Fat oxidation rate during and after a low- or high-intensity exercise in severely obese Caucasian adolescents.

S. Lazzer, C. Lafortuna, C. Busti, R. Galli, T. Tinozzi, F. Agosti, A. Sartorio

European Journal Applied Physiology 108: 383-91, 2010.

The objective is to study the effects of low intensity (LI) or high-intensity (HI) equicaloric exercises on energy expenditure (EE) and substrate oxidation rate during and after the exercises in severely obese Caucasian adolescents. Twenty obese boys (BMI-SDS 3.04±0.52, % fat mass 38.2±2.1%) aged 14–16 years (pubertal stage >3) participated in this study. Maximal oxygen uptake (VO_{2max}) and maximal fat oxidation rate were determined with indirect calorimetry using a graded exercise test on a treadmill. EE and substrate oxidation rate during equicaloric low-intensity (LI, 42% VO_{2max} for 45 min) and high-intensity (HI, 67% VO_{2max} for 30 min) exercises on a treadmill and during post-exercise recovery period (60 min) were determined with indirect calorimetry. Maximal fat oxidation rate was observed at 42±6% VO_{2max} (62±5% HR_{max}) and fat oxidation rate was 0.45±0.07 g/min. The total amounts of EE, during the LI and HI exercises, and the post-exercise recovery periods were not significantly different (1,884±250 vs. 1,973± 201 kJ, p=0.453), but the total amount of fat oxidised was significantly higher (+9.9 g, +55.7%, p<0.001) during the LI exercise than during the HI exercise. However, fat oxidation rates during the post-exercise recovery periods were not significantly different following LI and HI exercises. Total fat oxidised was significantly higher during the LI than during the HI exercise in obese adolescents. However, the equicaloric exercise intensity did not influence EE, fat and carbo-hydrate oxidation rate during the recovery period.

Se desidera avere la fotocopia di questo lavoro, per esclusivo uso personale, può fare richiesta per mail a: info@cresceresani.it indicando il titolo, gli autori, la rivista e il proprio recapito lavorativo (nome, cognome, indirizzo, CAP, città).