

# NUTRITIONAL PROFILE OF ADOLESCENTS PRACTICING RESISTANCE EXERCISE

*Perfil nutricional de adolescentes praticantes de exercício resistido*

*Perfil nutricional de adolescentes praticantes de ejercicio contra resistencia*

Original Article

## ABSTRACT

**Objective:** To assess the nutritional profile of adolescents practicing resistance exercise, determining the adequacy of the macronutrients and micronutrients caloric intake, and their nutritional status. **Methods:** Observational, cross-sectional and descriptive study conducted from August to September 2010 at a gym in Fortaleza-CE. A questionnaire comprising identification, anthropometric, dietary and supplementary data was applied to the adolescents. Data was analyzed using the Avanutri software, which assessed the adolescents' nutritional status and the macronutrients and micronutrients caloric intake. **Results:** The sample consisted of 33 students, of which 66.7% (n=22) were male and 33.3% (n=11) female. It is noteworthy that the majority of boys (60.6%; n=20) and of girls (27.3%; n=9) presented adequate Body Mass Index (BMI). As for the caloric intake, insufficient consumption predominated (39.4%; n=13) among boys. Regarding macronutrients, insufficient consumption of carbohydrates predominated in both sexes. The protein intake was adequate in most of the group and the predominant fat intake was excessive. On the micronutrients, there was great inadequacy, especially the intake of calcium, vitamins A, B2 and B6, zinc, magnesium and copper. Vitamin E, niacin and pyridoxine were being consumed in amounts potentially harmful. **Conclusion:** Although the majority of adolescents have shown normal nutritional status, the analyzed questionnaires showed a large inadequacy, which is liable, in the long term, to affect health.

**Descriptors:** Nutrition; Adolescent; Exercise.

## RESUMO

**Objetivo:** Analisar o perfil nutricional de adolescentes praticantes de exercício resistido, determinando a adequação do consumo calórico de macronutrientes e micronutrientes e o estado nutricional destes. **Métodos:** Tratou-se de um estudo do tipo observacional, transversal e descritivo, realizado de agosto a setembro de 2010 em uma academia de Fortaleza-CE, sendo aplicado, com os adolescentes, um questionário contendo dados de identificação, antropométricos, alimentares e complementares. Os dados foram analisados através do software Avanutri, que avaliou o estado nutricional e o consumo calórico de macronutrientes e micronutrientes dos adolescentes. **Resultados:** A amostra do estudo constituiu-se de 33 alunos, dos quais 66,7% (22) eram do sexo masculino e 33,3% (11), do sexo feminino. Destaca-se que a maioria do sexo masculino – 60,6% (20) – e do sexo feminino – 27,3% (9) – encontrava-se com o Índice de Massa Corporal (IMC) adequado. Quanto à ingestão calórica, predominou o consumo insuficiente entre os meninos – 39,4% (13). Com relação aos macronutrientes, o consumo insuficiente de carboidratos predominou em ambos os sexos. A ingestão proteica estava adequada na maioria do grupo e o consumo lipídico predominante foi excessivo. Quanto aos micronutrientes, houve grande inadequação, principalmente na ingestão de cálcio, vitaminas A, B2, B6, zinco, magnésio e cobre. A vitamina E, niacina e piridoxina estavam sendo consumidas em valores possivelmente nocivos. **Conclusão:** Apesar de a maioria dos adolescentes ter apresentado estado nutricional normal, os recordatórios analisados demonstraram uma grande inadequação, podendo, em longo prazo, trazer prejuízos à saúde.

