34 - ANTHROPOMETRIC STUDY OF STUDENTS PRACTICING PHYSICAL ACTIVITIES IN A PRIVATE SCHOOL, RIO DE JANEIRO

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INTRODUCTION

The World Heath Organization (WHO) defines adolescence from a chronological criterion point of view, considering two distinct stages for that period of life: the first one is from 10 to 14 years, and the final stage is from 15 to 19 years old. (WHO, 1995).

During those years the growth of body and mind can be observed and the physical progress of puberty is associated with quick emotional and intellectual development. (MAHAN & ESCOTT-STUMP, 2002).

Anthropomety is a direct method of evaluation of body dimensions often used because it can easily and inexpensively measure people at all stages of their lives. Anthropometric measures mostly applied among teenagers are weight, height, skinfolds and perimetry (FERNANDES FILHO, 2003).

Health indicators can be built from the anthropometric data, so as to evaluate and monitor the bodily composition in order to establish up to what extent the problems related to the nutritional state can affect physical performance rates.

The prevalence of obese children and adults is detected in the whole world, having made WHO consider obesity a public health problem as alarming as famine. It is estimated that 20% of the Brazilian children are overweight and about 32% of the Brazilian adult population may be overweight at some rate (BRASIL, 2004).

Eating habits among adolescents are often worrisome, for they usually have irregular meals, snacks and fast food, following alternative dieting standards. They also skip meals at home, mainly breakffast, and this habit is more common among females than males. (MAHAN & ESCOTT-STUMP, 2002).

Another worrisome factor is the decrease in the practice of physical activities along the last decades due to the technological advancements and comforts in current everyday life. That factor is reflected in the reduction of total teenagers' daily energetic consumption rate. (GIUGLIANO & CARNEIRO, 2004).

From this viewpoint, this study aims at delineating the anthropometric profile of students who practice physical activities in a private school in the city of Rio de Janeiro.

MATERIAL AND METHODS

It is a cross-cut descriptive study of primary basis accomplished in Augut 2006 among adolescents in a private elementary school unit located in the neighborhood of Ramos, in the city of Rio de Janeiro, RJ.

Every student enrolled in the 5^{th} and 6^{th} grade in elementary school, between the ages of 10 and 14 were requested to participate in the research. At the occasion they were invited, they were instructed on how to proceed to collect data. The free consent term was sent to the responsible for each child, and all the questions were clarified. A further meeting was appointed.

The applied variables were: gender, bodily mass (kg), height (m), age (years), date of birth, schooling, Bodily Mass Index (BMS - kg/ m^2).

The anthropometric measures were made in the physical education scheduled class, in a room reserved for this kind of survey. The measuring techniques applied were the ones preconized by Lohman (SISVAN, 2004). The trademark of the scale used was Filizola, with maximum capacity for the weight of 150Kg, graduations of 100g, provided with a stadiometer. The equipment unit had been previously tested and calibrated for the research in order to measure bodily mass and height.

The following procedures were carried out for the collection of anthropometric measures: a) Bodily Mass (kg) - the teenager stood up in an upright position at the center of the scale, barefooted, wearing as few pieces of clothes as possible, feet together and arms streteched along the bodiy, looking at a fixed point at the eye's height; b) Height (m) - the teenager stood up in an upright position, barefooted, without any piece in the hair, feet together and arms streteched along the body, looking at a fixed point at the eye's height. The internal bones of the heels should be in contact, as well as the internal part of both knees. The feet should be together so as to make a right angles with the legs.

The percentile classification criterion of Bodily Mass Index (BMI) was used for the assessment of teenagers' nutritional status according to age and gender of the reference standards National Health and Nutrition Examination Survey - NHANES II. The BMI is the indicator recommended both for individual and collective diagnosis for the nutritional disordes in teenage. The calculation is made by dividing the weight expressed in kilograms by the square value of the figure corresponding to the height measured in meters (SISVAN, 2004).

The cut-off points established by WHO (1995) for the assessment of teenagers's nutritional status are analysed by the percentile BMI. According to this method, teenagers below pecentil 5 are diagnosed as thin or underweight; between percentile 5 and 85, as adequate or eutrophic; those who feature BMI percentile above 85 are diagnosed as overweight (SISVAN, 2004).

