

"This impressive book provides the layperson, and the professional alike, practically all they need to know about using simple and inexpensive natural substances to prevent serious illness and promote good health."

—Burt Berkson, M.D., Ph.D., President, Integrative Medical Center of New Mexico

100 Super Supplements for a Longer Life

Frank Murray

Author of The Big Family Guide to All the Minerals

Foreword by Burt Berkson, M.D., Ph.D.

100

Super Supplements for a Longer Life



Frank Murray



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Foreword

Many people believe that in order for medicine to be effective, it must include expensive procedures and complicated technological equipment operated by highly trained specialists who perform in extravagant, templelike hospitals. In many instances, doctors using highly technical conventional modalities *can* accomplish miracles: the specialties of plastic or facial maxillary surgery, for example. Modern doctors, however, are often helpless in their efforts to treat complicated cancers or other life-threatening conditions. Frequently, no amount of chemotherapy, surgery, or radiation will increase a patient's chances of long-term survival if the disease is widespread throughout the patient's body. I often wonder why many patients opt for expensive, painful treatments even though their doctors tell them that there is no hope for recovery, and especially when

more effective therapies might be found in the realm of natural products.

Twenty-three years ago, when I was a medical resident at a large university-affiliated hospital, Dr. Fred Bartter of the National Institutes of Health introduced me to a natural and highly effective therapy for serious liver disease. At the time, four patients had been assigned to me with "irreparable" liver damage and I was told by my instructors that there was no hope for their recovery. I called Dr. Bartter for his advice. He informed me that Czechoslovakian doctors had been successfully using a natural product called alpha-lipoic acid (thioctic acid) to regenerate livers. I quickly arranged to have the lipoic acid shipped to me by air. After I administered it to my patients, I was astounded by their rapid and complete recovery from their "terminal" disease. Dr. Bartter and I published

FOREWORD

our findings on 79 people with almost complete liver destruction; 75 of them recovered quickly. These extraordinary results were almost completely ignored by the American medical community. When I shared my experience with my colleagues and patients, I was repeatedly asked, “How could a simple, inexpensive, and natural substance be more effective than an expensive and extensively researched drug?”

Although many continue to ask the same question today, knowledgeable academics, clinical medical doctors, and patients alike now understand the role of natural products in treating illness. They take natural medicine seriously, and most realize its potential for treating severe disease.

In this volume, Frank Murray, a pioneer in his field and a highly experienced

health and nutrition writer, does a superb job of explaining how and why natural treatments work by furnishing the reader with comprehensive amounts of information on natural supplements for preventing and treating disease conditions. This book also contains abundant and easy-to-use references to scientific studies that support the text. It provides both layperson and professional practically all they need to know about using simple and inexpensive natural substances for preventing serious illness and promoting good health.

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Alpha-Lipoic Acid

An essential cofactor in energy metabolism in organisms from microbes to human beings, alpha-lipoic acid (ALA)—also referred to as lipoic acid and thioctic acid—provides sufficient protection against arthritis, cataracts, diabetes, heart disease, aging, heavy-metal poisoning, liver cirrhosis, kidney damage, AIDS, and other health conditions. ALA is found in spinach and other foods, but it is unlikely that a food source will contain enough of the product to be effective.

Unlike other antioxidants, such as vitamin C, which is water soluble, and vitamin E, which is fat soluble, ALA is both water and fat soluble, making it bioavailable in a variety of locations in the body. ALA and dihydrolipoic acid (DHLA), its reduced form, are effective against a variety of free radicals, those wayward molecules that accelerate aging and contribute to many health problems.

Interviewed by John McKenzie on *World News Tonight* in September 1997, Lester Packer, Ph.D., of the University of California, Berkeley, said ALA could be a missing link in the treatment and prevention of disease. He added that it is probably the most potent naturally occurring antioxidant known to man.¹

Packer, who with his associates has published more than 60 studies on ALA, explained that the product has its own antioxidant properties and is more potent than other antioxidants, including vitamin C and vitamin E. In addition, it increases the effectiveness of both vitamins.

