Abstract

Therapies currently implemented for obesity are focused on nutritional aspects and on physical activity. In order to make physical activity a positive therapy instead of triggering disabilities it is relevant to accurately assess cardiovascular fitness. Objective: To assess the cardiovascular fitness by measuring the peak oxygen consumption and to assess their relationship with classical cardiometabolic parameters. Methods: A modified Balke protocol was applied to one hundred and twenty-six Caucasians (60% males), ranging between 9 and 16 years old, who underwent an assessment of obesity. The non-obese group consisted of healthy age and sex matched subjects who were invited to participate from the general population. Results: Significant differences in consumption of oxygen peak between non-obese and obese individuals were observed. In contrast, no significant differences existed between the categories of obesity. Furthermore in obese subjects consumption of oxygen peak was inversely correlated with parameters of cardiometabolic risk, particularly insulin and HOMA index. In addition, two predictive equations of consumption of oxygen peak, with an R² of 0.74 and 0.84, respectively, have been developed. Conclusion: The consumption of oxygen peak is a relevant clinical parameter that should be included in the routine clinical assessment of obese subjects. Therefore, it is crucial to make exercise tests more affordable which can be achieved by employing predictive equations.

Keywords

Cardiovascular fitness, Children and adolescents, Exercise test, Obesity, VO2 peak.