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Vitamin E

by Raymond Francis

In recent years, new findings on vitamin E have been so extensive; it might be mistaken for a miracle drug. Vitamin E has been proven to be one of our most powerful biological antioxidants. At the same time, a growing body of scientific evidence is proving the lifetime need for protecting our cells from damage by free-radical oxidation. Vitamin E provides such protection and thereby slows down the aging process. Simply put, vitamin E protects us from aging and the chronic diseases, such as heart disease, which result from oxidative damage.
Unwittingly, we have created and live in an oxidizing environment. This is putting unprecedented demands on our antioxidant defense systems. With the demand up, it is difficult to obtain sufficient vitamin E from our nutritionally-deficient modern diet. That is why supplementing is a must for most people. However, supplementing is problematical because there is little real vitamin E on the market.

Vitamin E is an essential (we can't live without it) fat-soluble vitamin that was discovered in 1922. Early experiments demonstrated that vitamin E was essential to the fertility of rats; it quickly became known as the fertility vitamin. Recent research has found that vitamin E appears to protect against all kinds of degenerative diseases including cancer, heart disease, Alzheimer's, cataracts, and aging. Some say it is the most important vitamin of all, and judging from the list of claims, it may be a miracle worker.

The two principal roles of vitamin E are as an antithrombin, to prevent blood clots inside blood vessels, and as an antioxidant, quenching free radicals. There is now extensive evidence linking free radical damage to the development of degenerative diseases. Free radicals are very reactive entities that are produced by normal bodily processes, as well as from environmental pollutants such as smog, pesticides, and cigarette smoke. The body employs a complex antioxidant defense system to protect itself from free radical oxidative damage. This system includes vitamins E, A, and C, carotenoids, bioflavonoids, glutathione peroxidase, superoxide dismutase, alpha-lipoic acid, and proanthocyanidins. Unless quenched by antioxidants, free radicals can react with the fatty acids in our cell membranes causing lipid peroxidation. Once this oxidation begins, it can start a chain reaction that will damage the structure and function of the cell, thus causing disease. Vitamin E is a particularly important antioxidant because it is oil soluble. This allows it to sit right in the cell membrane, adjacent to the unsaturated fatty acids, and to protect them from damage. In short, vitamin E is fundamental to protecting us from free radical damage, particularly to the fatty molecules in our cell membranes. Let's have a look at some recent findings on vitamin E...

Heart Disease

Arteriosclerosis is one mechanism involved in heart disease. This process, where plaque lines the arterial walls and restricts healthy blood flow, is triggered by the free radical oxidation of low-density lipoproteins (LDLs). Vitamin E inhibits the oxidation of LDLs thereby preventing heart disease. After several large studies demonstrated dramatic benefits, the American Heart Association cited vitamin E as one of the "top-ten heart and stroke research advances for 1996." Numerous other studies, over a period of decades, have concluded that vitamin E can reduce the risk of heart disease. In two large epidemiological studies involving almost 150,000 people, researchers found that vitamin E lowered the risk of coronary heart disease. A one-year study of more than 2000 people reported in a 1996 *Lancet* found that people on vitamin E reduced their risk of heart disease by 77%. A recent study in *Arteriosclerosis, Thrombosis and Vascular Biology* found that vitamin E blocked the formation of a proinflammatory compound, interleukin-1 beta, which promotes the formation of blood clots and the adherence of white blood cells to

blood vessel walls. Both of these processes are instrumental in creating heart disease. When experimental animals are deprived of vitamin E, they die of heart disease. A handful of enlightened physicians have used vitamin E to both prevent and resolve blood clots and to reverse major cardiac dysfunction.

Cancer

It has been estimated that between 80 and 90 percent of all cancers are environmentally induced. Research has shown that free radicals play a role in both the initiation and promotion of these cancers. As a free radical neutralizer, vitamin E may play a role in cancer prevention. Studies on both cells and animals indicate that the protection of antioxidant chemicals like vitamin E can reduce the risk of cancer. A large study, in the *Journal of the National Cancer Institute*, found that in male smokers, ages 50 to 69, the incidence of prostrate cancer was cut by one third and the death rate by 41% among those who had been supplementing with vitamin E for five to eight years.

Immunity

Numerous studies, including this one at Tufts University, have shown that vitamin E enhances immunity, especially in the elderly. A group of 88 volunteers, 65 and older, were given vitamin E for four-months. The 65 and 70 year-olds taking the vitamin E had immune responses equal that that of 40-year-olds. Since immunity decreases with age, supplementation is even more important for older people.

