Abstract

BACKGROUND: Impaired exercise tolerance is directly linked to decreased functional capacity as a consequence of obesity.

OBJECTIVES: To analyze and compare the cardiopulmonary, metabolic, and perceptual responses during a cardiopulmonary exercise test (CPX) and a treadmill six-minute walking test (tread6MWT) in obese and eutrophic women.

METHOD: Twenty-nine female participants, aged 20-45 years were included. Fourteen were allocated to the obese group and 15 to the eutrophic group.

Anthropometric measurements and body composition assessment were performed.

RESULTS: In both tests, obese women presented with significantly higher absolute oxygen uptake, minute ventilation, and systolic and diastolic blood pressure; they also presented with lower speed, distance walked, and oxygen uptake corrected by the weight compared to eutrophics. During the maximal exercise test, perceived dyspnea was greater and the respiratory exchange ratio was lower in obese subjects compared to eutrophics. During the submaximal test, carbon dioxide production, tidal volume, and heart rate were higher in obese subjects compared to eutrophic women. When analyzing possible correlations between the CPX and the tread6MWT at peak, there was a strong correlation for the variable heart rate and a moderate correlation for the variable oxygen uptake. The heart rate obtained in the submaximal test was able to predict the one obtained in the maximal test. Bland-Altman plots demonstrated the agreement between both tests to identify metabolic and physiological parameters at peak exercise.

CONCLUSIONS: The six-minute walking test induced ventilatory, metabolic, and cardiovascular responses in agreement with the maximal testing. Thus, the six-minute walking test proves to be important for functional evaluation in the physical therapy routine.

Keywords

Obesity, exercise test, physical fitness, physical therapy.