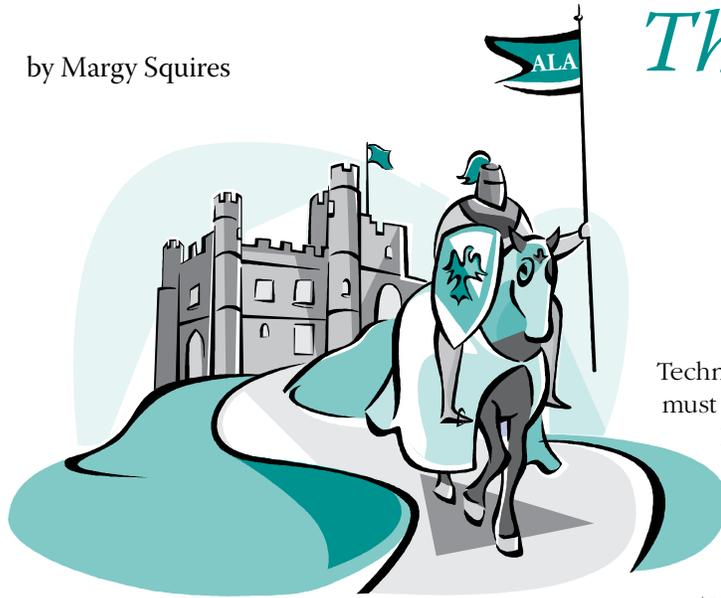


Alpha Lipoic Acid

by Margy Squires



The Antioxidant with Energy

Technically not a vitamin since the body does produce some, ALA must be supplemented from food sources such as liver and yeast. Richard Passwater, PhD, terms ALA as “conditionally essential” and feels that the body does not make enough ALA, given its role both as energy metabolizer and antioxidant. In this brief introductory article to ALA, you’ll learn about this nutrient’s role to energize you and offer protective benefits beyond traditional antioxidant vitamins C and E.

Alpha lipoic acid (ALA) is a multi-faceted coenzyme, enhancing energy production and putting on the antioxidant armor against free radical damage to the cells. Commonly called alpha lipoic acid or ALA, some of its many beneficial actions are:

- ◆ *energy metabolizer*
- ◆ *dual antioxidant (fat & water soluble)*
- ◆ *chelater of toxic metals (cadmium, lead, mercury)*
- ◆ *regulator of sugar*
- ◆ *promising for HIV & cancer*

As Energizer

Without going into the lengthy biochemistry of how ALA turns sugar to energy, suffice it to say that ALA is one of the enzymes necessary in two chain reactions within the Krebs cycle. Biochemically, ALA helps convert pyruvate (which results from glycolysis or sugar burning) into acetyl coenzyme as a main fuel for the Krebs cycle. As an enzyme, ALA is also involved in the alpha-ketoglutarate dehydrogenase energy process of the Krebs cycle. Lucky for us, we don’t have to understand *how* the cells do their work or none of us would get any energy. Basically what that means is that the ultimate outcome of the Krebs cycle is ATP, a compound which carries energy around, releasing it when the body needs it. It is critical for all cells to have enough ATP to perform their various functions (one function is breathing!). All of this action happens in the mitochondria, the powerhouse of the cell.

In an article for *Natural Way* magazine, noted health writer, Jack Challem, tells the story of a 33 year old Italian woman who suffered for years with declining muscle function. Finally, a biopsy and other tests confirm that she had a genetic defect interfering with her body’s ability to produce ATP. After several months of treatment by doctors at the University of Bologna in Italy with 200 mg of ALA three times per day, the woman felt better. Subsequent testing showed increased ATP levels in both her muscles and her brain.

Free Radicals Explained

You’ve heard it before but maybe you need a reminder. Each day, each cell averages 100,000 free radical “hits”, called oxidation. A free radical is a molecule who’s lost an electron and chemically is unbalanced, looking for any opportunity to “steal” an electron from another molecule. Enter the antioxidants vitamin C, beta carotene, CoQ10, vitamin E, selenium, and ALA to donate an electron, stabilizing the potentially damaging effects of the free radicals. It’s kind of a “neighborhood watch” system. Understand that free radicals are a normal part of metabolism, a byproduct of the body’s energy producing chemical chain of reactions.

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Alpha Lipoic Acid

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As long as there is a sufficient supply of antioxidants on hand, no cellular damage occurs. However, given the multiple stressors on the body in the manner of chemical pollutants, radiation, food additives (actually anything foreign to the body), and you end up with degenerative cells, tissues, and eventually whole body disease such as cancer, heart disease, diabetes, and of course, aging.



As Antioxidant

First discovered around 1951, ALA gained new fame in 1988 when its anti-oxidant properties were determined. Unlike other antioxidants which have large molecules, ALA's smaller molecular size enables it to work both inside and outside the cell membranes. One of its jobs inside the cell

include energizing the mitochondria. The other is protecting crucial DNA material by increasing glutathione levels, a major antioxidant in the cell. As Julian Whitaker, MD, put it, "Increasing our intake of vitamin C and ALA supplements which are easily absorbed by the body can give us the glutathione boost we need to tip the odds in our favor in the war against free radicals."

According to Dr. Lester Packer, author of *The Antioxidant Miracle*, glutathione is the most abundant antioxidant in the body and low levels are linked to premature death and disease. He further states it's essential to "keep levels of glutathione high" and the "best way" to boost levels is by taking 100 mg of ALA daily.

Dr. Packer also believes that ALA works synergistically with other antioxidants. Mr. Challem agrees. Challem explains: "When an antioxidant, such as vitamin E quenches a free radical, the vitamin becomes a free radical (because it has lost one electron). Vitamin C regenerates the vitamin E by donating an electron. Of course, vitamin C then becomes a free radical, but it is regenerated by ALA – and so forth. Alpha lipoic acid

is emerging as one of the most powerful, diverse, and useful antioxidants." According to Challem, there's plenty of research to back up the need for antioxidants, with over 5,000 scientific studies done in the past five years on their benefits.

Another feature which makes ALA so unique is that it is both water soluble and fat soluble. Early research suggested that ALA spared or protected the other antioxidants but more recent studies point to ALA actually mimicking or "filling in their shoes". This fits in nicely with Dr. Packer's theory of the "antioxidant network" in fighting free radicals.

Dr. Whitaker states, "ALA greatly enhances the potency of vitamin C and E. Combined with ALA, these two antioxidants are more powerful and their beneficial effect more long lasting than when they stand alone". So, while taking a single antioxidant will give you protection, taking two or three antioxidants gives you "network protection".

Safety

ALA is considered virtually without side effects. Known toxicity does not occur until at 30,000 mg. Diabetics should be cautioned to check with their health care professionals first, as changes in insulin may be required given ALA's ability to reduce insulin resistance. ALA has not been tested in pregnant women.

Summary

ALA is a powerful ally in both the metabolism of energy for muscles and its regulation of sugar via the Krebs cycle to produce ATP. Likewise, ALA shines as an antioxidant protector against free radical damage. I guess you could say that makes ALA the "antioxidant with energy".

More TyH articles on ALA:

- ◆ *ALA, Aiding the Treatment of Diabetes*
- ◆ *ALA, Defending your Liver*



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