**Descritores:** Nutrição; Adolescente; Exercício Físico.

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Received on: 05/03/2012

Revised on: 10/15/2012

Accepted on: 01/02/2013

## RESUMEN

**Objetivo:** Analizar el perfil nutricional de adolescentes practicantes de ejercicio contra resistencia determinando la adecuación del consumo de calorías de macronutrientes y micronutrientes y el estado nutricional de los mismos. **Métodos:** Se trató de un estudio observacional, transversal y descriptivo realizado entre agosto y septiembre de 2010 en un gimnasio de Fortaleza-CE a través de un cuestionario aplicado a los adolescentes con datos de identificación, antropométricos y complementarios. Los datos fueron analizados con el software Avanutri que evaluó el estado nutricional y el consumo de calorías de macronutrientes y micronutrientes de los adolescentes. **Resultados:** La muestra del estudio se constituyó de 33 alumnos de los cuales el 66,7% (22) eran del sexo masculino y el 33,3% (11) eran del sexo femenino. Se destaca que la mayoría del sexo masculino – el 60,6% (20) – y del sexo femenino – el 27,3% (9) – presentó el IMC adecuado. Respecto la ingesta de calorías, hubo el predominio del consumo insuficiente en los hombres – el 39,4% (13). Respecto a los macronutrientes, el consumo insuficiente de carbohidratos predominó en los dos sexos. La ingesta de proteínas fue adecuada para la mayoría del grupo y el consumo de lípidos predominante fue excesivo. Hubo gran inadecuación de los micronutrientes, principalmente en la ingesta de calcio, vitaminas A, B2, B6, cinc, magnesio y cobre. Las vitaminas E, niacina y piridoxina fueron consumidas en valores de probable nocividad. **Conclusión:** Pese a que la mayoría de los adolescentes presentaron el estado nutricional normal, los recordatorios analizados demostraron gran inadecuación lo que puede perjudicar la salud a largo plazo.

**Descriptores:** Nutrición; Adolescente; Ejercicio Físico.

## INTRODUCTION

According to the World Health Organization<sup>(1)</sup>, the adolescence phase comprises the age group between 10 and 19 years. It is a transitional period between childhood and adulthood, characterized by intense psychological, social and physical changes<sup>(2,3)</sup>.

For children and individuals in puberty, the energy requirements per unit weight is higher compared to those for adults. This increase is responsible for health maintenance, promotion of growth and sexual maturation, and it is also necessary to meet the energy expenditure of physical activities. An inadequate supply of nutrients in individuals in this age group may result in decreased growth speed and lead to short stature puberty delay, irregularities in menstruation, less healthy bones and increased risk of injury due to exercise with excessive intensity<sup>(4,5)</sup>.

Knowledge of the importance of dietary habits and regular physical activity is essential for health maintenance, however, do not insure a change to healthy eating habits and the adoption of healthier foods on the part of the athlete

population. In general, it is observed that sportspeople and athletes are influenced by coaches, media and other athletes, and, seeking to achieve their goals, adopt inadequate diets or abuse of dietary supplements, stimulated by a faulty knowledge with regard to good nutrition. Unfortunately, interest in nutrition is rare, unless when linked to improving the very performance of the athlete/sportsperson<sup>(6,7)</sup>.

Resistance exercises – that is, exercises with weights – are the most efficient to favorably change the body composition, contributing to increased muscle mass and body mass, and to body fat reduction. Besides presenting low risk when under good advisory, they increase the functional capacity, stimulating strength, muscular endurance and flexibility<sup>(8,9)</sup>.

Nutrition assists the welfare of the individual practicing exercise, being reflected in their sport performance<sup>(10)</sup>. Therefore, there is a growing need for guidance and education on sports nutrition by the professional nutritionist, to help sportspeople and athletes to improve their eating habits<sup>(11,12)</sup>.

It is perceived that adolescents, especially those who practice regular physical activity, adopt inappropriate feeding practices. The nutritional needs of bodybuilding practitioners are differentiated from other lifestyles, such as sedentary people, and have specific characteristics<sup>(12)</sup>.

Thus, due to the growing number of adolescents who frequent gyms and to the lack of knowledge on their part regarding the optimal nutrition and the positive correlation between inadequate diets and the risk of morbidity and mortality, it was noted the importance of knowing these adolescents' nutritional status and analyze their dietary habits. Therefore, the aim of this study was to analyze the nutritional profile of adolescents practicing resistance exercise, determining the adequacy of the macronutrients and micronutrients caloric intake, and their nutritional status.