The data were printed and consolidated in Excel for Windows 2007 program, and statistical package SPPS version 10.0 was applied for the analysis. The exploration of the analysis was made through the absolute and relative frequencies and the measurements of the central trend (average and standard deviation) of the selected variables. The chi-squared test (^{2}) was used to check the differences in proportions between variables: gender and age, weight, height and BMI, at a significance level $p<0.05$.

This study complied with the 196/96 resolution norms issued by the Conselho Nacional de Saúde (Health Nationa Council), which describes the “Diretrizes e normas regulamentadoras da pesquisa envolvendo seres humanos” (“Guidelines and regulating procedures for research involving human beings”, document issued by the Health Ministry - MS, FIOCRUZ, 1998). It was also approved by the research ethics committee at Centro Universitário Augusto Motta

RESULTS AND DISCUSSION

From the total number of selected teenagers 50 (76.92%) participated in the study and 15 were left out from the survey because they were lated to hand in their consent term signed by their parents. Sixty two percent of the participants were female, most of whom concentraded in the age range from 10 to 12 years old.

Table 1 presents absolute, average(±SD) values and value p for the age (years), weight (Kg), height (m) and percentil BMI of teenagers. Boys' average age was 11.60.8 years, and girls, 11.50.8 years. Statistically meaningful differences were not observed in both genders in the average and standard deviations of age, weight, height and percentile BMI.

Table 1. Absolute, average values, standard deviation and p value for age, weight, height and BMI, according to gender among teenagers enrolled at a private school in Rio de Janeiro, RJ. August, 2006.

Variables	Male Average ±SD	Female Average ±SD	Global Average ± SD	P value
Age (years)	11.6±0.8	11.5±0.8	11.6±0.8	0.360
Weight (Kg)	47.6±10.9	45.5±10.6	46.3±10.6	0.347
Height (m)	1.5±0.9	1.5±0.9	1.5±0.9	0.624
Percentile Weight	20.6±3.6	20.1±3.9	20.3±3.7	0.572

Albano e Souza (2001) have evaluated 92 adolescents enrolled in an elementary and middle public school in the city of São Paulo. The authors found an average age of 12.91.2 years, higher than the figure found in this study. For the nutritional diagnosis according to percentile BMI, they have come to similar results (20.13.1, for boys; 21.03.7, for girls) when compared to this survey, in which the teenagers were eutrophic.

In a survey carried out at the Centro de Juventude (Youth Center) in the city of São Paulo, involving 153 teenagers, the average age was 11.91.3 years. The percentile BMI was registered for boys was 19.23.6Kg/m^2 and for girts, 19.23.2Kg/m^2, respectvely, without statistically meaningful differences between genders (GARCIA et al. 2003).

For the nutritional status according to gender, a greater prevalence of overweight was detected for boys (47.4%). For girls, high prevalence was observed for overweight (41.9%) and low weight (12.9%) (Table 2), with no records of statistically meaningful difference (p value = 0.923).

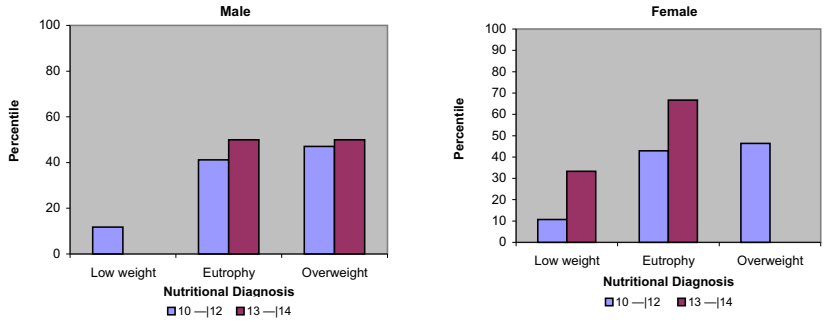
Table 2. Distribution of teenagers - according to gender and classificaion of nutritional status, - enrolled in a private school in Rio de Janeiro, RJ. August, 2006

Gender	Low Weight n(%)	Eutrophy n(%)	Overweight n(%)	Total n(%)
Male	2 (10.5)	8 (42.1)	9 (47.4)	19 (100.0)
Female	4 (12.9)	14 (45.2)	13 (41.9)	31 (100.0)
Total	6 (12.0)	22 (44.0)	22 (44.0)	50 (100.0)

In chart 2 greater prevalence of overweight (47.1%) and low weight (11.8%) can be observed among male adolescents from the age of 10 to 12, with no records of statistically meaningful difference (p value = 0.873).

