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# Evaluating the Nutritional Status of Physical Education Students of Menoufia University

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**ABSTRACT**:

*This* investigation aimed to elaborate on the theoretical implications of the nutritional status of students' physical education. Two hundred students of both genders voluntarily participated (18-20 years). Data included anthropometric measurements, socioeconomic parameters, and the mean dietary intake, focusing on the number of daily meals, meal composition, and lifestyle habits were collected. The results revealed that age was 18.86±3.95 for males and 19.11±7.09 for females, and monthly income was 4529.56±12.97 EGP for males and 5067.45±20.87 for females (P<0.05). It was found that all students were single, 58% of males and 52% of females lived in rural places; the majority of fathers and mothers' education of both groups were diploma, whereas basic education for females and their jobs for both groups were employee Female students significantly had higher in Waist circumference and body fat than male students. In contrast, weight, height and body mass index were higher in the male group than female with nonsignificant differences. Most students from both genders were in the normal range of BMI. The most common nutrients are lower than the daily reference intake for both groups except sodium, whereas carbohydrates and magnesium are for females. All mean nutrients of both genders were more than 50% of DRI except calcium and cholesterol for men, while calcium, phosphorous and zinc were in calcium, phosphorous and zinc for female students. In conclusion, males had higher values for most nutrients than females.

*Keywords: Female; Male; Physical; BMI; DRI*

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## 1. INTRODUCTION

To maintain health and wellness throughout life, one must intentionally consume enough nutrients that are balanced and appropriate for one's body. To ensure proper growth, rejuvenation, and function, it is important to eat a balanced diet that provides an adequate amount of each nutrient. The anthropometric changes that occur during adolescence make proper nutrition all the more important for long-term health. This includes adolescent physical and biochemical development, as well as social and psychological maturation(1).

"Nutritional status" refers to the overall health, weight, and condition of the body as well as its nutrients. Nutritional status is a key component in health promotion, illness prevention, and treatment(2). In most cases, a person's nutritional status is impacted by both internal and external factors. Some examples of external factors include cultural norms, socioeconomic status, and food safety concerns; other examples of internal factors include a person's age, gender, diet, behavior, level of physical activity, and health status (3). Although scientists have been studying the effects of food on different kinds of exercise and sports for over a century, sports nutrition is a more recent field that focuses on using nutritional principles to improve athletic performance. Detailed recommendations for athletes have only recently been the subject of significant research (4).

Energy needs to be met in order to offset the increased energy expenditure during exercise, which is the primary dietary consideration for athletes. Extent of growth is proportional to age, sex, and body mass index. on the kind of activity, the amount of time spent training, the intensity of that training, and how often it is conducted, Physical inefficiency, weight loss, and chronic exhaustion are all symptoms of an inadequate caloric intake(5& 6).

There is a possibility that dietary interventions can affect the adaptations that training causes over the long term by changing the acute reactions to sprint, endurance, and resistance training. For optimal adaptation and recovery, it's important to strategically consume carbohydrates and protein in the days leading up to and following important training sessions. If you want your glycogen levels to recover faster after a workout or match, you should start eating carbs, either solid or liquid, within the first hour. Right now, you might speed up your recovery by consuming protein-rich foods and beverages(7).

The nutritional assessment includes taking an anthropometric measurement in addition to collecting data on the client's dietary habits, present treatment, medical history, clinical and biochemical features, and food safety status. Anthropometry is a method for measuring and tracking the nutritional status of individuals of all ages, including those in the developmental stages of childhood and adolescence, and for identifying changes in their rate of growth. One way to evaluate whether an individual is overweight, obese, or underweight is by looking at their body mass index (BMI) (8).

So, the main objective of this study was evaluating the anthropometric measurements and Dietary intake of female and male students in Physical Education Faculty , Menoufia University.

## 2. SUBJECTS AND METHODS

### *2.1 Subjects*

#### *2.1.2 Sample size and technique*

With one Physical Education faculty and roughly a thousand first- and second-year students, the stratified random sample method was employed by the Menoufia city educational administration. Statistical analysis was performed on data collected from 200 students, which met the minimum sample size requirement.

#### *Inclusion criteria*

Students aged 18- 20 years old, single, and from Menoufia University, were included in this study.

#### *Exclusion criteria:*

Participants' parents' refusal to take part, students' ages (less than 18 or more than 20), and the presence of chronic diseases that could impact their nutritional status.