## METHODS

This is an observational, cross-sectional descriptive study, which analyzed, in a given period, from the nutritional point of view, the food consumption and the nutritional status of adolescents practicing resistance exercise.

The research was conducted in the period from August to September 2010, in a gym located in the city of Fortaleza-CE. The population corresponded to students who practiced resistance exercise regularly. The gym reported having 50 students who were assiduous practitioners. A simple random sample was calculated, without replacement, after performing the Cochran calculation, being obtained a sample of 33 students.

Inclusion criteria for this study were students regularly enrolled, aged between 10 and 19 years, healthy (with the absence of any diagnosed disease) which agreed to participate. Were excluded students with diseases diagnosed by a doctor, such as diabetes, hypertension, dyslipidemia, gastritis, food allergy, among others, for these conditions determine different nutritional needs.

As instrument of data collection, a questionnaire containing identification data (name, date of birth, gender, age), anthropometric data (weight and height), dietary data (24-hour food recall of three non-consecutive days, being a day during the weekend) and additional data on physical activity (frequency, intensity and duration).

Measurement of body weight was taken using a digital scale (Balmak™) with capacity of 150 kg. The individual stood on the center of the balance basis, with arms along the body and barefoot. To obtain the teenagers' height, it was used the stadiometer coupled to the scale, measuring up to 2 meters, with graduation of 0.5 cm (Balmak™), with the subject standing erect, barefoot, with their heels together, back straight, shoulders and buttocks in contact with the stadiometer, arms extended along the body and head up, looking at a fixed point at eye level.

For the nutritional status assessment, it was calculated the body mass index (BMI), adopting as a classification criterion the values for age and sex and their cut-off points as proposed by the World Health Organization (WHO)<sup>(13)</sup>.

As for the determination of energy requirement, it was applied the formula by the Food and Agriculture Organization/World Health Organization (FAO/WHO)<sup>(14)</sup>. For the calculation of energy expenditure in physical exercise, were used the multiple basal metabolic rate (BMR), as described in the literature<sup>(15)</sup>. For mild and moderate weight training, the value was considered 3; for intense weight training, value 6. The result was added in the formula cited above, being considered inadequate the caloric intake with 50 calories beyond or beneath the obtained result.

The menus were analyzed with use of the nutritional assessment software, Avanutri (version 4.5), including all tables of food composition contained therein (IBGE, Manufacturer information, Nestlé, Novartis, Nutrimea, Pinheiro, Support, Philippi ST, Taco).

The calories content, the macronutrients (carbohydrate, protein and lipid) and micronutrients (vitamins A, E and C, B vitamins, calcium, iron, zinc, magnesium and copper) were analyzed, for being the most relevant in the physical exercise.

The macronutrients contents were related to their percentage range of energy contribution and compared with the indications of the American Dietetic Association<sup>(16)</sup>, which recommend for physically active adolescents a diet with adequate lipids content (20-25% of total caloric value - TCV), rich in carbohydrates (60-70% of the TCV), with balanced amount of protein (12-15% of the TCV).

Regarding the micronutrients, the recommendations of the Dietary Reference Intakes (DRI)<sup>(17)</sup> were used and, finally, the Tolerable Upper Intake Level (UL) as the maximum tolerable intake level.

In the statistical analysis, SPSS (Statistical Package for Social Sciences, version 17.0) for Windows software<sup>(18)</sup> was used and means were compared using non-parametric data, with Mann-Whitney test. All statistical analyzes performed were considered significant when p-value was less than 5%.

This study was initiated after approval by the University of Fortaleza Ethics Committee, with opinion number 184/2010, and developed after each responsible for a minor participant and each participant over 18 years old signed a Free and Informed Consent Form, making them aware of the study and assuring them that they would not suffer physical damage, be summoned to answer what they were not willing to, and suffer any loss of privacy or financial cost.

## RESULTS

Of the 33 students, 22 (66.7%) were male and 11 (33.3%) female. Most boys and girls presented appropriate BMI - 60.6% (n=20) and 27.3% (n=9), respectively (Table I).

