Abstract

Background: Increased carotid intima-media thickness (c-IMT) is considered a marker of early-onset atherosclerosis and it has been found in obese children and adolescents, but the risk factors associated with this population remain to be elucidated.

Objective: To compare and verify the relationship between c-IMT, metabolic profile, inflammatory markers, and cardiorespiratory fitness in obese and non-obese children and adolescents.

Method: Thirty-five obese subjects (19 boys) and 18 non-obese subjects (9 boys), aged 10-16 years, were included. Anthropometry, body composition, blood pressure, maximal oxygen consumption (VO2max), and basal metabolic rate were evaluated. Serum glucose, insulin, homeostasis model assessment of insulin resistance (HOMA-IR), blood lipids, C-reactive protein (CRP), and adiponectin were assessed. c-IMT was measured by ultrasound.

Results: The results showed that c-IMT, triglycerides, insulin, HOMA-IR, and CRP values were significantly higher in the obese group than in the non-obese group, and high-density lipoprotein cholesterol (HDL-c), adiponectin, and VO2max values were significantly lower in the obese group than in the non-obese group. The c-IMT was directly correlated with body weight, waist circumference, % body fat, and HOMA-IR and inversely correlated with % free fat mass, HDL-c, and VO2max.

Conclusions: Our findings show that c-IMT correlates not only with body composition, lipids, insulin resistance, and inflammation but also with low VO2max values in children and adolescents. show that c-IMT correlates not only with body composition, lipids, insulin resistance, and inflammation but also with low VO2max values in children and adolescents.

Keywords

Obesity, inflammation, atherosclerosis, adolescents, fitness, physical therapy.