#### *2.1.1 Study design*

A cross-sectional study was carried out among Physical Education students (18-20 years).

Study site and period

This study was carried out in Faculty of Physical Education, Menoufia University,

Menoufia Governorate and took place between February 2023 and completed by August 2023.

*Study tools and data collection technique*

Data was collected through a direct interview with students and through filling in the questionnaire sheet with them.

A Pre designed questionnaire sheet containing three parts: Part (1): Socio-demographic characteristics, Part (2): Anthropometric measurements, Part (3): Biochemical measurements.

*2.2 Methods*

The students were interviewed weekly and followed up at Faculty of Physical Education, Menoufia University for 6 months. Data was collected from students using a predesigned structured questionnaire. (9)

*2.2.1 Socio-demographic data:*

Including sex, marital status, job , level of education, residence.(10)

*2.2.2 Anthropometric assessment:*

We used a beam balance (Beurer BG42) scale with the bioelectric impedance technique to measure the subjects' height and weight in centimeters and kilograms, respectively. The subjects wore the bare minimum of clothing and were measured to the nearest half kilogram (11). Our formula for determining body mass index (BMI) was weight in kilograms divided by height in square meters (kg/m2). Obesity was classified as class 1 when the participant's BMI was 30-34.9kg/m2, class 2 when it was 35-39.9kg/m2, and morbid obesity when it was ≥ 40kg/m2 (12).Body composition: Bioelectric impedance analysis was used in Body 170 to record the percentage of body fat both before and after treatment (13). The waist circumference (wc)was measured (14).

*2.2.3 Dietary assessment:*

The 24-hour recall method was used to recall the amounts of foods and beverages (in household measures) consumed in the past 24 hours (in household measures). All foods and drinks were converted into grams. The 24-hour recall was used for three consecutive days.(15)

The average of the three days was taken from the next formula: Total quantities of all foods and drinks that have been consumed during the three days / 3. Then insert the output on a computer program to analyze it to macro and micro elements. This analysis by this program will be based on food composition tables of the Egyptian national institute for the Middle East .The Dietary Reference Intakes (DRI) was calculated based on the essential guide to nutrient requirements "Dietary Reference Intakes"(16).

Then, the percentage (%) of the mean food intake for each subject was obtained from the next formula: $\frac{The\ Mean\ Food\ Intake}{The\ Dietary\ Reference\ Intakes} \times 100$

*2.2.4 Ethical consideration:*

The protocol was approved by the ethics committee, approval number #12-SREC-2021.

*2.2.5 Statistical analysis of data:*

Analysis of the data was carried out using the statistical package for the social sciences (SPSS version 17.0) 28. When presenting the results, the mathematical mean and standard deviation (SD) were used. In addition, string variables made use of the percentage and frequency distributions. We used an independent sample t-test to find out how significantly different the males and females were; we considered the differences significant if the p-value was less than 0.05 (17).

## 3. RESULTS AND DISCUSSION

In table (1 ) show mean values and standard division of age, monthly income and the

money spend on food of students . It was noted that the mean value of their age 18.86±3.95 for male and 19.11±7.09 for female with nonsignificant differences. The mean values of monthly income were 4529.56±12.97 EGP for male and 5067.45±20.87 for female with significant differences whereas , the amount of money as mean values which spend on food were 2730.87±10.87 EGP for male and 2700.67±13.93 EGP for female with significant differences . From the obtained results , it could be observed the participated students were Early Adulthood where most athletes reach their physical peak in terms of strength, speed, endurance, and recovery due to a combination of physical maturity, refined skill, and peak cardiovascular function(6). The level of income was low income and about of 50% of family income spent on food. The relationship between family income and the nutritional status of physical sport students is a significant and multifaceted one, often influenced by socioeconomic factors, access to resources, and lifestyle choices. Families with lower income may face challenges in affording quality nutrition. They may rely more on cheaper, less nutritious foods that are calorie-dense but nutrient-poor (e.g., fast food, processed snacks) (3). This can negatively impact the nutritional status of sport students, hindering their performance and growth. This could lead to inadequate intake of essential nutrients such as protein, vitamins, and minerals, which are important for performance, recovery, and overall health(4). Sports and physical activity may be less accessible in low-income areas because of a lack of funding. Stress from not having enough money can make it harder for students to eat well and exercise regularly, which in turn increases the likelihood that they will experience stress (6).