Among girls, greater prevalence of overweight (46.4%) and low weight (10.7%) can be observed from the age of 10 to 12. There were no records of statistically meaningful difference (p value = 0.246). Both among boys and girls there was no record of important impairment of the nutritional status, probably because the studied sample was small.

Chart1. Distribution of male teenagers - according to age range and classification of nutritional status - enrolled in a private school in Rio de Janeiro, RJ. August, 2006.



In the survey related to nutritional status carried out by Garcia et al. (2003), it was detected that 2.2% of the boys and 1.6% of the girls had their weight below the ideal weight for their ages, 77.2% and 80.3% were within the normal range, 10.8% and 13.1% feature overweight risk and 9.8% and 5% feature overweight, respectively, without statistically meaningful differences between the nutritional status and gender.

In the survey accomplished by Albano e Souza (2001), a higher prevalence of eutrophy was observed in the studied sample, both in males 58.1% and females 71.5%. The authors found 4.7% for the prevalence of overweight in the male groups, and 16.6% in the female group. For low weight the male groups featured 9.3% and the female group, 2.0%.

According to data from National Health and Nutrition Examination Survey III (NHANES III), accomplished from 1988 to 1994 by the National Center for Health Statistcs (NCHS) at the Centers for Disease Control and Prevention (CDC), the prevalence of overweight among teenagers between the ages of 12 and 17 years was 10.6%. For the male group at ages from 12 to 14 years the prevalence of overweight was 10.7%. For the female group, the prevalence was 11.5% for the ages of 12 and 14 years (TROIANO et al., 1998). Those data diverge from the data found in this study about overweight.

Puberty is the stage of adolescence transformations between the ages of 13 and 15 and a half years for boys, and between the ages of 11 and 13 years and a half for girls. This stage is not only different for boys and girts, it also brings about changes in the body composition. The comparison of the groups indicates that the girls acquire more adipose mass, while the boys acquire more thin mass and height (VITOLO, 2003; MAHAN & ESCOTT-STUMP, 2002).

So, one of the probable factors related to the high proportion of overweight among the adolescents analysed in this survey - from 10 to 12 years, at the puberty - is due to the fact that they had not reached the growth spurt; consequently they would still have an accumulation of adipose tissues necessary for this stage.

CONCLUSION

According to the anthropometric profile, both male and female teenagers feature high prevalence of overwewight, mainly between the ages of 10 and 12 years. The professionals in the field of health, such as doctors, nutritionists, physical education teachers, among others, must be ready and prepared to act in the prevention and control of diseases related to incorrect eating habits, and to the lack of physical activity among other issues in order to minimize the harmful effects that these factors may cause to the individuals' quality of life during adolescence and at later life stages.

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ANTHROPOMETRIC STUDY OF STUDENTS PRACTICING PHYSICAL ACTIVITIES IN A PRIVATE SCHOOL, RIO DE JANEIRO

ABSTRACT

Adolescence is the period of life characaterized by deep transformations in the human body. The widely used method to evaluate bodily changes is anthropometry, in the context of kineanthropometry. This study aims at delineating the anthropometric profile of students who practice physical activities in a private school in the city of Rio de Janeiro, in the state of Rio de Janeiro. It is a descriptive cross-cut study of primary base carried out among teenagers enrooled in the 5th and 6th grade of elementary school, from 10 to 14 years old in August 2006. The statistic package SPSS version 10.0 was applied for the analysis. Among 50 teenagers 62% were girls at the average age of 11.50.8 years, and the boys, 11.60.8 years. The analsyis of the nutritional state measured by the percentile BMI (Bodily mass Index) revealed that there was higher prevalence of overweight among the boys (47.4%). High prevalence of overweight was detected among the girls for overweight (41.9%) and low weight (12.9%). The conclusion was that both male and female teenagers feature high prevalence of overweight, mainly at the age from 10 to 12 years.

KEY WORDS: Teenagers, Anthropometry, Physical Activity

ÉTUDE ANTHROPOMÉTRIQUE DES ÉTUDIANTS PRATIQUANT DES ACTIVITÉS PHYSIQUES DANS UNE ÉCOLE PRIVÉE, RIO DE JANEIRO.