Type 2 (non-insulin-dependent) diabetics may improve their insulin function and glucose metabolism with ALA supplements. Researchers gave 10 thin and 10 obese patients with Type 2 diabetes 600 mg of oral alpha-lipoic acid twice daily for four weeks. During that time, insulin function,

glucose, and lactate and pyruvate levels were measured to determine glucose metabolism. The ALA supplements were found to be beneficial to both groups. The thin diabetics registered better insulin function and decreases in fasting glucose—suggesting a shift toward normalization—while the obese patients had improvements in insulin function. In both groups, levels of lactate and pyruvate decreased, indicating more normal glucose metabolism. ALA seems to work by stepping up the burning of glucose.²

Diabetics often have an increased risk of neuropathy, which is characterized by reduced heart-rate variability. In a study called Alpha-Lipoic Acid in Diabetic Neuropathy (ALADIN), 328 patients with diabetic neuropathy were given either 100, 600, or 1,200 mg of ALA or a placebo or look-alike pill daily for three weeks. Researchers in the Deutsche Kardiale Autonome Neuropathie (DEKAN) Studie gave 73 patients with cardiac autonomic neuropathy either 800 mg of ALA or a placebo daily for four months. In the ALADIN study, pain and other symptoms decreased significantly with dosages of 600 or 1,200 mg daily for 19 days. ALA also improved heart-rate variability in the diabetics with cardiac autonomic neuropathy. With this and other confirmation, researchers believe that ALA exerts a protective antioxidant effect on nerve cells.³

ALA is being used successfully to treat alcohol-induced liver damage, amanita mushroom poisoning, and metal toxicity. It has also been found useful in treating diabetic polyneuropathy, a type of nerve damage.

ALA acts as a natural supplement, somewhat like vitamin E, in preventing many diseases, especially those influenced by free radicals.⁴

To test the value of ALA in treating diabetics, researchers in Germany and elsewhere gave ALA and gamma-linolenic acid (GLA) to diabetic laboratory animals in an attempt to improve nerve function and blood flow. Each substance was found to cause modest improvements in the animals, and when combined, showed a marked synergistic effect.⁵

ALA assumes some of the biochemical functions of glutathione—a primary antioxidant containing three amino acids—including maintaining high blood levels of vitamin C and recycling vitamin E. According to animal experiments, ALA may prevent cataracts, which are caused by oxidative stress in the lens of the eye.⁶

ALA and DHLA have substantial antioxidant properties, including the ability to quench a variety of reactive oxygen species, inhibit reactive oxygen-generators, and spare other antioxidants. A number of clinical studies, including some reported here, address the use of ALA as a therapeutic agent for such diverse conditions as myocardial and cerebral ischemia-reperfusion injury, heavy-metal poisoning, radiation damage, diabetes, neurodegenerative diseases, and AIDS.⁷

Burton Berkson, M.D., Ph.D., of the Integrative Medical Center in Las Cruces, New Mexico, has seen firsthand how ALA can save lives. A 35-year-old woman with severe hepatitis C was informed by her

physicians that she probably would die without a liver transplant. After Berkson treated her with ALA, she was able to avoid the transplant.⁸

“A number of recent studies have also shown alpha-lipoic acid to be effective in treating diabetic neuropathy,” explained Berkson, who is principal FDA investigator for intravenous ALA treatments in acute liver diseases and a consultant to the National Centers for Disease Control and Prevention. “A 55-year-old man with adult-onset diabetes was informed by his doctors that there was practically nothing they could do about his incapacitating burning feet and pins and needles in his hands. After months of treatment, including ALA, this man no longer suffers these symptoms. Alpha-lipoic acid should be considered in the same class as vitamin E, based on its remarkable benefits and impressive research.”

Berkson became interested in ALA after treating a patient with hepatic necrosis caused by eating toxic mushrooms. An intravenous infusion of ALA 30 hours after the patient had ingested the mushrooms brought an improvement within one hour, and the patient was soon discharged. Berkson prescribed ALA for two additional patients with mushroom poisoning, and within a short time they were feeling better and had almost normal liver function.⁹ Since then he has prescribed ALA, both orally and intravenously, to more than 100 patients.

ALA acts as a coenzyme for the production of acetyl coenzyme alpha-dihydrolipoic

acid, which in turn recycles other antioxidants such as vitamin C. Like other researchers, Berkson has found ALA to inhibit HIV replication in cultured T cells, prevent cataracts, protect the kidney from amino-glycoside damage, protect islet cells in the pancreas from inflammatory attack, and increase helper T cells in the blood, among other benefits. In addition, ALA reduces the toxic side effects of some forms of chemotherapy. ALA crosses the blood-brain barrier easily and plays a significant role in a variety of neural metabolic processes.

