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The Nutritional Assessment of Male and Female Students in Physical Education of Menoufia University

Authors
Hisham Goma, Nehad El-tahan, Sherif Ragab, Nazeha Khalil

Author Affiliation:
Department of Nutrition and Food Sciences, Faculty of Home Economics, Menoufia University, Shibin El Kom, Egypt

Corresponding author:
Hesham Goma
hishamalkersawy@gmail.com
Mobile: +2 01099667585

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Abstract:
Nutritional habits and physical activity influence the health status of physical education students. So, this study aims to assess the nutritional status of students in the Physical Education Faculty of Menoufia University. The sample was 200 students, aged between 18 to 20 years, from both genders. The questionnaire's content eating habits and physical activity, focusing on the number of daily meals, meal composition, and lifestyle habits. An anthropometric assessment was also performed, including weight, height, and BMI. The results of the mean ages in male and female groups were (18.1 ± 1.6 and 20.7 ± 2.0) years. The female group consumed more sweets, chips, cola, and fast foods than the male group. Male-weight students consumed an acceptable amount of carbohydrates, whereas females consumed more. The consumption of calcium and vitamin A was unsafe for the two groups. Therefore, these students have to complete their diet and avoid the excess supplement eaten in replacement with natural nutrients.

***Keywords**: Students; diet ; supplement ; sport; BMI*

Introduction

Exercise, as a structured form physical activity, is considered to be an integral component of a healthy life-style, because a planned exercise program may lead to the improvement of numerous factors influencing. One's health organizations, such as the Public Health Service, the American Heart Association, and the American College of Sports Medicine, have recommended exercise as a mean to enhance physical fitness and concomitantly, health alone with exercise, proper nutrition is an important component in a healthy life-style, and millions of individuals have modified their diets as recommended by health authorities (1).

Mann and Truswell (2) found that dietary practices before and during competition can influence performance by helping to prevent energy depletion dehydration and disturbances in electrolytes balance, while nutritional strategies immediately post-competition enhance recovery.

The lack of interest of sports nutrition led to some nutritional deficiencies among sports players especially soccer players. They found that football players could stay healthy, avoid injury and achieve their performance goals by adopting good dietary habits. Players should choose foods that support consistent, intensive training and optimize match performance. In addition, they stated that food and fluid taken soon after a game and training can optimize recovery, all players should have a nutrition plan that takes account of individual needs(3).

Typical energy costs of training or match play in elite players are about 6 MJ (1500 kcal) per day for men and about 4 MJ (1000 kcal) for women (4). Low energy availability caused disturbances to hormonal, metabolic, immune function, and to healthy bone. An adequate carbohydrate intake was the primary strategy to maintain optimum function. Players may need 5-7 grams of carbohydrate per kg body mass during periods of moderate training and up to about 10 g/kg during intense training or match play (5).

Carbohydrate supplementation during heavy exercise has emerged as a partial countermeasure. Heat, cold, high altitude, and travel across time zones act as stressors that alter normal physiological function, homeostasis, metabolism, and whole-body nutrient balance. Rather than accepting performance decrements as inevitable, well-informed coaches and athletes should plan strategies for training and competition that offset environmental challenges. At every level of competition, training regimens and nutritional strategies, including fluid intake during the game, should be similar to those followed by players. Talent and dedication to training are no longer enough to achieve success in football. Good nutrition has much to offer players and match officials, including improved performance, better health, and enjoyment of a wide range of foods (6). So, the main objective of this study was studying the factors which related to the healthy status and the performance of students in sports faculty.

Subjects and Methods

A retrospective design used in the study. This design according to the available literature is considered to be appropriate as it allows the researcher to assess the dependent variable in the present (students in sport education)and then links this factors that affecting occurring on the students and physical health.

