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Lipoic Acid and the Antioxidant

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While many antioxidants are found in the diet, and play important roles in supporting health, conventional antioxidants are like facial tissue: use them once, and they are no good to you any more. The antioxidant network is different. While other antioxidants work in isolation, the five members of the antioxidant network work together to form the indispensable core of the body's free-radical defense and "recycling" system. The antioxidants network is made up of:

- The vitamin E complex (tocopherols plus tocotrienols),
- Vitamin C
- Coenzyme Q10
- Glutathione (GSH)
- Alpha Lipoic Acid (The R portion of Alpha Lipoic Acid is the important part)

The network antioxidants have the unique ability to "recharge" one another into their active forms once they have inactivated free radicals. Of this network, lipoic acid is the least-known, yet it plays the most important role. Lipoic acid's place at the heart of the network springs from its remarkable versatility. Alpha lipoic acid is the most important antioxidant for anyone to take. Alpha Lipoic acid is:

Soluble in both fat and water, which means it is active in both cellular membranes and watery cellular fluid;

- Retains some of its antioxidant powers even after stepping in to block free radicals
- Able to directly or indirectly "recycle" all of the other members of the network back to their active antioxidant form when they become neutralized in taking down free radicals.
- The only antioxidant you can get from diet and supplements that will actually restore the youthful efficiency and energy-producing potential of the body's cellular "power plants" (the mitochondria).

In the late 1980s, scientists realized that alpha-lipoic acid, a compound initially classified as a vitamin when it was discovered three decades earlier, possessed potent antioxidant properties that could prevent healthy cells from getting damaged by unstable oxygen molecules called free radicals. In fact, this vitamin-like compound has proved to be many times more potent than such old guard antioxidants as vitamins C and E.

Because it dissolves in both water and fat, this so-called "universal antioxidant" is able to scavenge more wayward free-radical cells than most antioxidants, the majority of which tend to dissolve in either fat or water but not both. Alpha-lipoic acid can reach tissues composed

mainly of fat, such as the nervous system, as well as those made mainly of water, such as the heart.

Also known as lipoic acid or thioctic acid, alpha-lipoic acid is mainly derived from dietary sources:

- Spinach
- Liver
- Brewer's yeast

Scientists have discovered that the body does manufacture small supplies of its own. In order to get the concentrated doses needed to treat specific ailments, however, many experts recommend supplements.

Health Benefits

In addition to functioning as an antioxidant, lipoic acid assists the B vitamins in producing energy from the proteins, carbohydrates, and fats consumed through foods. Intravenous forms of alpha-lipoic acid are administered in hospitals to treat cases of acute mushroom poisoning and for other cases of acute poisoning that affect the liver.

Studies indicate that alpha-lipoic acid supplements hold promise for treating various disorders, including HIV infection, liver ailments, and glaucoma. But it has been most intensively studied for preventing complications from diabetes. Specifically, alpha-lipoic acid may help to treat symptoms of nerve damage in people with diabetes.

Diabetic Neuropathy (Nerve Damage)

Alpha-lipoic acid has been used for decades in Europe to counter nerve damage in people with diabetes (types 1 and 2). Known as diabetic neuropathy, this often very painful condition tends to develop in people who have had uncontrolled diabetes for a long time. The neuropathy may be caused in part by free-radical damage to nerves resulting from poorly regulated blood sugar (glucose). As an antioxidant, alpha-lipoic acid helps to block such damage. In addition, because of its effect on glucose metabolism, lipoic acid may improve the glucose-lowering action of insulin (the hormone that regulates blood sugar).

In one clinical trial, 328 people with diabetic neuropathy received either 100 mg, 600 mg, or 1,200 mg a day of alpha-lipoic acid for three weeks. Participants who took 600 mg daily had the greatest reduction in pain and numbness. In a separate study, blood sugar levels dropped in 74 people with type 2 diabetes who took 600 mg or more of alpha-lipoic acid daily.

Alpha-lipoic acid may also aid the large percentage (approximately 25%) of people with diabetes who risk sudden death from nerve-related heart damage. In one study, improved heart function was observed in people at risk for this complication who took 800 mg of alpha-lipoic acid daily for four months.

