed that glycogen, beyond its function as a muscle substrate, plays crucial direct and indirect roles in influencing the muscle's response to training **(Philp *et al*., 2012).** The quantity and distribution of glycogen within the muscle cell impact the physical, metabolic, and hormonal milieu, influencing the signaling responses to exercise. It was shown to enhance the activity of molecules with a glycogen binding domain, elevating free fatty acid availability, altering osmotic pressure within the muscle cell, and boosting catecholamine concentrations **(Philp *et al*., 2012).** Carbohydrate intake daily should be tailored to align with the athlete's training/competition schedule, taking into account the significance of pursuing it with either high or low carbohydrate content based on the priority of optimizing high-quality exercise performance versus amplifying the training stimulus or adaptation. Providing general recommendations for carbohydrate intake to ensure high carbohydrate availability during specific training or competition sessions can be based on the athlete's body size. The present findings were in agreement with this finding where there is a highly positive correlation coefficient between body weight and carbohydrate intake (Table 6).Optimal dietary proteins play a crucial role in preserving, repairing, and synthesizing skeletal muscle proteins **(Tipton *et al*., 2007).** Studies on persistent training have demonstrated that incorporating milk-based protein post-resistance exercise is successful in enhancing muscle strength and promoting beneficial alterations in body composition **(Hartman *et al*., 2007, Josse, *et al*., 2010 and 2011).** It is interesting to mention here that there is a significant negative correlation coefficient between speed test and protein intake (Table 15), which indicates that protein intake enhances soccer performance. It was reported that the preeminence of dairy proteins stands out among the tested protein sources, owing largely to their elevated leucine content and the nuanced kinetics of branched-chain amino acid digestion and absorption in fluid-based dairy foods **(Pennings *et al*., 2011).**

Food consumption patterns also indicated a significant negative correlation between speed tests and milk, yogurt, meat, and chicken consumption (Table 16), which ensures the importance of protein in enhancing sports performance for soccer players. The recommended dietary protein intake to support metabolic adaptation, repair, remodeling, and overall protein turnover typically falls within the range of 1.2 to 2.0 g/kg/d. Our results for the studied sample were slightly less than the recommended protein intake (Table 1).

The midfielder is the player who covers the most distance on the field and expends the most effort. Due to these physical demands, they require good fitness to fulfill their midfield duties. Therefore, it is recommended for a midfielder to consume energy-rich snacks, have an early breakfast, eat after training sessions, drink milk, and include protein-rich foods in their diet to build muscle. Additionally, they should have a good understanding of the importance of vitamins and essential minerals needed by their body (Table 8). Higher intake levels may be warranted for brief periods during intensified training or when reducing energy intake **(Mettler *et al*., 2010 Phillips and Van Loan, 2011).** To achieve daily protein intake goals, it is advisable to follow a meal plan that distributes moderate amounts of high-quality protein throughout the day, especially after strenuous training sessions.

While these guidelines are broadly applicable to various training regimens, flexibility is crucial, allowing for adjustments in line with periodized training and individual experience **(Rosenbloom and Coleman, 2012 and Moore *et al*., 2015).** It is emphasized that individuals should no longer be rigidly categorized as strength or endurance athletes with static daily protein intake targets. Instead, guidelines should be designed around optimal adaptation to specific training or competition sessions within a periodized program. This approach should consider the broader context of athletic goals, nutrient requirements, energy considerations, and dietary choices. Results of Table (4) indicated a significant positive correlation between protein intake for athletes and their father and mother's education, which supports the idea that education and learning promote the best nutrient choices for sports performance motivation.

Protein requirements can fluctuate based on factors such as the athlete's trained status (experienced athletes may require less), the nature of training sessions (higher frequency, intensity, or a new stimulus may warrant higher protein intake), carbohydrate availability, and, most importantly, energy availability (**Rosenbloom and Coleman, 2012 and Areta *et al*., 2014).** In agreement with this, data showed that protein intake correlated significantly positively with athletic eating late, types of training, and kinds of food (Table 10). It is also beneficial here to mention the positive correlation coefficient ($p<0.05$) between cream consumption and protein benefits during exercise.

