Abstract

Introduction: Obesity is considered one of the most serious public health problems of the 21st century in children and adolescents. The percentile or Z-score of the body mass index is widely used in children and adolescents to define and assess overweight and obesity, but it does not determine the percentage of total body fat. Other anthropometric measurements that determine total body fat are skinfold thickness and methods of body composition assessment such as bio impedance analysis, both of which are rapid and inexpensive. Objective: The aim of the study was to correlate the percentage of body fat determined by the Slaughter equation with the bio impedance analysis technique in Mexican schoolchildren. Methods: The design of the study is cross-sectional and it was performed on a random selection of 74 children (9.47 ± 1.55 years old) attending a primary school in Colima, Mexico during 2011. The percentage of body fat was measured by the Slaughter equation and bio impedance analysis technique. Body mass index was calculated. Inferential statistics were performed with the non-paired Student’s t test, Pearson’s correlation for quantitative variables (percentage of body fat by the Slaughter equation and bio impedance analysis) and the Fisher exact test for qualitative variables. Results: A significant correlation (r = 0.74; p < 0.001) was identified between the percentage of fat measured by the Slaughter equation and bio impedance analysis. We also identified a significant correlation between the percentage of fat measured by the Slaughter equation and body mass index (r = 0.85; p < 0.001) and the percentage of fat measured by bio impedance analysis and body mass index (r = 0.78; p < 0.001). Conclusion: Given that we identified a significant positive correlation between BIA and STE, we conclude that both are adequate alternatives for measuring the percentage of body fat among schoolchildren in our population.

Keywords

Body fat, Body mass index, Skinfold thickness, Slaughter equation, Bioimpedance analysis.