Data in table (2) represent sociodemographic characteristics of the studied groups. Concerning to the marital status, it was found that (100%) single for both student groups. It could be observed that the majority of father education of male students was diploma whereas was basic education for female and their job for both groups were employee . For mother education and their job, the majority had diploma education and were employee. As birth location, 58% male and 52% live in rural places . The educational level of parents plays a significant role in shaping the nutritional status of physical education (PE) students. Parents with lower education levels may have limited knowledge about nutrition, which could result in less informed food choices. They may not fully understand how specific foods contribute to athletic performance or general health, which can negatively affect their child's nutritional status and hinder athletic development. Parents with lower education levels may face challenges in meal planning, leading to less nutritious, convenience-based meals (e.g., fast food or processed snacks). This can result in nutrient deficiencies and a poor dietary foundation for physical activity and overall well-being(18 &5).

**Table (1): Mean values and standard division of age, monthly income and the money spend on food of students (n=200)**

| Variable | Male (n=100) Mean±SD | Female (n=100) Mean±SD |
|---|---|---|
| Age | 18.86±3.95a | 19.11±7.09 a |
| Monthly income of family (EGP) | 4529.56±12.97b | 5067.4±20.87a |
| Money spend on food(EGP) | 2730.87±10.87 a | 2700.6±13.93a |

*All results are expressed as mean ± SD. The differences were considered significant at P<0.05 or less*

Foods eaten by people from different regions (rural vs. urban) vary. Meals in different cultures have different ingredients, preparation methods, preservation techniques, and types of food eaten at each meal. Families' dietary preferences are shaped by their ancestral homelands and the places they reside(19).

**Table (2):Frequency distribution of students (n=200) according to socio-demographic characteristics**

| Socio-demographic characteristics | Male (n=100) Frequency | Female (n=100) Frequency |
|---|---|---|
| Marital Status | | |
| Single | 100 | 100 |
| Father education level | | |
| Read and write | 3 | 35 |
| Basic education | 20 | 39 |
| Deplume | 42 | 15 |
| University | 35 | 11 |
| Father job | | |
| Worker | 3 | 29 |
| Farmer | 12 | 33 |
| Employee | 85 | 38 |
| Mother education level | | |
| Read and write | 17 | 21 |
| Basic education | 11 | 8 |
| Deplume | 38 | 41 |
| University | 34 | 30 |
| Mother job | | |
| Housewife | 34 | 28 |
| Employee | 66 | 72 |
| Residence | | |
| Urban | 42 | 48 |
| Rural | 58 | 52 |

Table (3) Clarifies the mean value of anthropometric measurements of male and female students. Female students significantly had higher in waist circumference and body fat than male students while, weight, height and body mass index were higher in male group than female with nonsignificant differences. Although , the changes between female and male students , the majority of students from both gender was in normal range of BMI (table 4) while thirty male and thirty-eight female were in the underweight range . Only 5 students from both gender groups were in over weight range. The obtained results were matched with WHO(20) stated that adults' weight is typically classified using the body mass index (BMI), which is an index of weight relative to height. A definition provided by the World Health Organization (WHO) is: A body mass index (BMI) below 18.5 kg/m2 is considered underweight, a BMI between 18.5-24.9 kg/m2 is considered normal weight, and a BMI of 25 or higher is considered overweight . The proportion of fat mass is crucial for physical performance. For athletes, a higher lean body mass (muscle mass) and lower body fat percentage are often associated with better strength, endurance, and agility. Anthropometric measurements like skinfold thickness or bioelectrical impedance analysis (BIA) can help assess the body fat percentage, providing insight into an athlete's physique and physical fitness. For students involved in physical education, height and weight are key indicators of overall growth and development, particularly during childhood and adolescence. These measurements help track physical maturation, which is important in understanding an athlete's potential for growth and performance (21&22).

**Table (3): Anthropometric indicator of male and female students(n=200).**

| Anthropometric indicator | Male (n=100) Mean±SD | Female (n=100) Mean±SD |
|---|---|---|
| Weight (kg) | 60.45±5.74a | 58.45±7.23 b |
| Height (cm) | 169.34±5.34 a | 162.56±4.56 b |
| Body Mass index (BMI) | 21.14±3.06 a | 21.97±7.91 a |
| Waist circumference (cm) | 62.33±10.43 b | 65.99±8.44 a |
| Body fat(%) | 18.23±4.71 b | 19.23±6.02 a |

*All results are expressed as mean ± SD. The differences were considered significant at P<0.05 or less*