Subjects for current study were randomly from the Physical Education Faculty, which located in Menoufia University. Two hundred students (100 male and 100 female) were chosen for our study, their ages ranged between 18-20 years. The present study started in January 2021 and ended in January 2022. All students were concluding the Home economics project and approved according to the University agreement. Data about food habits and anthropometric measurements were collected with the students using questionnaire sheets which designed to collect data about food habits, attitudes, and anthropometric measurements as follows: The 24h recall for seven days and dietary history were used. Kinds

and amounts of the consumed food per meal had been tabulated. The nutritive value of the diet was then compared with the calculated total of the **(7)** appropriate for the individuals in the study. The anthropometric measurements are carried out as weight, height and BMI. This index was obtained by calculating weight in kilograms/ square height in meters(kg / m2) .In the case of the obesity a body mass index was greater than 27 and under weight lower than 16 **(8).**

The questionnaires

Four forms of questionnaires were used**:** The first one was for social data that include demographic data as age, sex, education level and income. The second one for anthropometric measurements. The third sheet includes food habits it includes, food likes, dislikes, all the characteristics related to the students meals. The fourth one is used for collected data about healthy status and the last sheets was used for 24 hours recalls of dietary intake .

Statistical Analysis

Means and standard deviations of each variable and difference between treatments at ($P \leq 0.05$) which considered significant were calculated according to **(9).**Frequency distribution and percentage of nutrients consumption of the sample compared to the RDA (**10)** was done.

Results and Discussion

Table (1) shows that the anthropometric measurement of sport students. The mean weight of male and female were 72.42±6.54and 79.89±3.09 kg respectively, the mean of height were 176±7.58 and 170.11±8.98 cm respectively. Therefore, the mean of BMI of the students were 23.35 ± 1.34 and27.64±2.04 for male and female respectively. From that, female students were significant higher than male students in weight so, the BMI of male students was in a normal range while for female was overweight and this matched with WHO (11) who reported that body mass index (BMI) is an index of weight-for-height that is commonly used to classify overweight and obesity in adults. The World Health Organization (WHO) definition is: 1) A BMI greater than or equal to 25 is overweight and, 2) A BMI greater than or equal to 30 is obesity. BMI provides useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults. However, it should been considered as rough guidance because it may not correspond to the same degree of fatness in different individuals.

Table (1): Anthropometric Measurements for subjects group.

	Male Mean ±SD	Female Mean ±SD
Weight (kg)	72.42^{b}±6.54	79.89^{a}±3.09
Height (cm)	176.00^{a}±7.58	170.11^{b}±8.98
BMI (kg/m^2)	23.35^{b}±1.34	27.64^{a}±2.04

Means in the same row with different litters are significantly different at ($p \leq 0.05$).

The mean of age and income of students were tabulated in table(2) which showed that the mean age of the male and female were20.7 ± 2.02 and 18.1 ± 1.62 y. with significant differences, and this matched with Hickson *et al*. (12) who found that average of age was 19.8 years. The mean income were 328.94±7.93 and 345.56±6.75 LE respectively. From this table, it could be observed that the mean values of income was significantly higher in female group as compared to male group and was very low for one month and this factor effect on food choice and the amount of food which eat (12).

Table (2): Mean ±SD of age and income of studied groups.

	Male Mean ±SD	Female Mean ±SD
Age (Year)	20.7^{a} ± 2.02	18.1^{b} ± 1.62
Income (LE)	328.94^{b}±7.93	345.56^{a} ±6.75

Means in the same row with different litters are significantly different at (p ≤ 0.05).

The results of table (3) represent marital status and birth location of the studied groups. With respect to the marital status, it was found that (100%) single. It could be observed that the present of sample who live in country were 37 for male and 45 % for female while the presence who live in urban were 63 and 55% respectively as birth location People from different area (country or urban) eat different foods. The ingredients, methods of preparation, preservation techniques, and types of food eaten at different meals vary among cultures. The areas in which families live and where their ancestors originated influence food likes and dislikes (13).

Table (3):Marital Status and Birth location for studied group.