Adequate energy consumption, particularly from carbohydrates to match energy expenditure, is emphasized to spare amino acids for protein synthesis rather than oxidation **(Rodriguez *et al*., 2007).** In instances of energy restriction or sudden inactivity due to injury, elevated protein intakes, reaching as high as 2.0 g/kg/day or higher **(Wall *et al*., 2015)** when distributed throughout the day, may be beneficial in preventing loss of fat-free mass **(Phillips and Van Loan, 2011).** Protein needs and their relationship to alterations in protein metabolism and body composition goals were briefly discussed by **Phillips *et al*., (2007)** and **Tipton and Witard, (2007).**

Dietary fat plays a crucial role in promoting overall health by serving as an essential component that provides energy, contributes to the structure of cell membranes, and facilitates the absorption of fat-soluble vitamins. Data in Table (11) showed a positive correlation coefficient between football players' olive oil consumption and their knowledge of the food content of vitamins and minerals. Nutrition education is very important for adjusting fitness for sports athletes **(Antonio *et al*., 2021).**

Dietary Guidelines advocate for a dietary approach where the proportion of energy derived from saturated fats is limited to less than 10% and essential fatty acids are included to meet adequate intake (AI) recommendations **(U.S. Department of Health and Human Services, 2015 and Health Canada, 2015).** Regarding figure (49) it could be noticed that more than 70% of the studied sample intake high-fat food regularly or sometimes which may be correlated with the significant correlation between butter, olive oil, and cream intake and number of meals/day and kind of snacks/day.

It is recommended that athletes align their fat intake with public health guidelines, customizing it based on their individualized needs related to training levels and body composition goals **(Rosenbloom and Coleman, 2012).** In agreement with these data Table (9) showed that fat intake correlated significantly positive with following a certain diet the number of snacks per day, the kind of food after training, and the food pattern difference after tournaments. In contrast, there is a negative correlation coefficient between fat intake and the importance of healthy nutrition for sports practice (Table, 10).

Fat, present in the forms of plasma-free fatty acids, intramuscular triglycerides, and adipose tissue, serves as a plentiful fuel substrate, made more readily available to muscles through endurance training. Despite exercise-induced adaptations, maximal oxidation rates may not be fully realized, as they can be further optimized through dietary strategies such as fasting, acute pre-exercise fat intake, and prolonged exposure to high-fat, low-carbohydrate diets **(Spriet, 2014).** Data in Table (9) indicated a significant negative correlation between fat intake and performing body abnormalitytests. It is important here to mention the positive correlation coefficient between speed test and high-fat food intake (Table, 14) which indicates that high-fat food intake reduces soccer performance for athletes included in the present investigation.

The data indicates that a significant portion of the studied sample consumes less than 35% of the recommended fat intake (Table, 1). This observation could be attributed to a commitment among athletes to moderate butter consumption, reflecting a positive correlation with the emphasis on healthy nutrition for weight loss (Table, 11). Additionally, it might be associated with the prevalence of underweight individuals, constituting approximately 30% of the sample (Figure, 66).

Athletes may opt to overly limit their fat intake to shed body weight or enhance body composition. However, discouraging athletes from consistently maintaining fat intakes below 20% of their energy intake is advisable. Chronic implementation of such restrictions often leads to a reduction in dietary variety, impacting the intake of various nutrients, including fat-soluble vitamins and essential fatty acids—particularly n-3 fatty acids (**Institute of Medicine FaNB, 2005).** Results showed that for soccer athletes their fat intake was about 30% of their energy intake (Table, 1), which may enhance energy production during exercise and the variety of their food choices (Table, 2).

In many sports, substantial evidence suggests that athletes often employ rapid weight loss strategies to gain a competitive edge **(Ackland *et al*., 2012, Slater *et al*., 2014, Wilson *et al*., 2014).** However, the resulting hypohydration (body water deficit), depletion of glycogen stores and lean mass, and the adoption of pathological behaviors (such as purging, excessive training, and starvation) can detrimentally affect both health and performance **(Sundgot-Borgen and Garthe, 2011).** It is important to mention here that soccer athletes investigated in this study consumed 61.1% of the standard of water (Table, 1), which may indicate their exposure to dehydration. Results indicated that vegetables and fruit consumption have a significant negative correlation coefficient with speed tests and consequently stimulate the sports performance of athletes (Table, 16). It was recorded that tea consumption reduces soccer performance for players (Table, 16). However, the number of water cups/day was found to correlate significantly positively ($p<0.05$) with protein and fiber consumption (Table, 10). It could also be noticed that the number of water cups per day has a negative correlation coefficient with body weight, BMI, and hip circumference (Table, 5).

