

# **ALPHA LIPOIC ACID**

as

## **Skin Tonic, Mercury Chelator and Antioxidant**

by **Walter Last**

Alpha Lipoic Acid (lipoic acid for short) is not only an antioxidant, but the only one that protects water-soluble as well as oil-soluble bio-molecules. Inside the body it is in an equilibrium with its reduced form dihydrolipoic acid and has the ability to regenerate or recycle other antioxidants, such as vitamins C and E. With age glutathione, the master antioxidant, declines but lipoic acid can restore its function, and also that of coenzyme Q10, to much younger levels.

In addition lipoic acid has various key functions in the body. For instance it is a co-factor in the citric acid cycle for oxidative energy production in the cells, has good anti-inflammatory properties, enhances immune functions, and slows down aging. It improves blood flow, cognitive ability, behaviour, and genetic expression of detoxification and antioxidant genes.

Here is a short list of some further benefits:

- It helps to prevent metabolic syndrome and diabetes by increasing insulin sensitivity
- Improves complications from diabetes such as diabetic neuropathy
- Improves the lipid profile or the fat and cholesterol metabolism
- Reduces blood vessel inflammation and cardiovascular disease
- It restricts weight gain and helps to reduce weight
- Protects against cataracts, glaucoma and degeneration of the retina
- Reduces brain damage after a stroke and greatly increases survival rate
- Protects bone health and prevents bone loss
- Prevents erectile dysfunction
- Reduces iron overload
- Improves a variety of liver conditions
- Reduces frequency and intensity of migraines
- Improves memory, reverses cognitive decline, protects from neuro-degeneration
- It shows benefits with Alzheimer's disease and multiple sclerosis
- Protects the nervous system against the harmful effects of mercury poisoning
- Removes toxic metals from the body
- Improves skin texture

All this shows that lipoic acid has impressive credentials for use as a nutritional supplement for which it may be used in amounts of several hundred milligrams per day. But it is also highly praised for its ability to rejuvenate aging and damaged skin.

### **Lipoic Acid Skin Creams**

In the 1990's Nicholas Perricone, a US dermatologist, published various scientific studies on the use of lipoic acid for skin improvement. Since then the use of lipoic acid in skin care products has taken off on a big scale.

The important function of lipoic acid that makes it so useful for skin care is its ability to inhibit and dissolve cross-linking. This is the formation of chemical connections between proteins. Cross-linking contributes to aging by causing hardening of arteries, stiffening of joints, and hardening and wrinkling of the skin. Conversely, lipoic acid also stimulates collagen synthesis. Perricone in his studies could show that lipoic acid softened the skin and erased wrinkles, lines and even scar tissue.

The anti-inflammatory properties of lipoic acid reduce redness due to rosacea, acne and sensitive skin. Finally, it is claimed to improve dull skin, puffy eyes and dark circles as well as sun-damaged skin, and it is regarded as a skin-whitener, meaning that brown age spots or liver spots and pigmentation abnormalities start to fade. All in all very impressive. Further

good news is that it is far less irritating than the commonly used skin treatment with tretinoin (Retin A, Renova) and hydroxy acids.

In his experiments Perricone used oil-based lipoic acid at a very high concentration of 5%. The concentration in commercial skin creams is usually much less, ranging from 0.25 to 5% but commonly between 1 and 3%. Lipoic acid is not easily soluble in oils and may be first dissolved in ethanol and other organic solvents before being mixed with oils.

### **The Antioxidant Skin Tonic**

However there is another way and that has been used in the Stride into Health Antioxidant Skin Tonic. The sodium salt of lipoic acid is easily water soluble so that it was possible to make a tonic with a lipoic acid concentration of 7.5%. Therefore it is a concentrate and best diluted with two parts of water for general use, although it may be applied full strength to specific damaged areas.

An additional bonus is the higher bioavailability of the sodium salt compared to the acid form. Orally 10–30 times higher peak blood levels could be achieved with the sodium salt. Together with a suitable carrier this allows also better skin penetration. The Skin Tonic contains a high level of MSM (Methylsulfonylmethane) which serves not only as a carrier into the skin but helps with repairing damaged skin in its own right. There is also 7.5% of N-Acetyl Glucosamine in the Tonic, another repair factor for damaged skin and joints. Finally, glycerine serves to keep the skin moist and gives the active ingredients more time to penetrate.

### **Mercury Chelation**

Due to the presence of two sulphur groups, lipoic acid is a chelating agent. It chelates mercury both intracellular (inside cells) and extracellular (blood and lymph) in the brain and in other parts of the body. Lipoic Acid has a half life of 3 hours, which means half of the absorbed lipoic acid is excreted in 3 hours. Therefore it should be used on a strict schedule every 3–4 hours even at night, or liberated mercury may be dumped in the brain or other organs. This can be a problem especially within 3 months of having mercury fillings removed. It has been recommended to adopt a periodic lipoic acid schedule for detoxification, as for instance for 3 days and 2 nights once a week or fortnight.

With this, the Tonic can also be used for detoxification of mercury and other heavy metals, such as lead. For details see the [Cutler Protocol](#) (and possibly [Mercury Detox](#)). Each dose may be from one quarter to 1 mg/kg body weight. The Tonic supplies 75 mg of lipoic acid per ml which can be easily measured with a supplied pipette.

The Cutler program has been extensively used for autistic children who received most of their mercury from vaccinations, but it also works for adults with mercury problems due to amalgam fillings. During detoxification health problems may temporarily increase. To minimise such reactions I recommend starting mercury detoxification only after bringing *Candida* under control as this is at the bottom of most modern diseases, see [Overcoming Candida](#).

### **R,S-Lipoic Acid or R-Lipoic Acid?**

There are several forms of lipoic acid available. The form produced in the body is R-lipoic acid while the commonly used supplement form is R,L-lipoic acid, simply called lipoic acid. Therefore R-lipoic acid is generally regarded as being twice as effective as the R,L-form. However, all the original clinical studies, including those by Perricone for skin improvement and those for mercury detoxification have been done with R,S-lipoic acid.

Originally the reason for this was that R-lipoic acid just was not available, and when more recently it could be obtained, it was not only many times more expensive, it was also unstable and formed polymers. Instead of 30% being absorbed from oral use of R,S-lipoic

acid, less than 10% of R-lipoic acid were absorbed. Buyer beware, as this product is still on the market.

Lately this has led to a further development in producing stabilised R-lipoic acid. This contains in addition 50% of the reduced form of lipoic acid, dihydrolipoic acid, or alternatively the stable sodium R-lipoic acid is being used. However, the problem remains that it is 5 to 10 times more expensive than R,S-lipoic acid. While it has been shown that for certain enzyme reactions the R-form can be more than twice as effective as the R,S-form, it has not been shown that it is also much more effective for skin care or mercury chelation.