ABSTRACT

Effects of short-term ingestion of medium-chain triacyl glycerol on substrate oxidation and endurance performance at moderate- and high-intensity exercise in female collgiate athletes

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The present study examined the effect of short-term ingestion of medium-chain triacylglycerol (MCT) on substrate oxidation and endurance performance during moderate-and high-intensity exercise in nine female collegiate athletes.　Either MCT or long-chain triacylglycerol (LCT) was taken for two weeks in a double-blind, cross-over, controlled trial. During the intervention periods, all of the test meals were provided, and exercise and life style were monitored. After the MCT or LCT trial, the subjects performed cycle ergometer exercise at a work load corresponding to 60% VO_{2max} for 60 minutes and then continuously at 85% VO_{2max} until exhaustion. Blood glucose, β-hydroxybutyric acid, and lactate concentrations, and VO_2, VCO_2, and respiratory exchange ratio (RER) were measured at rest and during exercise. Substrate oxidation and exercise time to exhaustion showed no significant differences between the MCT and LCT trials. These data suggest that short-term ingestion of a small amount (6.6g, 2.7%) of MCT does not affect substrate oxidation or endurance performance at moderate- and high-intensity exercise in female collegiate athletes.

Key words　Medium-chain triacylglycerol, athlete, substrate oxidation, performance, dietary intervention