Berkson has successfully treated three patients with chronic hepatitis C who are now thriving and did not require a liver transplant. Most researchers report that there are no effective treatments for chronic hepatitis C, and that interferon and antiviral drugs have less than a 30 percent response rate. For those who do undergo a transplant, the new liver often becomes infected, Berkson said. One year of antioxidant therapy as prescribed by Berkson costs less than \$2,000, compared to \$300,000 for a liver transplant.¹⁰

The three patients were selected at random from a group of about 50 chronic hepatitis C subjects at Berkson's Integrative Medical Center. Each day they were given 600 mg of ALA in two divided doses; 900 mg of silymarin (from milk thistle) in three divided doses; and 400 mcg of selenomethionine (selenium) in two divided doses. Patient No. 1 was also treated with B complex vitamins, vitamin C, vitamin E, and

coenzyme Q10. Patient No. 2 was also given medication for insomnia. Patient No. 3 was also treated for other health problems. All three show no signs of hepatitis.

By helping recycle vitamin E in the body, ALA and DHLA keep the concentration of the vitamin high so that it can perform its antioxidant functions adequately, according to M. Podda and colleagues at the University of California, Berkeley. ALA and DHLA have also been shown in vitro to possess potent antioxidant activity and may even substitute for vitamin E. Research supports the idea that the major effect of ALA in vitamin E-deficient animals is to replace the vitamin rather than recycle it. In any case, it cannot be ruled out that ALA antioxidant activity may be acting through other antioxidants—such as coenzyme Q10 or vitamin C—where in vitro recycling has been described.¹¹

For athletes, ALA helps prevent muscle and tissue damage during intense workouts and speeds muscle recovery, according to Dallas Cloutre, Ph.D., and Will Brink. ALA regenerates not only vitamins C and E but also glutathione in the cytoplasm of the cell, and coenzyme Q10 within the mitochondria. ALA quenches an unmatched variety of free radicals and also regenerates other antioxidant and free radical quenching systems.¹²

“If you are an endurance athlete,” Cloutre and Brink wrote, “you are pumping many times the amount of oxygen through your system when you are exercising than when you are at rest. Burning

glucose and fats for fuel (as we do during exercise) generates free radicals, and pushing so much oxygen through your system allows this source of oxidation and free radicals greater access to your tissues.”

Similarly, an athlete performing resistance exercise such as weight training may be causing countless small tears in the muscle (microtrauma) and other forms of tissue damage. Microtrauma leads to localized inflammation, pain, and swelling as the immune system attempts to clear out damaged tissue by generating free radicals to destroy both bacteria and cells that are to be replaced.

Spinach is the richest source of lipoyllysine, which is protein-bound ALA. Large amounts of the substance are also found in broccoli, kidney, heart, and liver. There is little or no lipoyllysine in garden peas, Brussels sprouts, rice bran, or bananas. Researchers do not yet know if the protein-bound form of ALA has as much activity as “free” ALA found in supplements.¹³

According to a number of studies, patients with HIV have a compromised antioxidant defense system. Therefore, blood antioxidants are decreased and peroxidation products of fats and proteins are increased in these patients, reported Michael Murray, N.D. This blood profile may contribute to the progression of AIDS, since antioxidants such as glutathione prevent viral replication while reactive oxidants tend to stimulate the virus.¹⁴

“A small pilot study was designed to determine the short-term effect of ALA

supplementation (150 mg three times daily) in HIV positive patients,” Murray said. “The supplementation increased plasma ascorbate (vitamin C) in 9 of 10 patients, total glutathione in 7 of 7 patients, total plasma sulfur groups in 8 of 9 patients, T-helper lymphocytes and T-helper/suppressor cell ratio in 6 of 10 patients; while the level of free radical damage decreased in 8 of 9 patients. This pilot study indicated that lipoic acid supplementation led to significant beneficial changes in the blood of HIV infected patients.”

For general antioxidant support, the recommended dosage is 20 to 50 mg/day, Murray wrote. In the treatment of diabetic neuropathy, the recommended dose is now 400 to 800 mg/day. For the treatment of AIDS, the recommended amount is 150 mg three times a day.

“Lipoic acid supplementation appears to be very safe as there have not been any reports of adverse effects in over three decades of use in the treatment of diabetic neuropathy,” Murray said. “In addition, animal studies have shown it to be of very low toxicity.”

In addition to sparing vitamins C and E and other antioxidants, ALA works synergistically with two B vitamins—B₁ and B₃—in cellular energy production. ALA also may improve blood sugar control in diabetes, resulting in a reduction in the dosage of insulin or oral blood sugar-lowering drugs.