**Table (4):Distribution of students according BMI**

| Groups | Male (n=100) Mean±SD | Female (n=100) Mean±SD |
|---|---|---|
| Underweight (BMI <18.5kg/m2) | 30 | 38 |
| Normal weight (18.5-24.9kg/m2) | 65 | 57 |
| Overweight (>25-29.9kg/m2) | 5 | 5 |

Table 5, shows the mean of dietary intake of female and male students for seven days. The data revealed that the most common nutrients lower than the daily references intake for both groups except sodium whereas carbohydrates and magnesium for female. All

mean of nutrients of both gender were more than 50% of DRI except calcium and cholesterol for men while calcium , phosphorous and zinc for female students. Male had high mean values of the majority of nutrients as compared with female group . Gomes et al. (21) showed that the athletic may be faced many nutritional disorders as hypertension, low immunity, kidney function failure and reduced bone structure . They observed that there is no athlete met the recommendations for vitamin A. Nutrient deficiencies can significantly impact the health, performance, and overall development of physical education (PE) students. These deficiencies can impair physical growth, energy levels, endurance, muscle recovery, and cognitive function, ultimately affecting an athlete's ability to perform well in physical activities. Here's a breakdown of the effects of specific nutrient deficiencies on physical education students (7).

Calcium is essential for bone health and the prevention of injuries. A deficiency in calcium, combined with insufficient vitamin D, can lead to weak bones, which increases the risk of fractures, stress fractures, and other bone-related injuries (23). Vitamin C is essential for the proper functioning of the immune system. A deficiency can make athletes more susceptible to illness, which can lead to increased sick days, reduced training capacity, and overall poor health. Also, it is necessary for the repair of tissues such as tendons, ligaments, and muscles. A deficiency can hinder recovery and increase the risk of injuries(24&25). Energy generation involves B-vitamins, particularly B1 (thiamine), B2 (riboflavin), and B3 (niacin). Lack of these vitamins can make you feel lethargic, have less energy, and have trouble getting things done. (26)Both the immune system and wound healing rely on zinc. Students may find it more difficult to recuperate from injuries or intense physical activity if they have a zinc deficiency, which can reduce their immune system and leave them more vulnerable to infections. Muscle growth and repair rely on protein synthesis, which zinc plays a key role in. A lack of this nutrient can cause development retardation and impaired athletic performance (27).

**Table (5): The mean dietary intake of female and male students for seven days (n=200).**

| Nutrients | Male (n=100) Mean±SD | *%DRI | Female (n=100) Mean±SD | *%DRI |
|---|---|---|---|---|
| Protein (g) | 56.56±3.65a | 62.84 | 50.11±4.23 b | 71.44 |
| Fat (g) | 55.09±3.88 b | 71.55 | 60.34±7.45 a | 86.2 |
| Carbohydrates (g) | 310.76±8.34 b | 80.71 | 365.22±6.24 a | 106.79 |
| Total calorie Kcal | 1965.09±12.85 b | 70.18 | 2204.38±7.22 a | 88.16 |
| Fiber (g) | 18.44±2.08 b | 67.05 | 19.04±1.69 a | 69.23 |
| Sodium ( mg) | 4870.45±22.98 a | 143.24 | 3845.91±7.91 b | 131.15 |
| Potassium (mg) | 1942.13±15.87 b | 60.69 | 2083.01±15.87 a | 65.09 |
| Calcium (mg) | 639.34.71±10.56 a | 49.18 | 583.46±8.54 b | 44.88 |
| Phosphorous (mg) | 844.21±9.51 a | 76.53 | 547.22±7.65 b | 43.77 |
| Magnesium (mg) | 385.22±7.38 b | 91.17 | 482.77±9.81 a | 150.86 |
| Iron (mg) | 14.01±0.76 a | 93.4 | 11.98±1.24 b | 79.87 |
| Zinc (mg) | 27.65±0.05 a | 61.44 | 24.56±0.22 b | 45.57 |
| Vitamin A (mcg) | 896.45±20.67 a | 99.61 | 645.32±9.44 b | 92.19 |
| Vitamin C (mg) | 70.31±5.19 a | 78.12 | 60.43±7.36 b | 67.14 |
| Vitamin B1(mg) | 1.05±0.45 b | 87.5 | 0.97±0.11 a | 80.83 |
| Vitamin B2(mg) | 0.93±0.06 b | 71.53 | 0.89±0.004 a | 68.46 |
| Cholesterol (mg) | 98.48±3.65 b | 49.24 | 100.61±8.14 a | 50.31 |