As for the calories amounts in the analyzed recalls, compared with the energy needs, insufficient energy consumption was predominant - 13 boys (39.4%) had insufficient calories (Figure 1).

With regard to macronutrients, insufficient intake of carbohydrates predominated in both sexes - 16 (48.5%)

Table I - Nutritional status of resistance exercise practitioners according to sex. Fortaleza-CE, 2010.

Nutritional status	Female		Male		Total	
	n	%	n	%	n	%
Adequate	9	27.3	20	60.6	29	87.9
Excessive	2	6.1	2	6.1	4	12.1
Total	11	33.4	22	66.7	33	100

Table II - Characteristics of macronutrients in the diet of resistance exercise practitioners, classified by sex. Fortaleza-CE, 2010.

Adequacy	Carbohydrates				Proteins				Lipids			
	n	%	Mean	standard deviation	n	%	Mean	standard deviation	n	%	Mean	standard deviation
<b>Male</b>												
Insufficient	16	48.5	52.0	4.2	2	6.1	11.1	0.7	---	---	---	---
Adequate	6	18.2	61.9	1.8	11	33.3	14.4	1.2	9	27.3	23.4	1.6
Excessive	---	---	---	---	9	27.3	19.0	2.4	13	39.4	33.5	4.0
Total	22	66.7	54.7	5.8	22	66.7	16.0	3.2	22	66.7	29.3	6.0
<b>Female</b>												
Insufficient	8	24.2	51.9	2.8	1	3.0	8.3	---	2	6.1	14.8	3.9
Adequate	2	6.1	64.4	5.6	6	18.2	13.2	0.8	2	6.1	24.9	0.5
Excessive	1	3.0	79.6	---	4	12.1	18.2	2.0	7	21.1	33.8	3.6
Total	11	33.3	56.7	9.6	11	33.3	14.6	3.4	11	33.33	28.7	8.3
<b>Total</b>												
Insufficient	24	72.7	52.0	3.7	3	9.1	10.2	1.7	2	6.1	14.8	3.9
Adequate	8	24.2	62.5	2.8	17	51.5	14.0	1.2	11	33.3	23.7	1.6
Excessive	1	3.1	79.1	---	13	39.4	18.7	2.2	20	60.6	33.6	3.8
Total	33	100.0	55.4	7.2	33	100.0	15.5	3.3	33	100.0	29.1	6.7

Table III - Distribution of micronutrients in the diet of resistance exercise practitioners. Fortaleza-CE, 2010.

Micronutrients	Adequacy					
	Possibly inadequate		Possibly adequate		Possibly harmful	
	n	%	n	%	n	%
Calcium	29	87.9	4	12.1	---	---
Iron	12	36.4	21	63.6	---	---
Vitamin E	8	24.2	24	72.7	1	3.0
Vitamin A	24	72.7	9	27.3	---	---
Vitamin C	14	42.4	19	57.6	---	---
Thiamine	15	45.4	18	54.5	---	---
Riboflavin	18	54.5	15	45.4	---	---
Niacin	8	24.2	21	63.6	4	12.1
Pyridoxine	19	57.6	13	39.4	1	3.0
Zinc	22	66.7	11	33.3	---	---
Magnesium	32	97.0	1	3.0	---	---
Copper	33	100.0	---	---	---	---

males and 8 (24.2%) females; protein intake was adequate in most of the group, being 11 (33.3%) in the group of boys and 6 (18.2%) in girls'; and lipid intake was predominantly

excessive, with worse outcome in the male group, where 13 (39.4%) students consumed beyond the dietary recommendations (Table II).

Regarding the amounts of micronutrients, the study demonstrates a high inadequacy in almost all nutrients, especially calcium, vitamins A, B2, B6, zinc, magnesium and copper, as described in Table III. It is noteworthy that vitamin E, niacin and pyridoxine had possibly harmful values when compared to the DRI.