Despite these challenges, the judicious application of short-term, rapid weight loss techniques, when deemed necessary, is preferable to extreme and prolonged energy restriction and suboptimal nutrition support **(O_Connor and Slater, 2011).** When deliberate weight loss is required, it is advisable to incorporate it into the base phase of training or well before competition, minimizing the impact on performance **(Garthe *et al*., 2011).** This should be achieved through methods that prioritize the loss of body fat while preserving muscle mass and achieving overall health goals. Effective strategies involve creating a slight energy deficit to ensure a gradual rather than rapid rate of weight loss and elevated dietary protein intake. Notably, a shorter-term (2 weeks), energy-restricted diet with a higher protein intake (2.3 vs 1 g/kg/d) has been found to retain muscle mass while facilitating weight and body fat loss **(Mettler *et al.*, 2010).**

Furthermore, athletes aiming to preserve fat-free mass and performance are advised to limit their weekly weight loss to no more than 1% per week **(Garthe *et al*., 2011).** The development of an individualized diet and training plan for weight/fat loss should be based on a comprehensive assessment of goals, current training and nutrition practices, past experiences, and a willingness to learn through trial and error.

Results showed that (28%) of the total sample was underweight, but most of the sample (62.7%) were of normal body mass index, and (9.09%) were overweight (Figure, 66). Body mass index (BMI) is employed globally to classify humans as normal, overweight, or obese **(WHO, 1995).** The comparison between groups with different BMIs has revealed that groups with lower or mal BMI perform better in physical fitness tests than do the overweight/obese or those with higher BMI **(Duvigneaud *et al*., 2008, Artero *et al*., 2010, Mak *et al*., 2010, Chen *et al*., 2006)**. BMI was employed previously to estimate overweight and obesity in adult sports populations **(Ode *et al*., 2007, Witt and Bush, 2005, Harp and Hechet, 2005, Malina *et al*., 2007).** The Prevalence of overweight/obesity was much lower in college athletes in various sports (17.8%) (Witt and Bush, 2005) in comparison with findings on American football players, among whom 45.0% were overweight and 42.6% were obese **(Malina *et al*., 2007).** The high prevalence of American football in comparison with other sports was highlighted in other studies as well **(Harp and Hechet, 2005, Ode *et al*., 2007)**, suggesting its sport-dependence. In a recent comparison of four elite European leagues **(English, Spanish, Italian, and German)**, BMI ranged from 22.8±1.1 kg/m^2 to 23.2±1.1 kg/m^2 **(Bloomfield *et al*., 2005).** In terms of mean (23 kg/m^2) and standard deviation (1.1 kg/m^2), the aforementioned study indicated that 68.3% of elite players were in the range of 21.9-24.1 kg/m^2, while 95.4% were 20.8–25.2 kg/m^2, demonstrating that approximately only

2.5% of players in the elite European leagues could be characterized as overweight. It was believed that soccer players with high BMIs would have lower scores in physical fitness.

Results indicated that there is a significant positive correlation between body mass index and the kind of snacks, eaten during training, food pattern difference before tournaments, food pattern differences befor and after tournaments, knowledge of food components and benefits, following a certain diet, pasta, yogurt, and fruits consumption (Tables, 5 and 7). These correlations emphasized the importance of being in the normal range of BMI accompanied by variation in food sources for promoting well-being and soccer performance for athletes.

Proper hydration is crucial for optimal health and exercise performance. Athletes, in addition to daily water losses, need to replace fluids lost through sweating to dissipate heat generated during exercise **(Thomas *et al*., 2016)**. Dehydration, or the process of losing body water, can lead to hypohydration, impacting cardiovascular strain, glycogen utilization, metabolic function, and body temperature regulation. Athletes should employ fluid management strategies before, during, and after exercise to maintain hydration (**Shirreffs and Sawaka, 2011, Kenefick and Cheuvront, 2012).** In hot weather, fluid deficits of 3-5% body weight may compromise cognitive function and exercise performance, while severe hypohydration (6-10% body weight loss) can significantly affect exercise tolerance and cardiovascular function **(Armstrong, 2007).**

Measuring early morning body weight, urinary specific gravity, and urine osmolality can help estimate daily hydration status. Before exercise, athletes can achieve hydration by consuming fluids equivalent to 5-10 ml/kg body weight in the 2-4 hours preceding the activity **(Goulet, 2012).** During exercise, athletes should aim to replace sweat losses, by customizing fluid intake based on factors like exercise intensity and environmental conditions **(Mountjoy *et al*., 2012, Koehle *et al*., 2014).** Overhydration, as seen in some recreational athletes, can lead to hyponatremia, a potentially dangerous condition. Sodium intake during exercise is recommended, particularly for athletes with high sweat rates or prolonged exercise **(Jeukendrup *et al*., 2015).**

After exercise, athletes often finish with a fluid deficit, necessitating rehydration with water and sodium to minimize urinary losses **(Shirreffs and Sawaka, 2011).** The intake should exceed the final fluid deficit (e.g., 1.25-1.5 L fluid for every 1 kg body weight lost) **(Kenefick and Cheuvront, 2012).** Overall, personalized hydration strategies based on individual factors, exercise type, and environmental conditions are essential for athletes to optimize their performance and well-being.