		Male		Female	
		Frequency	Percent	Frequency	Percent
Marital Status	Single	100	100.0	100	100.0
Birth location	Country	37	37	45	45
	Urban	63	63	55	55

The results of table (4) reported the habits status of the subjects. Concerning the lunch as main meal for about 60% male while, in female group the breakfast was the main meal. As for number of meals per day, it could be observed that the majority of the subject had two meals per day and ate between meals, all of the sample (100%) have a role in feeding their fitness. In respect to the kind food prefer, the majority prefer meat, sugars, starches, fruit and vegetables. All the samples followed their diet and the majority imported the quantity of food .Female preferred spices, high fat and coca when compared to male group. The majority of the male sample had smoking. All the studied sample drunk energy drinks (14). These results agreed with Gebremedhin and Enquselassie(15),who reported that person who had meal frequency less than two times at higher risk of developing anemia than those whose meal frequency was more than three times per day. Consumed colas(more than two) a day led to increased risk of type 2 diabetes by more than 20%. High blood pressure , high cholesterol, and excess fat were linked with high intake of sugar and all of which increase

the risk of heart disease. Colas and other sugary drinks have been linked to an increased risk of pancreatic cancer (16). Milman (17) reported that consuming different types of tea during meals impairs iron absorption and thus the incidence of anemia.

Table (4): Habits statue for studied group.

		Male		Female	
		Frequency	Percent	Frequency	Percent
The main meal	Breakfast	30	30	50	50
	lunch	60	60	30	30
	dinner	10	10	20	20
Number of meals per day	2	49	49	39	39
	3	25	25	35	35
	4	15	15	13	13
	More	11	11	13	13
Do you eat between meals	Yes	70	70	84	84
	No	30	30	16	16
Do you have a role in feeding your fitness	Yes	100	100.0	100	100.0
Is it food prefer meat components	Yes	82	82	92	92
	No	18	18	8	8
Sugars and starches	No	47	47	36	36
	Yes	53	53	64	64
Fruit and vegetables	No	48	48	39	47.4
	Yes	52	52	61	61
Do you follow Diet	Yes	100	100.0	100	100.0
Do you distinguish foods, especially the family	0.00	26	26	20	20
	Quantity	47	47	43	43
	Type	27	27	37	37
Do you eat conditioners	No	36	36	7	7
	Yes	64	64	93	93
Articles	No	68	68	50	50
	Yes	32	32	50	50
Spice	No	68	68	13	13
	Yes	32	32	87	87
Fat	No	65	65	47	47
	Yes	35	35	53	53
Smoking	No	90	90	100	100
	Yes	10	10	0	0
Cocoa	No	30	30	14	14
	Yes	70	70	86	86
Anise	No	89	89	57	57

		Male		Female	
		Frequency	Percent	Frequency	Percent
	Yes	11	11	43	43
Tea	No	14	14	73	73
	Yes	86	86	27	27
Hibiscus	No	94	94	90	90
	Yes	6	6	10	10
Energy drinks	Yes	100	100.0	100	100.0
Some of the habits that weaken you	No	47	47	40	40
fitness	Yes	53	53	60	60

The results of table (5) represent healthy status of the study sample. With respect to the complain diseases, it was found that the majority of both groups have not complain diseases, however (100%) of the sample have not injury parasites. Further, (58 and 70 %) of the male and female sample respectively had supplementary food to body building, while (100%) of the sample had salts and the most of samples from male and female had vitamin for activation during the training. Moreover, the majority of female didn't have royal jelly and amino acids while , for male sample had royal jelly only.

Table (5): Health statue for studied groups

Health statue		Male		Female	
		Frequency	Percent	Frequency	Percent
Complain diseases	No	95	95	90	90
	Yes	5	5	10	10
Injury parasites	No	100.0	100.0	100.0	100.0
Eat supplementary food for body	No	58	58	70	70
building	Yes	42	42	30	30
Vitamins	No	68	68	66	66
	Yes	32	32	34	34
Salts	No	100.0	100.0	100.0	100.0
Royal Jelly	No	48	48	60	60
	Yes	52	52	40	40
Amino acids	No	64	64	90	90
	Yes	36	36	10	10
Question about smoking disease?	No	95	95	100	100
	Yes	5	5	0	0
For question on the amount of	Great	15	15	20	20
sweat secreted	A few	47	47	50	50
	Normal	38	38	30	30

Table (6)showed that the nutrient intake for both groups. Data about mean$\pm$SD for water and calories were 3835.48$\pm$24.18 & 3370.98$\pm$12.87 ml and 2207.58$\pm$50.51 & 2108.18$\pm$24.88 kcal for male and female respectively. Values for water and calories were 3.71/liter/day for

water and about 61.44 and 58.7%for male and female of RDA for calories for athletes and these are according to WHO (11); RDA (10) and (13).Hickson *et al.* (12) saied that, the mean American football athletes energy intake of male was 3593 ±217 kcal daily.