*All results are expressed as mean ± SD. The differences were considered significant at P<0.05 or less. DRI: Dietary references intake. * Dietary Reference Intake*

The results of Table (6) revealed the correlation coefficient between anthropometric measures and the studied nutrients intake by participators. It was observed that weight and BMI had highly positive significant correlation with protein and phosphorus (P≤0.01) while had very high positive significant correlation with caloric intake, fat, cholesterol and carbohydrates intake (P≤0.001). Whereas, weight recorded negative highly significant correlation with fiber, ash, zinc , calcium, V.C and V.B1. For height, it recorded positive significant correlation with calories, protein, carbohydrates and copper whereas it recorded positive high significant correlation with calcium, phosphorus, zinc and V.C.

Very highly positive significant correlation was detected in waist circumference (WC) with caloric intake and cholesterol intake whereas, highly positive significant correlation was recorded in WC with total fat and carbohydrates intake Although, there were highly negative significant correlation with fiber, ash and V.B2, negative significant correlation with calcium, iron, zinc and V.B1 while it recorded very highly negative significant correlation with V.C.

In case of percentage of body fat, it was found very highly positive significant correlation with caloric intake and cholesterol, highly positive significant correlation with fat, carbohydrates and V.A while it was positive significant correlation with copper.

There was a negative significant link with water intake, iron, zinc, and vitamin B1, a highly negative correlation with calcium and V.B2, and a very negative correlation with fiber, ash, and vitamin C involving the same measure.

To maintain a healthy weight and support physical performance, it is essential to eat a balanced diet that includes an appropriate balance of fats, carbohydrates, and proteins. The proportion of these three nutrients in the diet affects weight and the total caloric intake. Each macronutrient fat, carbohydrates, and protein plays a crucial role in an athlete's energy needs, and the balance of these nutrients can affect weight, body composition, and overall athletic performance. low-carb diet can lead to fat loss and weight reduction, but may impair performance in sports that rely on quick energy bursts(22&27).

**Table (6): The correlation between anthropometric measurements and some nutrients intake.**

| Variables | Weight | Height | BMI | Waist circumference | Body fat (%) |
|---|---|---|---|---|---|
| Caloric intake | 0.599*** | 0.042 | 0.515*** | 0.312*** | 0.575*** |
| Total Protein | 0.312** | 0.056* | 0.352** | 0.049 | 0.080 |
| Total Fat | 0.508*** | 0.009 | 0.603*** | 0.408** | 0.561*** |
| Carbohydrate | 0.553*** | 0.051* | 0.612*** | 0.364** | 0.278** |
| Fiber | -0.03* | 0.003 | -0.315** | -0.470** | -0.651*** |
| Ash | -0.281** | 0.032 | -0.352** | -0.402** | -0.502*** |
| Calcium | -0.266** | 0.337** | -0.121** | -0.045* | -0.465** |
| Phosphorus | 0.302** | 0.270** | 0.419** | 0.02 | 0.101 |
| Iron | -0.322** | 0.088 | -0.439** | -0.051* | -0.057* |
| Zinc | -0.242** | 0.360** | -0.225** | -0.076* | -0.058* |
| Vitamin A | 0.056* | 0.073 | 0.067* | 0.053* | 0.275** |
| Vitamin C | -0.541** | 0.219** | -0.236** | -0.631*** | -0.654*** |
| Vitamin B1 | -0.147** | 0.007 | -0.255** | -0.051* | -0.053* |
| Vitamin B2 | 0.004 | 0.005 | 0.007 | -0.291** | -0.377** |
| Cholesterol | 0.652*** | 0.003 | 0.527*** | 0.618*** | 0.582*** |

** Significant at p(P≤0.05), ** high significant at p(P≤0.01), *** very high significant at p(P≤0.01)*

The results showed in table (7) a measure of the degree of association between material well-being and anthropometric measures. A statistically significant positive correlation

(P≤0.05) was found between weight, highest BMI, and monthly income. Conversely, the tested anthropometric measurements were positively and significantly correlated with the amount of money spent on food (P≤0.01). The term "anthropometric measurements" refers to a set of standards for quantifying the dimensions, curvature, and mass of bodies. Sports, medicine, and academia are just a few of the many locations where they find use. These days, anthropometric measurements are used for gauging people's health and nutritional status on a population and individual basis. This ability of anthropometric measurements to be associated with prior exposures, current processes, or future occurrences is one of their primary benefits (28).