Preserving brain function in aging adults

Results from animal studies indicate that alpha-lipoic acid may improve long-term memory. Much remains to be learned about whether this occurs in humans, but it may be worth trying this powerful antioxidant when a disease such as Alzheimer's starts to erode memory. In addition, alpha-lipoic acid holds promise for preserving brain cells following a stroke or other type of trauma that restricts blood flow to the brain.

Preventing cancer

As an antioxidant, alpha-lipoic acid holds promise for protecting the body against changes in healthy cells that lead to cancer. The evidence for this cancer-preventive effect is still preliminary, however.

Lessening numbness and tingling

Alpha-lipoic acid may benefit anyone whose limbs tend to tingle or become numb, or "fall asleep" due to nerve compression. In animal studies, alpha-lipoic acid increased blood flow to the nerves and improved transmission of nerve impulses.

Protecting the liver in cases of hepatitis and other types of liver disease.

As an antioxidant, alpha-lipoic acid shields the liver from potentially harmful cell changes and assists it in flushing toxins from the body. This makes it useful in treating such liver disorders as chronic hepatitis and cirrhosis. Alpha-lipoic acid supplements have also proved effective in minimizing liver toxicity following exposure to poisons such as heavy metals (including lead) and toxic industrial chemicals such as carbon tetrachloride.

Combating chronic fatigue syndrome

Because it plays a part in cellular energy production, some nutritionally oriented physicians recommend alpha-lipoic acid for the treatment of chronic fatigue syndrome. While evidence of its effectiveness for this condition is anecdotal, alpha-lipoic acid is a broad-spectrum antioxidant and immune system booster. This means it may be able to play a valuable role in increasing energy and maintaining overall health in chronic fatigue syndrome sufferers.

Reducing the incidence of cataracts

Alpha-lipoic acid has kept cataracts from forming in animals, an effect that may occur in humans, too, but still requires more investigation. The compound also increases the potency of vitamins C and E, both nutrients that protect the eye's lens from harmful ultraviolet light.

General Information about alpha-lipoic acid

You can buy alpha-lipoic acid either as a single supplement or in combination products with other antioxidants, such as vitamins C and E.

- For general antioxidant protection: Take 100 mg twice a day.
- To preserve brain function in aging adults: Take 100 mg twice a day.
- To prevent complications of diabetes: Take 200 mg twice a day to guard against related conditions such as cataracts, macular degeneration, and heart disease. In addition, make sure to get 1,000 mg vitamin C and 400 IU vitamin E daily.
- For diabetic neuropathy: Take 200 mg three times a day.
- For numbness and tingling: Take 200 mg twice a day.
- For hepatitis: Take 100 mg twice a day. In addition, take 1,000 mg vitamin C and 400 IU vitamin E daily.
- For preventing cataracts: Take 100 mg twice a day.

Guidelines for Use

Alpha-lipoic acid can be taken either with or without food.

If you have diabetes, taking alpha-lipoic acid for long periods may require an adjustment in your dosage of insulin or other diabetes medications. Consult your doctor for guidance.

Possible Side Effects

Alpha-lipoic acid is very safe at commonly recommended dosages, although occasionally it causes mild stomach upset and in rare cases it can trigger an allergic skin rash. If you experience any of these reactions, reduce the dose or stop taking the supplement.

Cautions

If you suffer from any type of medical condition, consult your doctor before trying alpha-lipoic acid supplements. Don't take alpha-lipoic acid if you are pregnant.

The following are some recommended dosages for various ailments:

- Aging -- 100 mg once a day
- Cancer Prevention -- 100 mg twice a day; may be partially covered by daily antioxidant complex
- Cataracts -- 100 mg twice a day
- Chronic Fatigue Syndrome -- 100-200 mg a day
- Diabetes For antioxidant protection -- 100 mg twice a day to help prevent complications of diabetes
- Diabetic neuropathy -- 200 mg 3 times a day
- Hepatitis -- 100 mg twice a day

Next week, we'll discuss why the "R" form of alpha lipoic acid is

preferred. Remember, it is your life and it is your health.