ALA is available in tablets and capsules. According to Dr. Packer, it is probably the

most potent naturally occurring antioxidant known to humankind.

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Beta-Carotene

Carotenoids are naturally occurring compounds found in the pigments in plants. Although more than 600 carotenoids have been isolated, only a small number are found in appreciable amounts in human blood and tissue. The most notable carotenoids are alpha-carotene, beta-carotene, lutein, zeaxanthin, cryptoxanthin, and lycopene. Carotenoids work in tandem to prevent and control free radicals and to limit free radical/oxidative damage. Companion antioxidants for fighting free radicals include vitamins C and E, alpha-lipoic acid, polyphenols, and the enzymes superoxide dismutase, catalase, and glutathione peroxidase.¹

A great deal has been written about the dangerous free radicals, by-products of metabolic processes that originate from environmental pollutants (nitrogen dioxide and ozone in polluted air), heavy metals (cadmium, mercury, etc.), halogenated

hydrocarbons, ionizing radiation, and cigarette smoke. Unless destroyed by antioxidants, these wayward free radicals attack cell walls and cell constituents such as DNA. Another likely target is polyunsaturated fatty acids (PUFAs). Reacting with PUFAs, free radicals can generate chain reactions in profusion, damaging the structure and function of cells, nucleic acids, and electron-dense regions of proteins. Oxidative damage due to free radical attacks is linked to many degenerative diseases and conditions, including cancer.

Carotenoids have various diverse biological functions. For example, certain carotenoids such as beta-carotene are precursors of vitamin A and can be metabolically converted into fat-soluble vitamin A in the body. Alpha-carotene and cryptoxanthin are also provitamin A carotenoids.

Carotenoid absorption is generally between 10 and 30 percent and decreases

with increased intake. Dietary fat influences absorption, since carotenoids are absorbed only when bile salts are present. Dietary fiber can inhibit absorption. Carotenoids are transported along with lipoproteins, and adipose tissue (body fat) is the primary storage depot for them. But carotenoids are also found in the liver, lung, and other tissues, such as the corpus luteum (in the ovary), adrenal glands, prostate, and macula of the eye.

Apricots, cantaloupe, carrots, leafy green vegetables, pumpkin, sweet potatoes, and winter squash are rich sources of beta-carotene. Alpha-carotene is found in carrots and pumpkin. Lutein and zeaxanthin are available in leafy green vegetables, pumpkin, and red peppers. Guava, pink grapefruit, tomatoes and tomato products, and watermelon are good sources of lycopene. Mangoes, nectarines, oranges, papayas, peaches, and tangerines provide cryptoxanthin. Natural mixed carotenoid supplements contain various carotenoids naturally found in fruits and cruciferous, yellow, and dark green vegetables. Synthetic carotenoid supplements contain only beta-carotene.

Based on dietary guidelines from government agencies, a daily intake of 6 mg of beta-carotene is recommended. The Alliance for Aging Research, a citizens advocacy organization, recommends a dosage of 10 to 30 mg/day.

A research team analyzed the dietary habits of more than 83,000 women in the Nurses' Health Study to find out how long-term intake of certain carotenoids might

affect risk of breast cancer. Women who consumed foods with the highest amounts of beta-carotene, lutein, zeaxanthin, vitamin C, and vitamin A had a relatively low risk of breast cancer. Premenopausal women who had an established family risk of developing the disease benefited the most. Vitamin E supplements and foods rich in this vitamin provided a somewhat reduced risk for breast cancer.²

In a related trial, researchers analyzed the relationship between dietary consumption of carotenoids and the risk of developing colorectal adenomatous polyps. Although these polyps are usually benign intestinal growths, they can become precancerous. Women with the highest blood levels of beta-carotene were 38 percent less likely to develop polyps, compared to those with low beta-carotene levels. Women with high levels of alpha-carotene had a 41 percent lower risk. Women with the highest levels of total carotenoids, such as beta-carotene, alpha-carotene, beta-cryptoxanthin, lutein, zeaxanthin, and lycopene, had a 34 percent reduced risk.³

Researchers evaluated data from the 12-year Physician's Health Study, in which more than 22,000 male doctors were given either 50 mg of beta-carotene or a placebo every other day. Beta-carotene-deficient doctors who took the supplement were 36 percent less likely to develop prostate cancer than those deficient in the vitamin who did not take the supplement.⁴

In a case-control study involving 273 women with breast cancer and 371 controls,