RÉSUMÉ

L'adolescence est une phase caracterisée par profondes tranformations dans l'organisme. La métode est amplement utilisé pour évaluer les transformations corporelles, c'est l'anthropométrie, contexté dans la cineanthropométrie. L'étude a objectivé déterminer le perfil anthropométrique des élèves qui pratiquent de activités phisiques dans l'école de la résille dans la commune da Rio de Janeiro, RJ. On traite d'un étude descriptif, une coupe transversale, base primaire, realiseé avec les adolescents matriculés à la 5ème et 6ème séries de l'enseiqnement fondamental à l'âge (quiva) de 10 ans à 14 ans, au mois d'août de 2006. L'analyse a étè faite en utilisante le paquet statistique SPPS version 10.0. Des 50 adolescents, 62% étaient des filles à l'age médienne de 11,6±0,8 années. Quant à l'etat nutritif par le IMC agrandir, on détecté un numéro majeur de sur lourd aux garçons (47,4%). Dans les filles on observé la prédomination plus élevé puor sur lourd (41,9%) et baisse lourd (12,9%). On conclue que les adolescents du sexe masculin comme les adolescents du sexe féminin ont présenté la prédomination plus haute de sur lourd, principalment, dans la bande de 10 à 12 ans d'âge. MOTS-CLES: Adolescence, Anthropométrie, Activité Phisique.

ESTUDIO ANTROPOMÉTRICO DE LOS ESTUDIANTES PRACTICANTES DE ACTIVIDAD FÍSICA EN UNA ESCUELA PRIVADA, RIO DE JANEIRO.

RESUMEN

La adolescencia es una fase caracterizada por profundas transformaciones en el organismo. El método ampliamente usado para evaluar las transformaciones corporales es la antropometría, contextualizada en la cineantropometría. El objetivo del estudio fue tazar el perfil antropométrico de los estudiantes de una escuela privada, en el municipio de Rio de Janeiro, RJ. Se trata de un estudio descriptivo, corte transversal, base primaria, realizado con adolescentes matriculados en el 5º y 6° años primarios, entre 10 y 14 años de edad, en agosto de 2006. El análisis fue hecha utilizando el paquete estadístico SPPS, versión 10.0. De los 50 adolescentes, 62% eran muchachas, con una media de 11,5+- 0,8 años de edad y muchachos con una media de 11,6+-0,8 años de edad. Referente al estado nutritivo por el IMC porcentual se ha hallado mayor predominancia de sobrepeso en los muchachos (47,4%). En las muchachas se ha hallado predominancia elevada para sobrepeso (41,9%) y bajo peso (12,9%). Se concluye que, así como los adolescentes del sexo masculino como también los del sexo femenino presentaron alta predominancia de sobrepeso, principalmente entre 10 y 12 años de edad. PALABRAS-CLAVE: Adolescencia, Antropometría, Actividad Física.

ESTUDO ANTROPOMÉTRICO DE ALUNOS PRATICANTES DE ATIVIDADE FÍSICA DE UMA ESCOLA DA REDE PRIVADA DE ENSINO, RJ

RESUMO

A adolescência é uma fase caracterizada por profundas transformações no organismo. O método amplamente utilizado para avaliar as transformações corporais é a antropometria, contextualizada na cineantropometria. O estudo objetivou traçar o perfil antropométrico de alunos praticantes de atividade física de uma escola da rede privada, no município do Rio de Janeiro, RJ. Trata-se de um estudo descritivo, corte transversal, base primária, realizado com adolescentes matriculados na 5ª e 6ª séries do ensino fundamental, na faixa etária entre 10 e 14 anos, em agosto de 2006. A análise foi feita utilizando-se o pacote estatístico SPSS versão 10.0. Dos 50 adolescentes, 62% eram meninas, com idade média de 11,50,8 anos e os meninos com média de idade de 11,60,8 anos. Quanto ao estado nutricional pelo IMC percentilar, detectou-se maior prevalência de sobrepeso nos meninos (47,4%). Nas meninas observou-se prevalência elevada para sobrepeso (41,9%) e baixo peso (12,9%). Conclui-se que, tanto os adolescentes do sexo masculino como os do sexo feminino apresentaram alta prevalência de sobrepeso, principalmente na faixa de 10 a 12 anos de idade. PALAVRAS CHAVE: Adolescentes, Antropometria, Atividade Física.