Fat mass by chronological and biological age: Comparison of two regression equations in children and adolescents

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Abstract

Background: During childhood and adolescence, it is important to control intra-abdominal adipose tissue, since significant changes in body composition occur during growth and development. The objectives of the study were to compare fat mass (FM) between two equations, based on chronological age and maturity stage, and to verify the skin folds that best predict Fat Mass of both equations. Methods: A descriptive correlational study was carried out in 346 children and adolescents from Talca (Chile). The selection of the sample was probabilistic (stratified). Age, weight, standing height, sitting height, waist circumference (WC) and five skinfolds (bicipital, tricipital, subscapular, suprailiac and abdominal) were evaluated. The state of maturity was calculated by means of the peak growth rate (APHV). MG was calculated using two equations (one based on chronological age CA and WC and the other based on APHV and WC) for both sexes. Results: There were no significant differences between both equations when MG was calculated in both sexes (p> 0.05). The skin folds (biceps, tricipital, subscapular, supra iliac, abdominal, sum of two, three and five folds) showed similar coefficients of determination, both by the CA equation (R2 = 23 to 48%), and by the equation by APHV (R2 = 39 to 69%). The prevalence's in the FM categories estimated by both equations were similar in men (X2 = 1.01, GL: 2, p = 0.60) and in women (X2 = 0.44, GL: 2, p = 0, 80). Conclusions: Both regression equations that estimate FM, both by CA and maturity stage (APHV) are useful for Chilean children and adolescents. The results suggest the use and application to evaluate the accumulation of adipose tissue in clinical and epidemiological contexts.

Author keywords

Adolescents; Children; Equations; Fat mass; Maturation