Abstract

Introduction: An accurate estimate of body composition is important in assessing and monitoring the nutritional status of adolescents. Objectives: To compare the accuracy of 2 electrical bioimpedance devices with that of dual-energy X-ray absorptiometry (DXA) to predict body fat in Brazilian adolescents. Methods: We evaluated 500 adolescents aged between 10 and 19 years, stratified by sex and divided into overweight and non-overweight groups. The percentage of body fat (%BF) was estimated using 2 types of electrical bioimpedance devices: BIA1 (horizontal tetrapolar bioimpedance equipment) and BIA2 (vertical 8-electrode bioimpedance equipment), as well as by DXA. A Bland–Altman plot was used to calculate the total errors and standard errors of estimate. Results: Considering BMI for age, 19.4% were overweight and 47.4% as assessed by %BF of DXA were overweight. The %BF estimated by BIA2 correlated well (p < 0.05) with the %BF predicted by DXA, and only the total errors for BIA2 in the overweight group were acceptable (2.5%). The standard errors of estimate was <3.5%, with the lowest values observed for BIA2. Both BIA1 and BIA2 underestimated the %BF in overweight adolescents, while overestimating the %BF in male adolescents of normal weight. Conclusions: The BIA2 was found to be more effective in the evaluation of body fat. Regardless of the method used, the results should be carefully interpreted when assessing the body composition of adolescents.

Keywords

Adolescents, Electric impedance, Body composition.