Forschungsgesuch Malatesta

L'oxydation des lipides pendant la récupération post-exercice: "exercice intermittent versus continue"

Abstract

The purpose of this study was to examine whether lipid oxidation predominates during post-exercise recovery in high-intensity interval exercise than in moderate-intensity continuous exercise on a cycle-ergometer in fit young men (n = 12, 24.6 ± 0.6 yr). The energy substrate partitioning during 3-h post-exercise recovery was evaluated during and after high-intensity sub-maximal interval exercise [INT, 1-min intervals at 80% of maximal aerobic power output (W_{max}) with intervening 1-min of active recovery at 40% of W_{max}] and moderate-intensity continuous exercise at 45% of maximal oxygen uptake (VO_{2max}, C45%,), as well as a time-matched resting control trial (CON). Exercise bouts were matched for mechanical work output. During exercise, the mean oxygen uptake (VO 2) and respiratory exchange ratio (RER) in C45% (1.91 ± 0.08 l min^{-1} and 0.91 ± 0.01, respectively) were significantly lower than in INT (2.99 ± 0.13 l min^{-1} and 1.02 ± 0.02, respectively, $P < 0.001$). There was no significant difference in total energy expenditure during C45% and INT (605.3 ± 24.4 and 655.7 ± 31.1 kcal, respectively, $P = 0.99$). During recovery, the mean oxidation rate and the mean contribution of lipid to energy yield were significantly higher after INT (0.13 ± 0.01 g $min^{-1}$and 137.4 ± 10.0 kcal, respectively) than after C45% (0.11 ± 0.01 g $min^{-1}$and 114.8 ± 7.7 kcal, respectively, $P < 0.05$) and CONT (0.09 ± 0.01 g min-1and 101.8 ± 6.4 kcal, respectively, $P < 0.05$). These findings showed that a greater carbohydrates oxidation during INT leads to shift the pattern of substrate utilisation toward lipids during post-exercise recovery and reveal the potency of INT to improve capacity for skeletal muscle to oxidize lipids and have implications for weight management in individuals at risk of obesity and in obese subjects.