

Lauric acid-rich medium-chain triglycerides can substitute for other oils in cooking applications and may have limited pathogenicity.

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Abstract

Recently, medium-chain triglycerides (MCTs) containing a large fraction of lauric acid (LA) (C12)-about 30%-have been introduced commercially for use in salad oils and in cooking applications. As compared to the long-chain fatty acids found in other cooking oils, the medium-chain fats in MCTs are far less likely to be stored in adipose tissue, do not give rise to 'ectopic fat' metabolites that promote insulin resistance and inflammation, and may be less likely to activate macrophages. When ingested, medium-chain fatty acids are rapidly oxidised in hepatic mitochondria; the resulting glut of acetyl-coenzyme A drives ketone body production and also provokes a thermogenic response. Hence, studies in animals and humans indicate that MCT ingestion is less obesogenic than comparable intakes of longer chain oils. Although LA tends to raise serum cholesterol, it has a more substantial impact on high density lipoprotein (HDL) than low density lipoprotein (LDL) in this regard, such that the ratio of total cholesterol to HDL cholesterol decreases. LA constitutes about 50% of the fatty acid content of coconut oil; south Asian and Oceanic societies which use coconut oil as their primary source of dietary fat tend to be at low cardiovascular risk. Since ketone bodies can exert neuroprotective effects, the moderate ketosis induced by regular MCT ingestion may have neuroprotective potential. As compared to traditional MCTs featuring C6-C10, laurate-rich MCTs are more feasible for use in moderate-temperature frying and tend to produce a lower but more sustained pattern of blood ketone elevation owing to the more gradual hepatic oxidation of ingested laurate.