



Conjugated linoleic acid (CLA)

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While some complementary and alternative techniques have been studied scientifically, high-quality data regarding safety, effectiveness, and mechanism of action are limited or controversial for most therapies. Whenever possible, it is recommended that practitioners be licensed by a recognized professional organization that adheres to clearly published standards. In addition, before starting a new technique or engaging a practitioner, it is recommended that patients speak with their primary healthcare provider(s). Potential benefits, risks (including financial costs), and alternatives should be carefully considered. The below monograph is designed to provide historical background and an overview of clinically-oriented research, and neither advocates for or against the use of a particular therapy.

Related Terms:

- CFA-S, CLA-60, CLA-FFA, CLA-free fatty acid (FFA), CLA-triacylglycerol, CLA triglyceride oil, Clarinol™, Clarinol™ A-65, Clarinol™ A-80, Clarinol™ A-95, Clarinol™ G-80, CLN, CLNA, conjugated alpha-linolenic acid (CLnA), conjugated diene isomers of linoleic acid, conjugated dienoic derivatives of linoleic acid, conjugated dienoic isomers of linoleic acid, conjugated fatty acids, conjugated octadecatrienoic (CLnA) acids, dietary CLA, dietary conjugated linoleic acid, LA, linoleic acid, linolelaidic acid (C18:2 *trans*-9 *trans*-12), lipid esterified conjugated linoleic acid, octadecadienoate (18:2), octadecadienoic acids, polyunsaturated fatty acids, pure conjugated linoleic acid, RA, ruminic acid, ruminant meat, Safflorin™, Safflorin™ isomerized safflower oil, safflower oil, sunflower oil, synthetic conjugated linoleic acid mixture, t10c12-CLA, t10,c12-CLA, Tonalin™, Tonalin™ CLA, VA, vaccenic acid.
- **Combination product examples:** ProMass™ (gamma-linolenic acid and CLA).

BACKGROUND

- Conjugated linoleic acid (CLA) is a fatty acid that is naturally found in beef and dairy products. Most CLA dietary supplements are made from safflower oil. However, CLA is also found in other vegetable oils, including hydrogenated soybean oil.
- Scientific interest in CLA began in the late 1980s as a result of early evidence suggesting anticancer effects. Since this time, interest in CLA has broadened to areas of weight loss and altered body composition. Conjugated linoleic acid is now a wide-selling supplement marketed to reduce obesity and body fat. Conjugated linoleic acid has also been studied for its effects on diabetes, high cholesterol, high blood pressure, and immune function.

SCIENTIFIC EVIDENCE

Uses <i>These uses have been tested in humans or animals. Safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider.</i>	Grade*
Obesity/weight loss Conjugated linoleic acid (CLA) is a popular supplement marketed to reduce obesity and body fat. Research on human studies of CLA measures body fat mass and body	B

and body fat. Based on human study, CLA may reduce body fat mass and body weight.	
Cancer Although early evidence suggests that CLA may protect against cancer, additional study is needed in this area.	<u>C</u>
Diabetes Early evidence suggests that CLA may have beneficial effects for those with type 2 diabetes by increasing insulin sensitivity and reducing plasma glucose. Additional study is needed in this area before a conclusion can be made.	<u>C</u>
Exercise performance enhancement Research on the effects of CLA on exercise performance enhancement is mixed. Additional study is needed in this area before a conclusion can be made.	<u>C</u>
Hypercholesterolemia (high cholesterol) Early evidence suggests that CLA supplementation may have beneficial effects on blood lipids. Additional study is needed in this area before a conclusion can be made.	<u>C</u>
Hypertension (high blood pressure) Early evidence suggests that CLA supplementation may have beneficial effects on high blood pressure. Additional study is needed in this area before a conclusion can be made.	<u>C</u>
Immune function Based on human study, CLA may have small, significant effects on some immune markers. Additional study is needed in this area before a conclusion can be made.	<u>C</u>
* Key to grades: A: Strong scientific evidence for this use; B: Good scientific evidence for this use; C: Unclear scientific evidence for this use; D: Fair scientific evidence against this use (it may not work); F: Strong scientific evidence against this use (it likely does not work).	

TRADITION/THEORY

The below uses are based on tradition, scientific theories, or limited research. They often have not been thoroughly tested in humans, and safety and effectiveness have not always been proven. Some of these conditions are

potentially serious, and should be evaluated by a qualified healthcare provider. There may be other proposed uses that are not listed below.

- Allergies, alopecia (hair loss), antioxidant, anorexia, arthritis, common cold, depression, inflammation, influenza, muscular dystrophy, osteoporosis (bone loss), skin conditions, sore throat, systemic lupus erythematosus.

DOSING

The below doses are based on scientific research, publications, traditional use, or expert opinion. Many herbs and supplements have not been thoroughly tested, and safety and effectiveness may not be proven. Brands may be made differently, with variable ingredients, even within the same brand. The below doses may not apply to all products. You should read product labels, and discuss doses with a qualified healthcare provider before starting therapy.

Adults (18 years and older)

- Various doses have been studied, but there is no proven effective dose for CLA. For obesity/weight loss, 3.4-6.8 grams of CLA have been used for as long as two years.