**Table (7): The correlation coefficient between anthropometric measurements and economic status.**

| Variables | Monthly income (EGP) | Money spends on food (EGP) |
|---|---|---|
| Weight (kg) | 0.057* | 0.345** |
| Height (cm) | 0.054* | 0.482** |
| Body Mass index (kg/m$^2$) | 0.071* | 0.249** |
| Waist circumference(cm) | 0.006 | 0.217** |
| Body fat (%) | 0.008 | 0.520** |

** Significant at p(P≤0.05), ** high significant at p (P≤0.01), ***Very high significant at p (P≤0.001).*

Researchers found a positive correlation between socioeconomic status and anthropometric status, and they also found that people with low anthropometric status scored lower on development measures than their peers with normal growth. No direct effects on developmental outcomes were found by this researcher, although they did find a significant association between socioeconomic status and anthropometric status. An individual's socioeconomic status is mediated by their weight, height, and, to a lesser degree, their mid-upper arm circumference relation to developmental outcome. Weight and body mass index tend to rise in tandem with per capita income, according to the research. Number of children in the family is significantly and inversely related to height, weight, body mass index, and waist size (29,30&31).

## 4. Conclusion

From the obtained results , it could be concluded that the nutrient recommendations for athlete students should focus on providing adequate energy and nutrients to support their physical activity, recovery, growth, and overall health. Proper nutrition helps athletes optimize their performance, prevent injuries, and maintain long-term health. The diet should be included adequate amount of fiber , calcium, vitamin C and decrease the sodium source in their diet .

## Conflict of Interest

The authors declare that there is no conflict of interest.

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# تقييم الحالة الغذائية لطلبة التربية الرياضية بجامعة المنوفية

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**الملخص العربى:**
هدفت هذه الدراسة إلى توضيح الدلالات النظرية للحالة الغذائية لطلاب التربية البدنية. قام 200 طالب كلية التربية البدنية (جامعة المنوفية) بملء الاستبانة وكانوا من تتراوح أعمارهم بين 18 إلى 20 عامًا، من كلا الجنسين. وقد احتوى الاستبيان على قياسات أنثروبومترية ومعايير اجتماعية واقتصادية ومتوسط تناول الطعام، مع التركيز على عدد الوجبات اليومية وتكوين الوجبات وعادات نمط الحياة. كما تم تحديد الارتباط بين الاختلافات المختلفة. وقد كشفت النتائج التي تم الحصول عليها أن متوسط العمر كان 18.86 ± 3.95 للذكور و19.11 ± 7.09 للإناث، ومتوسط قيم الدخل الشهري كانت 4529.56 ± 12.97 جنيهًا مصريًا للذكور و5067.45 ± 20.87 للإناث مع وجود فروق ذات دلالة إحصائية. وجد أن (100%) من الطلاب من الجنسين غير متزوجين، كما أن مكان الولادة، 58% من الذكور و52% يعيشون في أماكن ريفية، وكان تعليم أغلب الآباء والأمهات في كلا المجموعتين دبلوم بينما كان التعليم الأساسي للإناث وكان عملهم في كلتا المجموعتين موظفين. كان لدى الطالبات نسبة أعلى بشكل ملحوظ في محيط الخصر ودهون الجسم من الطلاب الذكور، بينما كان الوزن والطول ومؤشر كتلة الجسم أعلى في مجموعة الذكور من الإناث مع وجود فروق غير ذات دلالة إحصائية. كان غالبية الطلاب من كلا الجنسين في النطاق الطبيعي لمؤشر كتلة الجسم. كانت العناصر الغذائية الأكثر شيوعًا أقل من المدخول اليومي المرجعي لكلا المجموعتين باستثناء الصوديوم بينما كانت الكربوهيدرات والمغنيسيوم للإناث. كانت جميع متوسطات العناصر الغذائية لكلا الجنسين أكثر من 50% من DRI باستثناء الكالسيوم والكوليسترول للرجال بينما كانت في الكالسيوم والفوسفور والزنك للطالبات. كان لدى الذكور قيم متوسطة عالية لمعظم العناصر الغذائية مقارنة بمجموعة الإناث.

الكلمات الكاشفة: أنثى; ذكر; جسدي; مؤشر كتلة الجسم، التوصيات الغذائية

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