Leblanc *et al.*(18)showed that total energy intake (TEI) was insufficient for athletes (ranging from 2352±454 to 3395±396 kcal/day). From the above results the energy intake as opposed to the recommended range between 3819 and 5185 (kcal/day).The same table discusses the diet component from protein (plant and animal), fat (plant and animal), carbohydrates, fiber and ash for both groups per a week. It could be noticed that for total protein was 119.64 and 95.39 g for male and female of RDA protein (105g.) /day according to WHO (11). From the same table it could be found that the mean amount of carbohydrates intake for a week were310.35±10.83 and485.35±9.65 g for male and female respectively. These results were disagreed with Lawrence and Kirby (5) who stated that the football player should eat a wide variety of foods that provide sufficient of carbohydrate to fuel the training and competition program, meet all nutrient requirements, and allow manipulation of energy or nutrient balance to achieve changes in lean body mass, body fat or growth. Low energy availability causes disturbances to hormonal, metabolic, immune function, and bone health. An adequate of carbohydrate intake is the primary strategy to maintain optimum function. Players may need 5-7 grams of carbohydrate per kg body mass during periods of moderate training and up to about 10 g/kg during intense training or match play. The mean fiber was 4.3% of recommended fiber (25gm per day) for players according to WHO (11).

Data Illustrated that percentage for animal fat compared with plant fat were (62.64±15) and (31.42±9.32) respectively for male group or nearly 2:1, for animal protein compared with female fat were (30.99+8.98) and (40.42+9.32) respectively which nearly 1:1. It could observed that the mean of phosphorus was higher than the calcium content .This led to malabsorption of calcium in bones and muscles of the players .The mean amount of zinc was very low for male group and the major iron was plant iron. The tested diet was contained high amount of Iron, sodium and potassium. The obtained results showed that calcium was 54.47% and 74.22of RDA of calcium (1200mg) ,130% & 79.21of RDA of phosphorus (1200mg) ,171.4% &174.2 of RDA of Iron (15mg) and 91.2 &124.5% of Zinc RDA (12mg) according to WHO (11) and RDA(10). The obtained results showed that the athletic may be faced many nutritional disorders as hypertension, low immunity, kidney function failure and reduced bone structure. Data illustrated that, mean ±SD for Vitamin (A), (D) and Vitamin (E) were 231.09±20.26, 26.67±1.79 & 24.11±9.06 for male group and 575.44±12.76, 35.11±21 & 22.43±5.76 for female respectively .This Result for Vit (A) was 53.11 and67.54% of RDA (1000mg), about 115 and 175% of RDA of Vit (D) (20microgram) and 160 &146% of RDA of Vit (E)(15mg) according to WHO (10).Gomes *et al.*(19) observed that there is no athlete met the recommendations for vitamin A.

Table (6): Nutrient intake for studied groups.

Category	Male Mean±SD	Female Mean±SD
Water (ml)	3835.48 [a] ±24.18	3370.98 [b] ±12.87

