The energetic and cardiovascular response to treadmill walking and cycle ergometer exercise in obese women.

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Physical activity is essential in obesity management, but exercise capacity is compromised in obese individuals due to the excessive body mass, impacting on body movement's energetics, and to the dysfunctions of regulatory mechanisms, affecting cardiovascular responses. This study aims to compare the energetics and cardiovascular responses of walking and cycling in obese women, and to formulate recommendations regarding the most suitable type of exercise for obesity. Fifteen obese (OB) and six normal weight (NW) women exercised on treadmill (TM) and cycle ergometer (CE). During both exercise modalities, metabolic rate was higher in OB than in NW and correlated with measures of body mass. Leg movement metabolic rate during cycling depended upon individual adiposity, and when accounted for, mechanical efficiency was similar in the two groups. When accounting for extra mass, differences in metabolic rate among groups are abolished for CE, indicating no obesity impairment of muscle efficiency, but not for TM, suggesting that differences in biomechanics may explain the higher net cost of transport of OB. In both groups, HR was higher during CE than TM at the same oxygen uptake (VO_2), but in OB the HR increment over VO2 was greater for CE than for TM. Therefore, due to different cardiovascular responses to TM and CE in OB, walking is more convenient, enabling OB to attain target energy expenditure at lower HR or in a shorter time.