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Value of VLCD supplementation with medium chain triglycerides

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Abstract

BACKGROUND: Medium chain triglycerides (MCT) are energetically less dense, highly ketogenic, and more easily oxidised than long chain triglycerides (LCT). MCT also differ from LCT in their digestive and metabolic pathways.

OBJECTIVE: To test the effects of MCT supplementation during a very low calorie diet (VLCD).

SUBJECTS AND METHODS: Three groups of tightly matched obese women with body mass index (BMI)>30 kg/m² received an isoenergetic (578.5 kcal) VLCD (Adinax®, Novo Vital, Sweden) enriched with MCT or LCT (8.0 and 9.9 g/100 g Adinax® respectively) or a low-fat (3 g/100 g) and high-carbohydrate regimen. The diets were administered over 4 weeks. Body composition was measured with DEXA and appetite/satiety-according to Blundell. Beta hydroxybutyric acid concentration in plasma and nitrogen excretion in urine was measured during consecutive days of VLCD. The study was performed in a randomised double-blind manner.

RESULTS: The MCT group showed a significantly greater decrease in body weight during the first 2 weeks. The contribution of body fat to the total weight loss was higher while the contribution of fat-free mass (FFM) was lower. The MCT group had a higher concentration of ketone bodies in plasma and a lower nitrogen excretion in urine. Hunger feelings were less intense while satiety was higher. These differences were observed during the first 2 weeks of treatment and gradually declined during the third and fourth weeks.

CONCLUSIONS: Replacement of LCT by MCT in the VLCD increased the rate of decrease of body fat and body weight and has a sparing effect on FFM. The intensity of hunger feelings was lower and paralleled the higher increase of ketone bodies. These effects gradually declined, indicating subsequent metabolic adaptation. Further studies are required to confirm the protein-sparing and appetite-suppressing effects of MCT supplementation during the first 2 weeks of VLCD treatment.

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