Category	Male Mean±SD	Female Mean±SD
Calories (k. cal)	2207.58 [a] ±50.51	2108.18 [b] ±24.88
Protein (plant)(g)	45.99 [a] ±3.65	31.41 [b] ±4.26
Protein (Animal)(g)	73.65 [a] ±9.21	63.98 [b] ±8.56
Protein (Total)(g)	119.64 [a] ±6.25	95.39 [b] ±3.85
Fat (Plant)(g)	31.42 [b] ±9.32	40.42 [a] ±9.32
Fat (Animal)(g)	62.64 [a] ±15.65	30.99 [b] ±8.98
Fat (Total)(g)	94.06 [a] ±3.72	71.41 [b] ±6.43
Carbohydrates(g)	310.35 [b] ±10.83	485.35 [a] ±9.65
Fiber	18.65 [a] ±4.27	17.99 [b] ±1.54
Ash	10.72 [b] ±4.85	13.86 [a] ±3.64
Calcium(mg)	653.7 [b] ±13.31	890.65 [a] ±7.54
Phosphorus(mg)	1561.36 [a] ±27.64	950.54 [b] ±9.64
Iron (Animal) (mg)	10.36± [b] 2.14	13.26 [a] ±3.44
Iron (Plant) (mg)	15.35 [a] ±4.22	12.87 [b] ±3.76
Iron (Total) (mg)	25.71 [b] ±3.15	26.13 [a] ±2.83
Sodium(mg)	3628.57 [b] ±32.55	4987.08 [a] ±13.87
Potassium(mg)	2215.33 [a] ±33.86	1250.76 [b] ±23.43
Zink(mg)	10.94 [b] ±2.95	14.94 [a] ±4.12
Magnesium(mg)	354.70 [b] ±20.24	412.54 [a] ±9.76
Vitamin (A) (mg)	231.09 [b] ±20.26	575.44 [a] ±12.76
Vitamin (D) (µg)	26.67 [b] ±1.79	35.11 [a] ±21
Vitamin (E) (mg)	24.11 [a] ±9.06	22.43 [b] ±5.76

Conclusions

Sports nutrition is a relatively new area of study involving the application of nutritional principles to enhance sports performance. Therefore, this investigation demonstrated that Publishing nutritional guides to be distributed among athletes and their families. Periodic medical examination for students to detect any diseases by early diagnosis and management of any nutritional deficiency that may affect students' performance and take care about iron sources (animal sources), calcium sources as milk or milk products, fresh vegetables and fruits as source of Vit. C and avoid energy drinks to keep body status healthy.

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تقييم الحالة الغذائية لطلاب وطالبات كلية التربية الرياضية جامعة المنوفية

هشام جمعه، نهاد الطحان، شريف رجب، نزيهة خليل

قسم التغذية وعلوم الأطعمة .كلية الاقتصاد المنزلي . جامعة المنوفية، شبين الكوم، مصر

الملخص العربي:

هذه الدراســة تهدف الى التعرف على الحالة التغذوية لطلاب كلية التربية الرياضــية في جامعة المنوفية. وكانت حجم العينة هى 200 طالب اعمارهم تتراوح ما بين 18-19 ســنة لكل من الجنســين . تم تجميع البيانات عن طريق الاستبايانات حول العادات الغذائية والنشاطات الرياضية والتركيز على عدد الوجبات المستهلكة اليومية والتعرف على اسلوب الحياة . تم قياس المقاييس الجسمانية التى تضمن كل من الوزن , الطول ومقياس كتلة الجسم . ودلت النتائج على ان متوســط العمر كان لكل من الشــباب والبنات من الطلاب (19.1 ± 1.6 and 20.7 ± 2.0)ســنة،ووجد ان مجموعة الطالبات كانوا اكثر اســتهلاكا للحلوى والمقرمشــات ومنتجات الكولا والوجبات السرــيعة عند المقارنة بمجموعة الشـباب . وزن الطلاب الشـباب كان مقبولا للاعتدال في اسـتهلاك المعدل المقبول من الكربوهيدرات بينما كانت الفتيات اكثر اســتهلاكا . ومن الملاحظ ان الاســتهلاك من الكالســيوم وفيتامين أ كان غير امن لكلا المجموعتين . لذلك يتضـح لنا ان هؤلاء الطلاب يجب تناولهم الوجبات الكاملة وتجنب اسـتخدام المكملات بكثرة التي تؤخذ كبديل للعناصر الطبيعية.

الكلمات المفتاحية: الطلاب، وجبات، المكملات، الرياضة، كتلة الجسم