

Effect of conjugated linoleic acid on body composition in mice.

[Park Y](#), [Albright KJ](#), [Liu W](#), [Storkson JM](#), [Cook ME](#), [Pariza MW](#).

Department of Food Microbiology and Toxicology, University of Wisconsin-Madison 53706, USA.

The effects of conjugated linoleic acid (CLA) on body composition were investigated. ICR mice were fed a control diet containing 5.5% corn oil or a CLA-supplemented diet (5.0% corn oil plus 0.5% CLA). Mice fed CLA-supplemented diet exhibited 57% and 60% lower body fat and 5% and 14% increased lean body mass relative to controls ($P < 0.05$). Total carnitine palmitoyltransferase activity was increased by dietary CLA supplementation in both fat pad and skeletal muscle; the differences were significant for fat pad of fed mice and skeletal muscle of fasted mice. In cultured 3T3-L1 adipocytes CLA treatment (1×10^{-4} M) significantly reduced heparin-releasable lipoprotein lipase activity (-66%) and the intracellular concentrations of triacylglyceride (-8%) and glycerol (-15%), but significantly increased free glycerol in the culture medium (+22%) compared to control ($P < 0.05$). The effects of CLA on body composition appear to be due in part to reduced fat deposition and increased lipolysis in adipocytes, possibly coupled with enhanced fatty acid oxidation in both muscle cells and adipocytes.

MeSH Terms:

- 3T3 Cells
- Adipocytes/enzymology
- Adipose Tissue/enzymology
- Animals
- Body Composition/drug effects*
- Body Weight/drug effects
- Carnitine O-Palmitoyltransferase/metabolism
- Corn Oil/administration & dosage
- Diet
- Dietary Fats/administration & dosage
- Dietary Fats/pharmacology*
- Female
- Glycerol/metabolism
- Linoleic Acids/administration & dosage
- Linoleic Acids/pharmacology*
- Lipolysis/drug effects
- Lipoprotein Lipase/antagonists & inhibitors
- Liver/enzymology
- Male

- Mice
- Mice, Inbred ICR
- Muscles/enzymology
- Research Support, Non-U.S. Gov't

Substances:

- Dietary Fats
- Linoleic Acids
- Glycerol
- Corn Oil
- Carnitine O-Palmitoyltransferase
- Lipoprotein Lipase

PMID: 9270977 [PubMed - indexed for MEDLINE]