

CLA (Conjugated Linoleic Acid)



Support for healthy fat loss

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Conjugated linoleic acid (CLA) is a group of naturally occurring *trans* fats, found predominantly in the fat and dairy fat of ruminant animals.¹ The other name for the most prevalent CLA isomer, rumenic acid (cis-9, trans-11), underscores the origins of this fat, as does that of the precursor to rumenic acid, vaccenic acid.² Vaccenic acid is biohydrogenated into rumenic acid via bacterial fermentation inside the rumen, and the cis-9, trans-11 isomer makes up approximately 80% of CLA in food.^{3,4} The highest concentrations of CLA are found in ruminant animals that are raised *and finished* on their natural diet of grasses. Grain feeding of cattle and other ruminants reduces the amount of CLA in their fat, so while small amounts will still be present in meat and dairy from grain-fed animals, the CLA content is significantly higher in those that are grass-fed and finished.⁵ It is likely that the food supply contained higher amounts of CLA prior to the advent of industrial-scale feedlots and the removal of ruminant animals from pasture.

The *trans* fats that occur naturally in animal foods have a slightly different chemical structure than those formed via the partial hydrogenation of polyunsaturated vegetable oils. While the former have both *cis* and *trans* double bonds, the latter have predominantly *trans* bonds. These small differences have profound effects in the body. Natural CLA isomers are associated with a variety of health benefits, while the synthetic *trans* fats have been shown to lead to adverse changes in markers for cardiovascular health, such as raising LDL and reducing HDL cholesterol.⁶

Evidence supports a beneficial role for CLA in reducing body fat and supporting the maintenance of lean muscle tissue.⁷ Studies show that this can be achieved even in the absence of alterations in diet and physical activity levels.⁸ Due to the scarcity of naturally occurring CLA in the modern food supply, the following patient groups may benefit from supplementation:

- Individuals with stubborn or resistant fat loss
- Those without access to grass-fed meat and dairy products

Designs for Health's CLA softgels are standardized to contain a minimum of 78% conjugated linoleic acid as cis-9, trans-11 and trans-10, cis-12 isomers in a 50:50 ratio. These isomers are the most naturally abundant in food, and may have synergistic effects.^{4,9}

Data are mixed with regard to the efficacy of CLA for body fat reduction concurrent with maintenance of healthy, lean tissue, but meta-analyses investigating CLA supplementation indicate that, on the whole, there is a role for CLA in aiding fat loss without adverse influence on muscle mass or bone mineral density.¹⁰

A double-blind, randomized, placebo-controlled trial (RCT) showed that supplementation of CLA at 1.7g/day for 12 weeks resulted in significant reductions in body weight, body mass index (BMI), subcutaneous fat mass, and waist-to-hip ratio in overweight subjects (BMI > 27 kg/m²), with no adverse effects reported.¹¹

High doses of supplemental CLA given to overweight or obese adults (BMI 28-32 kg/m²) for 6 months resulted in significant reductions in body fat compared to placebo, specifically in the lower body and in women with BMI > 30 kg/m².⁸ Other studies support the efficacy of CLA supplementation for reducing body fat without adverse effects on lean tissue mass, with the results being more pronounced in subjects with higher BMIs than with lower BMIs. This suggests that CLA supplementation might be particularly helpful for obese individuals with extremely stubborn fat loss. Subjects taking 3.4g/day of CLA for 24 months experienced a 20–35% reduction in serum leptin levels as they lost fat mass.¹² There was a direct correlation between body fat reduction and decreased leptin levels, even in the absence of changes to the habitual diet. As leptin is secreted by *adipose* tissue, and high leptin levels are associated with adiposity, lower leptin levels may be considered a marker for fat mass reduction.

Supplement Facts

Serving Size 1 softgel

Amount Per Serving	% Daily Value	
Calories	10	
Calories from Fat	10	
Total Fat	1 g	2%*
Conjugated Linoleic Acid (CLA) (from safflower oil)	780 mg	†

*Percent Daily Values are based on a 2,000 calorie diet.

†Daily Value not established.

Other Ingredients: Bovine gelatin, water, and glycerine (softgel).



There may even be a role for prophylactic dosing of CLA to reduce the weight gain that is common during the autumn and winter holiday seasons. A study that investigated the potential of CLA to prevent weight gain during this time demonstrated that CLA can help attenuate the increase in body fat that frequently accompanies the colder seasons. In a cohort of healthy but overweight adults (BMI 25-30 kg/m²), CLA supplementation at 3.2g/day for 6 months before and during the holiday season resulted in reduced body fat and less weight gain compared to placebo.¹³

The influence of CLA on body fat reduction is coupled with a small but notable protective effect on the maintenance of lean muscle.¹⁴ This may be beneficial during body weight reduction, as the primary goal of weight loss should be a reduction in excess *adipose* tissue, rather than loss of healthful muscle mass, the presence of which contributes to an overall higher metabolic rate. A double-blind RCT showed that, in obese but otherwise healthy adults, supplementation with CLA for 12 weeks resulted in a small increase in lean body mass, with a decrease in fat mass and body fat percentage, even while the subjects were instructed to maintain their normal diet and activity levels. The highest dose studied—6.4g/day—resulted in mild gastrointestinal effects, such as gas, bloating, indigestion, diarrhea, or heartburn, but there were no serious adverse effects. This dose also led to significant decreases in serum HDL-cholesterol, sodium, hemoglobin and hematocrit, with significant increases in serum alkaline phosphatase, C-reactive protein and IL-6, although these values remained within normal limits.¹⁵

The potential mechanisms of action of CLA include inhibition of the lipoprotein lipase enzyme, which plays a role in fatty acid uptake and re-esterification in adipose tissue. Animal studies suggest that CLA also decreases the mRNA expression of lipogenic enzymes, including fatty acid synthase and acetyl-CoA carboxylase.¹⁶ Additionally, increased fatty acid oxidation may be another effect of CLA. Rat studies indicate that CLA increases activity of the carnitine palmitoyltransferase enzyme, which is the rate-limiting factor for fatty acid oxidation. Rats supplemented with CLA showed increased ketones and decreased respiratory quotients, suggesting that CLA may increase the burning of fat for fuel.¹⁶

The beneficial effects of CLA may be less pronounced in humans than in animals, but overall, CLA may be a helpful addition to the supplement regimen of individuals who struggle with stubborn fat loss. CLA should be used in conjunction with regular exercise and a healthy diet for successful body weight management.

How to Take

- Take one softgel per day, or as directed by a health care practitioner.

References

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