Children (under 18 years old)

- There is no proven safe or effective dose for CLA in children.

SAFETY

The U.S. Food and Drug Administration does not strictly regulate herbs and supplements. There is no guarantee of strength, purity or safety of products, and effects may vary. You should always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, you should speak with a qualified healthcare provider before starting a new therapy. Consult a healthcare provider immediately if you experience side effects.

Allergies

- No known allergy or sensitivity to conjugated linoleic acid (CLA).

Side Effects and Warnings

- Conjugated linoleic acid (CLA) is generally well tolerated at doses up to 3.4g in healthy adults for as long as two years.
- Rash has been reported with use of CLA.
- Increases in insulin resistance and glucose concentrations and decreases in insulin sensitivity and blood leptin (energy hormone) levels have been reported with CLA use.
- Stomach bloating, diarrhea, heartburn, and nausea have been reported with CLA use.
- Increased leukocyte (white blood cell) counts have been reported.
- CLA may increase the risk of bleeding. Caution is advised in patients with bleeding disorders or in those taking agents that may increase the risk of bleeding. Dosing adjustments may be necessary.
- Use cautiously in patients taking medications that lower cholesterol or blood pressure levels.
- Use cautiously in patients taking medications that affect blood sugar.
- Use cautiously in patients taking any of the following: antibiotics, antidepressants, anti-cancer agents, anti-inflammatory agents, anti-obesity agents, appetite stimulants, calcium salts,

cardiovascular agents, corticosteroids, agents for skin conditions, exercise performance enhancers, gastrointestinal agents, agents that stimulate or suppress the immune system, neurologic agents, and osteoporosis agents.

Pregnancy and Breastfeeding

- Conjugated linoleic acid (CLA) is not recommended in pregnant or breastfeeding women due to a lack of available scientific evidence.

INTERACTIONS

Most herbs and supplements have not been thoroughly tested for interactions with other herbs, supplements, drugs, or foods. The interactions listed below are based on reports in scientific publications, laboratory experiments, or traditional use. You should always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, you should speak with a qualified healthcare provider before starting a new therapy.

Interactions with Drugs

- Conjugated linoleic acid (CLA) may increase the risk of bleeding when taken with drugs that increase the risk of bleeding. Some examples include aspirin, anticoagulants ("blood thinners") such as warfarin (Coumadin®) or heparin, anti-platelet drugs such as clopidogrel (Plavix®), and non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Motrin®, Advil®) or naproxen (Naprosyn®, Aleve®).
- Conjugated linoleic acid may lower blood pressure. Caution is advised when using medications that may also lower blood pressure.
- Conjugated linoleic acid may lower cholesterol. Caution is advised when using medications that may also lower cholesterol.
- Conjugated linoleic acid may affect blood sugar levels. Caution is advised when using medications that may also affect blood sugar. Patients taking drugs for diabetes by mouth or insulin should be monitored closely by their qualified healthcare professionals, including pharmacists. Medication adjustments may be necessary.
- Conjugated linoleic acid may also interact with antibiotics, antidepressants, anticancer drugs, anti-inflammatory drugs, anti-obesity drugs, appetite stimulants, calcium salts, cardiovascular drugs, corticosteroids, drugs for skin conditions, exercise performance enhancers, gastrointestinal drugs, drugs that stimulate or suppress the immune system, neurologic drugs, and osteoporosis drugs.

Interactions with Herbs and Dietary Supplements

- Conjugated linoleic acid (CLA) may increase the risk of bleeding when taken with herbs that increase the risk of bleeding. Multiple cases of bleeding have been reported with the use of *Ginkgo biloba*, and fewer cases with garlic and saw palmetto. Numerous other agents may theoretically increase the risk of bleeding, although this has not been proven in most cases.
- Conjugated linoleic acid may lower blood pressure. Caution is advised when using herbs or supplements that may also lower blood pressure.
- Conjugated linoleic acid may lower cholesterol. Caution is advised when using herbs or supplements that may also lower cholesterol.
- Conjugated linoleic acid may affect blood sugar levels. Caution is advised when using herbs or supplements that may also affect blood sugar levels.
- Conjugated linoleic acid may also interact with alpha-lipoic acid, antibacterials,

antidepressants, anticancer herbs, anti-inflammatory herbs or supplements, anti-obesity herbs or supplements, antioxidants, appetite stimulants, calcium, cardiovascular herbs, conjugated linolenic acid, corticosteroids, creatine, herbs or supplements for skin conditions, exercise performance enhancers, gastrointestinal herbs or supplements, herbs or supplements that stimulate or suppress the immune system, omega-3 fatty acids, neurologic herbs or supplements, osteoporosis herbs or supplements, and probiotics.

AUTHOR INFORMATION

- This information is based on a systematic review of scientific literature edited and peer-reviewed by contributors to the Natural Standard Research Collaboration (www.naturalstandard.com).

REFERENCES

Natural Standard developed the above evidence-based information based on a thorough systematic review of the available scientific articles. For comprehensive information about alternative and complementary therapies on the professional level, go to www.naturalstandard.com. Selected references are listed below.

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