With respect to qualitative food consumption, it was observed, in the studied population ( $n = 28.86\%$ ), the daily presence of carbonated beverages, sandwiches, sandwich cookies, fried snacks or savories ('coxinha', that is a pastry filled with chopped chicken meat, samosas etc.) and chocolate milk.

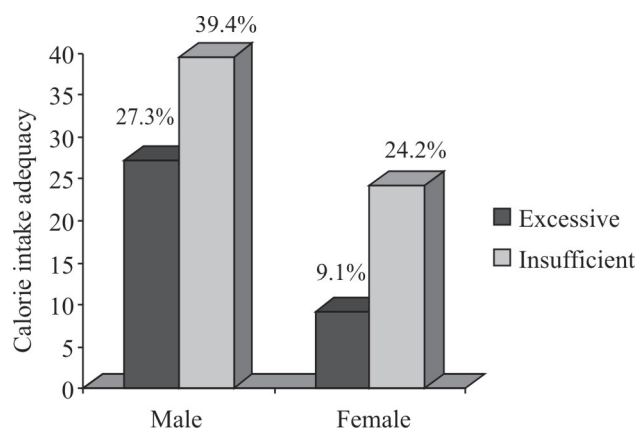


Figure 1 - Adequacy of calorie intake of the resistance exercise practitioners, classified by sex. Fortaleza-CE, 2010.

## DISCUSSION

The majority of the adolescents investigated in this study presented nutritional status with BMI within the standards of adequacy, as well as another study<sup>(3)</sup>, in which 72.2% of adolescent males and 80.3% of females were found with suitable IMC. The same occurred in other studies<sup>(19,20)</sup>, where 100% and 78% of respondents of both genders had adequate nutritional status for age, respectively.

The prevalence of high weight obtained for adolescents in this research is similar to other studies<sup>(20)</sup>, where 14.2% and 12.7% of adolescent males and females presented high BMI, respectively.

Studies held in Brazil show a steady increase of overweight and obesity in adolescence, as has been occurring in the adult population. In adolescents, overweight is associated with increased risk of obesity in adulthood and, therefore, is indirectly associated with type II diabetes, hypertension, dyslipidemia, orthopedic complications, emotional disorders, among other complications<sup>(21)</sup>.

Regarding calories, there was prevalence of insufficient values in the present study. Similar results have been described<sup>(8)</sup>, being noteworthy findings of 90% of the sample with an insufficient intake of calories for their needs. Therefore, the practitioner can achieve weight fatigue in a shorter time, the risk of damage will increase and the glycogen level will not be sufficient to take all the training without some protein depletion<sup>(4,5)</sup>.

The maintenance of energy balance should be a permanent concern<sup>(22)</sup>. Young athletes are particularly affected by the energy imbalance that can result, if it extends, bringing serious health consequences, such as short stature, delayed puberty, nutrient deficiency, dehydration, menstrual irregularity, bone changes, increased incidence of injuries and greater risk for the onset of eating disorders<sup>(4,5)</sup>.

For physical activity practitioners, the energy consumed is also essential for the maintenance of lean body mass and functioning of the immune and reproductive systems. During periods of training, besides health maintenance, energy consumption promotes the maintenance of body weight and maximizes the effects of training<sup>(4)</sup>.

It is also emphasized that low-calorie diets, in addition to not providing adequate levels of macro and micronutrients, and not stimulating the adoption of healthy eating habits, may compromise health, through the occurrence of specific nutritional deficiencies and induction of decreased metabolism, increasing the chances of weight regain and leading to a large loss of muscle mass<sup>(23)</sup>.

On the carbohydrate contents, most recalls analyzed in the current investigation were characterized as hypoglycemic, with similar results to other studies<sup>(19,24)</sup> which observed a considerable number of respondents consuming less carbohydrates amounts than it is recommended. In another study<sup>(25)</sup>, 90.9% of the dietary surveys answered by the participants showed glucose consumption below the recommended.