Athletes who engage in practices such as energy intake restriction, extreme weight loss, elimination of specific food groups, or consumption of poorly chosen diets may be at risk of suboptimal micronutrient intake; especially iron, vitamin D, calcium, and antioxidants **(Lukaski, 2004, Nickols-Richardson *et al*., 2006, Nattiv and Loucks, 2007).** There is little evidence that antioxidant supplements enhance athletic performance **(Peternelj and Coombes, 2011).**

Iron deficiency, with or without anemia, is discussed as a potential limitation to muscle function and work capacity, leading to compromised training adaptation and athletic performance **(Lukaski, 2004, Haymes, 2006).** Athletes with increased iron losses through sweat, urine, feces, and intravascular hemolysis, are particularly vulnerable. In agreement with these data, the results indicated a positive correlation coefficient between iron intake and heart checkups (Table, 9). Recommendations include regular screening for athletes at greater risk, along with strategies like oral iron supplementation, dietary improvements, and a reduction in activities impacting iron loss **(Cowell *et al*., 2003).** It is important to mention here the significant positive correlation coefficient between iron intake and eating during training, fixed healthy meals, and milk and fruit consumption (Tables 10 and 12) and the significant negative correlation between iron intake and speed test (Table 15), which indicated its enhancement for athletes soccer performance.

Vitamin D has an important role in regulating calcium and phosphorus metabolism, which is essential for maintaining skeletal muscle and bone health **(Pojendic and Seglia, 2014).** Athletes at higher latitudes or those training indoors may be at risk of vitamin D insufficiency or deficiency **(Larson-Meyer and Willis, 2010).** The passage underscores the complex process of determining optimal vitamin D levels for health and performance, cautioning against routine supplementation without empirical evidence **(Cannell *et al*., 2009).** Calcium has an important role in bone tissue growth, maintenance, and repair, as well as muscle contraction, nerve conduction, and blood clotting. Athletes with low energy availability or menstrual dysfunction may be at increased risk of low bone-mineral density and stress fractures, necessitating adequate calcium intake **(Mountjoy *et al*., 2014).** Calcium intake was found to have a significant positive correlation coefficient with height (Table, 6), sleeping hours, main meal, kind of snacks (Tables, 9 and 10), the importance of healthy nutrition for sports practice, consulting about nutritional needs (Table 10), spinach, arugula and juices consumption (Table, 12). Calcium intake was found to have negative correlation coefficient with the speed test (Table, 15). Also, it could be noticed that milk and Yogurt consumption has also negative correlation coefficient with the speed test (Table 16). These data indicated the importance of food variety for containing calcium that promotes football performance for athletes. It is important here to mention that calcium intake has a significant positive correlation coefficient with father and mother education (Table 4), which indicates the importance of nutritional education in improving athlete's soccer performance.

Antioxidants protect cell membranes from oxidative damage induced by exercise **(Peternelj and Coombes, 2011).** While well-trained athletes may have a developed endogenous antioxidant system, it is advised against antioxidant supplementation unless there is a specific deficiency **(Thomas *et al*., 2016).** There is the importance of consuming a well-chosen diet rich in antioxidants for athletic health. Those most susceptible to inadequate antioxidant intake include individuals who limit their energy intake, adhere to a persistent low-fat diet, or restrict the consumption of fruits, vegetables, and whole grains **(Rosenbloom and Coleman, 2012).** It is of importance here to mention the significant negative correlation coefficient between vitamin C intake and speed testing (Table 15). Vitamin C is known to enhance the absorption of iron. Accordingly, it can be assumed that both vitamin C and iron promote athletic soccer performance. The indiscriminate intake of vitamin and mineral supplements does not necessarily enhance performance unless addressing pre-existing deficiencies **(Lukaski, 2004, Volpe and Bland, 2012).** Athletes are advised to adopt a well-balanced diet, guided by nutrient intake history and observation of signs and symptoms associated with micronutrient deficiency, to promote optimal performance and avoid both deficiency and excessive intake concerns.

CONCLUSION

there were athletic nutritional deficiencies in most nutrient intakes except potassium compared with dietary reference intake. It could be noticed that father-and-mother education is significantly positively correlated with protein and calcium intake which are most important in promoting athletes' performance, indicating the importance of nutrition education. Most soccer players have a normal body mass index and consume a variety of foods. Food habits, e.g., eating with family, size of the meal, artificial sweeteners, number of artificial sweeteners used, and high-fat food intake were found to enhance athletic performance. Nutrient intake of energy, protein, carbohydrate, sodium, potassium, calcium, iron, and vitamin C was found to induce athletic soccer performance.

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