

Alpha-lipoic Acid - ALA -

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Alpha-lipoic acid

Overview

Alpha-lipoic acid is an antioxidant that is made by the body and is found in every cell, where it helps turn glucose into energy. Antioxidants attack "free radicals," waste products created when the body turns food into energy. Free radicals cause harmful chemical reactions that can damage cells in the body, making it harder for the body to fight off infections. They also damage organs and tissues.

Other antioxidants work only in water (such as vitamin C) or fatty tissues (such as vitamin E), but alpha-lipoic acid is both fat- and water-soluble. That means it can work throughout the body. Antioxidants in the body are used up as they attack free radicals, but evidence suggests alpha-lipoic acid may help regenerate these other antioxidants and make them active again.

In the cells of the body, alpha-lipoic acid is changed into dihydrolipoic acid. Alpha-lipoic acid is not the same as alpha linolenic acid, which is an omega-3 fatty acid that may help heart health (See also: [Alpha linolenic acid](#).) There is confusion between alpha-lipoic acid and alpha linolenic acid because both are sometimes abbreviated ALA. Alpha-lipoic acid is also sometimes called lipoic acid.

Diabetes

In several studies, alpha-lipoic acid appears to help lower blood sugar levels. Its ability to kill free radicals may help people with diabetic peripheral neuropathy, who have pain, burning, itching, tingling, and numbness in arms and legs from nerve damage.

Alpha-lipoic acid has been used for years to treat peripheral neuropathy in Germany. Most of the studies that have found it helps have used intravenous (IV) alpha-lipoic acid, however. It's not clear whether taking alpha-lipoic acid by mouth will help. Most studies of oral alpha-lipoic acid have been small and poorly designed. One 2006 study did find that taking alpha-lipoic acid for diabetic neuropathy reduced symptoms compared to placebo.

Taking alpha-lipoic acid may help another diabetes-related condition called autonomic neuropathy, which affects the nerves to internal organs. One study found that 73 people

with cardiac autonomic neuropathy, which affects the heart, showed fewer signs of the condition when taking 800 mg of alpha-lipoic acid orally compared to placebo.

Brain Function and Stroke

Because alpha-lipoic acid can pass easily into the brain, it may help protect the brain and nerve tissue. Researchers are investigating it as a potential treatment for stroke and other brain problems involving free radical damage, such as dementia. So far, there's no evidence to say whether it works or doesn't.

Other

Some preliminary studies suggest alpha-lipoic acid may help treat glaucoma, but there is not enough evidence to say for sure whether it works. In one study on aging skin, a cream with 5% lipoic acid helped reduce fine lines from sun damage.

Dietary Sources

If you are healthy, your body makes enough alpha-lipoic acid. It is also found in red meat, organ meats (such as liver), and yeast, particularly brewer's yeast.

Available Forms

Alpha-lipoic acid supplements are available as capsules. Your health care provider can also give it by injection.

How to Take It

Pediatric

Alpha-lipoic acid has not been studied in children, so it is not recommended for pediatric use.

Adult

There aren't any established doses for alpha-lipoic acid. You can buy it in doses of 30 - 100 mg tablets.

- General antioxidant support: 20 - 50 mg per day
- Diabetes and diabetic neuropathy: 800 mg per day in divided doses

Precautions

Because of the potential for side effects and interactions with medications, you should take dietary supplements only under the supervision of a health care provider.

Alpha-lipoic acid hasn't been studied in pregnant or breastfeeding women, so researchers don't know if it's safe.

Side effects are generally rare and may include skin rash.

Alpha-lipoic acid can lower blood sugar levels, so people with diabetes or low blood sugar should take alpha-lipoic acid only under the supervision of their health care provider. (See "Interactions" section.)

Animal studies suggest that people who don't get enough thiamine (vitamin B1) should not take alpha-lipoic acid. B1 deficiency is associated with long-term alcohol abuse.

Possible Interactions

If you are currently being treated with any of the following medications, you should not use alpha-lipoic acid without first talking to your health care provider.

Medications for diabetes -- Alpha-lipoic acid can combine with these drugs to lower blood sugar levels, raising the risk of hypoglycemia or low blood sugar. Ask your health care provider before taking alpha-lipoic acid, and watch your blood sugar levels closely. Your health care provider may need to adjust your medication doses.

Chemotherapy medications -- Alpha lipoic acid may interfere with some chemotherapy medications. Always ask your oncologist before taking any herb or supplement, including alpha lipoic acid.

Thyroid medications, Levothyroxine -- Alpha-lipoic acid may lower levels of thyroid hormone. Your health care provider should monitor blood hormone levels and thyroid function tests closely.

Supporting Research

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Alternative Names

Dihydrolipoic acid; Lipoic acid; Lipolate; Thiotic acid

Version Info

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Alpha-lipoic acid is a vitamin-like chemical called an antioxidant. Yeast, [liver](#), [kidney](#), spinach, broccoli, and potatoes are good sources of alpha-lipoic acid. It is also made in the laboratory for use as medicine.

Alpha-lipoic acid is used for [diabetes](#) and nerve-related [symptoms of diabetes](#) including burning, pain, and numbness in the legs and arms. High doses of alpha-lipoic acid are approved in Germany for the treatment of these symptoms.

Some people use alpha-lipoic acid for [memory loss](#), [chronic fatigue](#) syndrome (CFS), [HIV/ AIDS](#), [cancer](#), liver disease, diseases of the [heart](#) and [blood](#) vessels (including a disorder called cardiac autonomic [neuropathy](#)) and [Lyme disease](#).

Alpha-lipoic acid is also used to treat [eye](#)-related disorders, such as damage to the retina, [cataracts](#), [glaucoma](#), and an eye disease called Wilson's disease.

How does it work?

Alpha-lipoic acid seems to help prevent certain kinds of cell damage in the body, and also restores vitamin levels such as vitamin E and [vitamin C](#). There is also evidence that alpha-lipoic acid can improve the function and conduction of neurons in diabetes.

Alpha-lipoic acid is used in the body to break down carbohydrates and to make energy for the other organs in the body.

Alpha-lipoic acid seems to work as an antioxidant, which means that it might provide protection to the brain under conditions of damage or injury. The antioxidant effects might also be helpful in certain liver diseases.

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