As caloric intake is important, the carbohydrate intake is also essential for the exercise practitioner. Inadequate intake of carbohydrates can result in insufficient muscle glycogen stores and early fatigue, leading to a decrease in the concentration and reduction in training ability, along with the use of protein inventories for the purpose of energy production. Carbohydrate is one of the predominant fuel in the physical activity implementation. In addition to adjusting the blood glucose, it is essential for the proper functioning of the body. To be used as an energy source, it depends on the type, intensity and duration of the exercise performed<sup>(4-26)</sup>.

Since the carbohydrate stores in the body are limited and sufficient for few hours of exercise, diet manipulation with food rich in carbohydrates aims to increase the body



stores, both in muscles and in the liver, improving the recovery process and the immune response, and provide readily available energy substrate for use during the physical activities<sup>(9)</sup>.

Adopting hypoglycemic diets for an extended period can result in damage to the central nervous system and exorbitant production of ketone bodies, due to the increase in peripheral lipolytic activity, because carbohydrates provide fuel for the brain, spinal cord, peripheral nerves and red blood cells, being considered the main suppliers of energy for the body<sup>(26)</sup>.

With respect to protein content, it was adequate in most of the group assessed in this research. This result is similar to other study<sup>(19)</sup>, in which half of the study group consumed adequate amounts of protein. Different results were found in another study<sup>(25)</sup>, where the consumption of hyperproteic diets was observed. Another study<sup>(8)</sup> found that 60% of the subjects were ingesting more protein than recommended, however, it was highlighted<sup>(4)</sup> that practitioners of physical exercise exceeded the values of recommendation.

In general, protein recommendations are easily achieved, since there is an appreciation of protein intake, not only through food but also through nutritional supplements, due to the existing association between the intake of this nutrient, muscle mass gain and strength. Adequate protein intake for children and adolescents must maintain the positive nitrogen balance, that is, the intake must be greater than the use to maintain the normal growth and development of organs and tissues<sup>(26-28)</sup>.

For sportspeople, the protein has the function of repairing muscle fibers microdamages, provide some amount of energy to mechanical work in aerobic physical activity and also participate in muscle synthesis<sup>(4)</sup>.

With respect to lipid content, the excessive consumption was predominant in the current study, with worse outcome in the male group. A very common result in other studies<sup>(3,20,24,25)</sup>.

A major concern regarding the use of high-fat diets are the deleterious effects, such as the onset of peripheral insulin resistance and increased incidence of cardiovascular diseases, dyslipidemia and obesity. On the other hand, low-fat diets are also troublesome, since they can influence the absorption of fat-soluble vitamins, the adequate supply of essential fatty acids etc.<sup>(28)</sup>

As for calcium, the majority of the adolescents evaluated in the current study consumed below the recommended values, similarly to the results reported in other studies<sup>(4,28)</sup>, according to which the adolescents consumed on average 35% of the DRI recommendation and 95.4% had inadequate intake. What is a worrisome fact because, in the long run, can cause the development of osteoporosis. One of the

main relations between calcium and physical activity is its decisive bone contribution. Adequate intake of calcium reduces the frequency of stress fractures, that are common among athletes with low calcium intake and have menstrual irregularities<sup>(4,5)</sup>.

With regard to vitamin A levels, it was noticed that most investigated teenagers showed consumption below the recommended values. Similar results were reported in other study<sup>(25)</sup>, in which the inadequacy of vitamin A intake, compared with the recommendation, was observed for most athletes, totaling 54.5% of the subjects, in contrast to another research<sup>(4)</sup>, in which 98.1% of the subjects achieved adequate consumption of vitamin A.

Vitamin A plays an essential role in vision, growth, bone development, maintenance of epithelial tissue and the immune process. Its deficiency can lead to xerophthalmia and sometimes the night blindness, along with decreased resistance to infections and increased mortality. Vitamin A deficiency has consequences not only for vision, but also for various physiological functions, such as causing a negative effect on certain stages of the metabolism, and is considered one of the easily preventable public health problems<sup>(29,30)</sup>.

