Relationship of schoolar's body-image self-perception with their physical fitness data

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Apoio financeiro: Capes, Fundap, CNPq

Introduction: Health related physical fitness refers to the status of physical and physiological characteristics that define the risk for premature development of illness or morbidity showing association with a sedentary lifestyle (Vanha et al., 2005). Benefits of regular physical activity to health are evident in the literature (Ward, 2010) and among them is the improvement of physical fitness (Ara, 2005; Bonhauser et al., 2007). But there is an increasing prevalence of insufficient levels of physical activity and of a sedentary lifestyle among adolescents (Tenorio, 2010). Physical inactivity contributes to increase the rates of obesity among children and adolescents, bringing severe physical and psychological consequences, among others (Rinaldi *et al*., 2008; Daniels, 2009). Ferriani, Dias, Silva and Martins (2005) found that obese adolescents have problems on the acceptance of their self-image and appreciation of their body. The body dissatisfaction is a component of body image related to the attitudes and evaluations of one´s body. Triches and Giugliani (2007) found a high prevalence of body dissatisfaction among children and young teenagers. Objective: To associate the perception of body image with the components of physical fitness and health among schoolchildren. Methods: In cross-sectional non-probabilistic sample (convenience). We evaluated 272 children and adolescents aged from eight to 15 years (mean 11.4 ± 2.0 years), being 148 boys and 124 girls from 4º to 9º grade from a private school in Botucatu - SP. The study included all the students who were present on the days stipulated for collecting data and who presented the term of consent signed by their responsible, This term was prepared in accordance with resolution 196/96 on "Research involving humans, Board of Health, Ministry of Health". The study

was approved by the Ethics in Research of the Faculty of Medicine of Botucatu in July 6, 2009, under No. OF. 287/2009-CEP. The first step was to look in the literature for body image scales validated for this population. The second stage consisted in a pretest in a group of 25 students (8-14years) participating in a university extension project called "Healthy Recreation", held in that same school. The pretest aimed to present validated scales of body image and to analyze the receptivity of children. Soon after presentation, the children reported the scale that best represented them. Despite the existence of a Brazilian scales (Campana, 2007; Contil, 2009), most children in this group preferred the scale "Children's Figure Rating Scale of Tiggemann and Wilson-Barrett (1998). This scale was not validated for the Brazilian population, but was used by Triches and Giugliani (2007) in studies in southern Brazil with children 8-10 years. Due to the preference for children in pre-test heed to "Children's Figure Rating Scale as a scale for this study. The perception of body image was obtained by a self-administered questionnaire using a scale with nine silhouettes (Tiggemann & Wilson-Barrett, 1998) together with the following questions: "Which silhouette looks most closely like your appearance?" "Which silhouette would you prefer to look like?" Dissatisfaction with body image was assessed through the discrepancy between real and ideal profile silhouette. If variation was equal to zero, children and adolescents were classified as satisfied; if not zero, as dissatisfied. If the difference was positive, it was classified as dissatisfaction with the excess of weight (desire to decrease the size of the silhouette) and when negative, as dissatisfaction with thinness (desire to increase silhouette). To evaluate the health-related physical fitness components, we used the Application Manual of Tests and Measures, Standards and Evaluation Criteria (Gaya & Silva, 2007), classified by gender and age. The categories "very weak" and "weak" were grouped under the designation of "weak", and the categories "good", "very good" and "excellent" were put together and categorized as "good." The components evaluated were: flexibility test (sit-and-reach), abdominal strength (abdominal exercise test in 1 minute) and aerobic resistance [9-minute running/walking test with the use of a GPS (Global Position System) pulse computer Garmin Forerunner® 305 (Garmin International, Inc., Olate, Kansas)]. Anthropometry consisted of measurement of body weight (electronic scale platform type - Filizola ®), height

(stadiometer SECA ®) following the standards proposed by the World Health Organization (WHO, 1995). BMI was calculated by dividing body weight (kg) by squared height (m) and classified according to BMI charts for age and gender proposed by the National Center for Health Statistic (CDC, 2000). The diagnosis of overweight was established when the BMI values were between the 85th and the 95th percentile and obesity diagnosis was established when the BMI values were at or above the 95th percentile. All percents were calculated on the computer program Epi-Info ® version 3.2 (2004). The association between the categorized variables for physical fitness and body image perception was made by the Chi-square or Fisher's Exact tests whenever necessary. Logistic regression analysis was performed for each classification of the physical fitness components in function of the child's dissatisfaction level. A 5% significance level in the corresponding p-value was established for all tests. All analyses were performed by the SAS for Windows, v.9.1.3, statistical software package. Results: According to the BMI classification, 4% of the schoolchildren were classified as low weight, 62% as eutrophic, and 34% as overweight or obese. The prevalence of body dissatisfaction found among the school children was of 58%, of which 45% was related to overweight. No association was found between flexibility and body image perception ($p=0.1855$). Association was observed from the abdominal strength/resistance ($p<0.0001$) and aerobic resistance tests ($p<0.001$). Dissatisfied children due to overweight and classified as "weak" in abdominal strength/resistance showed an odds ratio of OR=2.4 (CI 95% 1.30-4.31) and, when classified as "good", they showed OR=0.5 (CI 95% 0.29-0.85) as compared to satisfied children. The same occurred for aerobic resistance, where dissatisfied children due to overweight showed OR=3.2 (CI 95% 1.74-5.73), and when classified as "good", they showed OR=0.34 (CI 95% 0.13-0.85) in relation to satisfied children. Conclusion: A good abdominal strength/resistance and aerobic resistance fitness has proved to be a protective factor against the dissatisfaction body-image perception of being overweight.

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