Cataracts

The lens of the eye can be damaged by light-induced free radicals, which cause lipid peroxidation. This oxidation produces cataracts, a cloudiness in the lens and blurred vision. Cataract surgery is the largest single item in the Medicare expenditure budget. Vitamin E supplementation reduces the risk of cataracts. A 1998 study reported in *Ophthalmology* found a 75% reduction in cataracts in those supplementing with vitamin E for five years or more. The amount of protection increased with the amount of time the subjects had been taking vitamin E, and those with the highest amount of plasma vitamin E had the highest protection.

Diabetes

Diabetics often suffer from a degenerative eye condition, diabetic retinopathy, which can cause blindness. This retinopathy is caused by decreased blood flow to the eye. A 1999 study reported in *Diabetes Care* found that after four months of supplementation with vitamin E, the blood flow to the eye was normalized. In addition, kidney function also improved. The authors concluded that it would be prudent to put all diabetics on regular doses of vitamin E.

Air Pollution

High concentrations of smoke, smog, ozone and nitrogen dioxide in urban air can damage lungs by initiating free radicals. A number of animal studies have shown that vitamin E has a protective effect on lung tissue.

Exercise

During exercise, increased oxygen metabolism increases free-radical levels by two to three times, thus causing muscle damage. A number of studies have demonstrated that vitamin E supplementation has a protective effect on these tissues. One study found that damage to DNA was significantly reduced in

those doing strenuous exercise, when supplemented with 1200 mg of vitamin E for two weeks prior to exercise.

Alzheimer's

In a two-year study reported in the *New England Journal of Medicine* found that vitamin E slowed the progression of Alzheimer's disease by 50%. While not a cure, nothing else has slowed the progression of this disease.

Skin

Vitamin E applied directly to the skin slows the aging process and produces skin that looks younger, longer. E has the ability to strengthen connective tissues and when used regularly will 'tighten' the skin. E has been successfully used on all kinds of skin afflictions. Ulcerated and open wounds heal more rapidly as do burns. E soothes burns and protects against infection of the wound. E also minimizes the formation of scar tissue. Instant relief from the pain of sunburn has been reported.

Vitamin E in the Diet

The new RDA for vitamin E is 15 mg. Surveys indicate that most American adults get only 8 to 10 mg. Vitamin E is found in whole grains, nuts, seeds, and fats and oils, such as real olive oil. But, modern diets are lacking in vitamin E because of cooking and processing. While even 8 mg appears to be enough to prevent obvious deficiency symptoms such as peripheral neuropathy, research indicates that many times this amount is needed for optimal health.

Natural vs. Synthetic

Once having decided to supplement with vitamin E, the question becomes which brand to take. The first consideration is whether to take natural or synthetic. The choice here is clearly for the natural. There is a difference in the chemical structure of the molecules, which causes synthetic vitamin E to be poorly retained by the body and to be less biologically active than the natural molecules. The body clearly selects the natural molecules over the synthetic, which are made from petroleum products. Synthetic E has been found to be only half as effective as natural E. A study in the November 1998 *American Journal of Natural Nutrition* reviewed more than 30 studies on this subject and concluded that natural vitamin E is far superior to the synthetic.

How and What to Take

Supplementing with vitamin E is essential for most people. Dr. Evan Shute, one of the world's pioneers in vitamin E, wrote in *The Heart and Vitamin E*, "No substance known to medicine has such a variety of healing properties as E." Are there times when E should be avoided? Numerous studies have shown no significant side effects from high levels of vitamin E. However, vitamin E can have an anticoagulant effect and high doses should be supervised by a physician when on anticoagulant prescription drugs.

Knowing that we need to supplement is only part of the problem. Unfortunately, there is precious little real vitamin E on the market. First, most vitamin E is synthetic and it is well known that synthetic E is less bioactive than natural E. On labels, synthetic E can usually be recognized by a dl- in front of the chemical name. However, it is legal to label vitamin E as natural even though it is 90% synthetic. Often natural vitamin E is reacted with organic acids to form synthetic esters called acetates and succinates. These acetates and succinates are stable molecules, which provide long shelf life and are easy to make into supplements. The problem is these molecules are too stable and do not work well as antioxidants. In

addition, they are not as well absorbed. One study found that the bioavailability of natural vitamin E was three times higher than the acetate form. Another problem is that natural E products also contain one-third to one-half vegetable oil. Unfortunately, the oil turns rancid and creates damaging free radicals in the body. The product I recommend is Beyond Health Vitamin E, fully natural, vegetable oil-free Vitamin E that meets my high standards. Physicians who prescribe vitamin E usually recommend 400 I.U. per day for each 40 pounds of body weight, taken all at one meal. For those with critical problems, 2400 I.U. per day is often recommended until a regular maintenance dose is resumed. Your body will thank you when you supplement with real vitamin E.

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