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UPDATE

Alpha Lipoic Acid

REGENERATION OF OTHER ANTIOXIDANTS

One of the most beneficial effects of both alpha lipoic acid and DHLA is their ability to regenerate other essential antioxidants such as **vitamin C**, **vitamin E**, **coenzyme Q10**, and **glutathione**. The evidence is especially strong for the ability of DHLA to recycle vitamin E, which is apparently achieved directly by quenching tocopherol radicals or indirectly by reducing vitamin C or increasing the levels of ubiquinol (a derivative of CoQ) and glutathione, which, in turn, help to regenerate tissue levels of vitamin E.

The ability of alpha lipoic acid to regenerate vitamin E was shown graphically in an experiment in which three groups of nude (hairless) 12 week old mice were studied for six weeks. The first group of mice, (A), which received a normal diet during this period, developed normally. The second group of mice, (B), which were fed a vitamin E deficient diet showed marked signs of atrophy and degeneration. The third group of mice, (C), were fed a vitamin E deficient diet supplemented with alpha lipoic acid. These animals showed none of the atrophy and degeneration found in the second group, indicating that the alpha lipoic acid had protected them against the degenerative effects of vitamin E deficiency. (Fig. 2).

According to Dr. Packer:

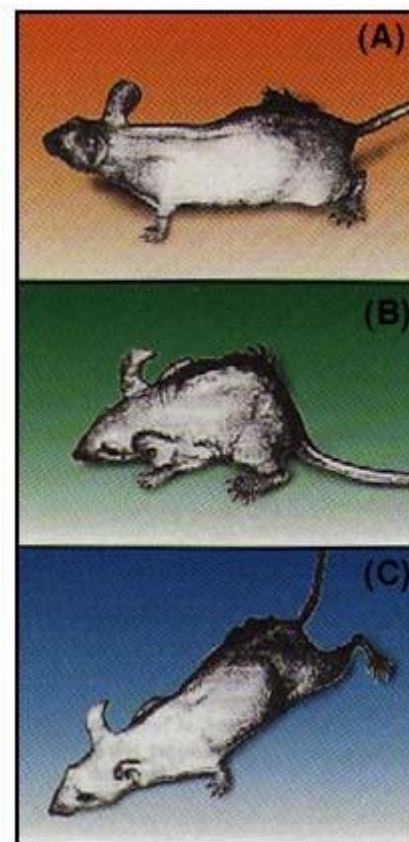
"Current evidence points to the proposition that alpha lipoic acid and/or DHLA can recycle vitamin E via glutathione, vitamin C, ubiquinol, NADPH or NADH, but the relative contributions of each of these biochemical pathways are not well defined."

A schematic model has been put together (Fig. 3) showing the known biochemical pathways by which vitamin E is regenerated in cell membranes, so it can do battle again with the damaging lipid peroxide (peroxyl) radicals found in these membranes.

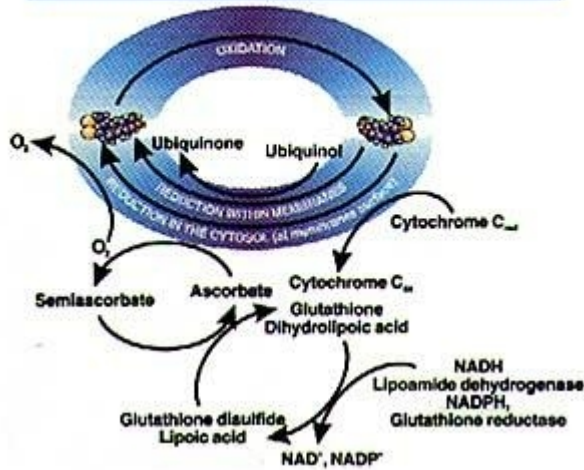
Increasing Cellular Glutathione Levels

Recent studies have shown that when alpha lipoic acid is added to various types of animal and human cells in tissue culture, it causes a 30-70% increase in cellular glutathione (GSH) levels. GSH levels have been found to increase dramatically in the lungs, liver, and kidney cells of mice injected daily with varying doses of alpha lipoic acid for 11 days. GSH is an essential antioxidant, which scavenges hydroxyl radicals, the most dangerous type of free radicals found in the body. Analysis of these studies led Dr. Packer to conclude that:

"It appears that alpha lipoic acid and DHLA act as antioxidants not only directly, through radical quenching and metal chelation, but indirectly as well, through recycling of other antioxidants and through the induction of increased intracellular levels of glutathione."

**Fig.2**

Antioxidant Properties of Lipoic Acid



continuation of this article
Alpha Lipoic Acid For Diabetes, Atherosclerosis And Aging

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