As for vitamin B complex, most adolescents analyzed in this study presented inadequate values, with the exception of vitamins B1 (thiamine) and B3 (niacin). Another study<sup>(28)</sup> found that the consumption of vitamin B2 (riboflavin) and B6 (pyridoxine) among girls was 74.51% and 58.67% of the DRI recommendation, respectively. However, different results are described<sup>(4)</sup>, where 95% and 92% of individuals had appropriate recommendation values of vitamin B2 and B6, respectively.

The low intake of vitamin B2 has been associated with several diseases, including cancer and cardiovascular diseases. Vitamin B6 is essential for maintenance of the lymphoid organs' structural integrity, immune function and fighting infection. It is also emphasized that the vitamin B complex is essential for energy metabolism of macronutrients<sup>(30,31)</sup>.

Zinc showed 66.67% of inadequacy among the adolescents of this study. Similar results were reported in other study<sup>(28)</sup>, in which the adolescents consumed 62.34% of the DRI recommendations, differently from findings of another study<sup>(4)</sup>, in which adolescents reached 94.4% of adequacy in zinc consumption.

The one who adheres to a low-zinc diet for a long period may have impaired their immune function, since this mineral participates in many reactions of cellular metabolism, including physiological processes such as immune function, antioxidant defense, growth and development<sup>(32)</sup>.

Unlike other study<sup>(4)</sup>, in which adolescents consumed 97% of the DRI recommendations, this study showed 100% of inadequacy in copper consumption. In the case of adolescents, adequate intake of micronutrients such as copper, zinc and vitamin E, is necessary due to the practice of intense physical activity and to maintain homeostasis, influenced by the rapid growth and development<sup>(33)</sup>.

As for magnesium, the majority of adolescents analyzed in this research consumed values below the recommendation. One study<sup>(4)</sup> found similar results, in which it was observed that magnesium is one of the nutrients that showed high prevalence of inadequacy among adolescents. Magnesium should be maintained at adequate levels during adolescence, as it is mentioned as an important adjunct in the bone mineralization process, besides being one of the main minerals that have interaction with physical activity and, often, low consumption, due to the energy restriction and vegetarian practices<sup>(4,33)</sup>.

Several are the factors that influence the quality of a diet. In the case of adolescents, one must take into consideration that, at this age, there is a quest for increased independence, and the choice of food is one of the areas in which these young people can show more their determination and express their preferences<sup>(26)</sup>. A study<sup>(3)</sup> resembles the results of this study, when observed that 70% of the study population consumed daily carbonated beverages, candies, chewing gum, packaged snacks, sandwich cookies and sweets (dulce de leche, *carimã* cake, peanut brittle).

Inappropriate eating behaviors may impair the nutritional status, with possible negative effects on growth, increased risk of diseases onset and decreased metabolic rate, exacerbating the need for further restricted diets to achieve the desired weight loss, which is totally contraindicated. In the training, for both sportspeople and athletes, nutrition is a factor that aids in physical well-being and is reflected in the good performance. The food supply must meet the energy demand, as well as ensure the water and nutrients balance<sup>(11,26)</sup>.

Most of the analyzed recalls in this study contravenes the laws of healthy eating, especially with regard to the nutritional needs, what, in the long term, can cause serious metabolic disorders, specific nutritional deficiencies and potential health risks.

There is the need for deepening of this study and similar others with more representative samples, so that the eating habits of such clientele may be increasingly known and effective interventions are implemented. It is noteworthy the difficulty in working with adolescents and the implementation of 24-hour recall, because much information is omitted and/or underestimated.

In view of this, it is considered essential to have implemented educational activities aimed at heightening

awareness of the population in general, aiming to clarify the risks associated with physical exercise without proper monitoring by professional nutritionist.

## CONCLUSION

Despite the eutrophic nutritional status of the group, the inadequacy in consumption of calorie, carbohydrate and lipid can be highlighted. The protein intake adequacy was surprising, since the consumption of protein-rich supplements is common in gyms. Furthermore, it is important to emphasize the deficit in consumption of vitamin B complex and calcium, which are essential for the sportsperson. It is suggested to continue this research, for monitoring and corrections to the observed inadequacies, as well as preventing the occurrence of nutritional disorders.

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