



VITAMIN E

What is vitamin E?

Vitamin E is an antioxidant. Antioxidants help protect the body from damage caused by substances called free radicals. Free radicals are natural by-products of the work the body does. If the body is under stress, fighting infection or working hard to break down drugs, more free radicals will be produced. Antioxidants such as vitamin E help protect cells from free radicals. To learn more, see the CATIE Supplement Sheet on antioxidants at www.catie.ca/supple-e.nsf.

Why do people with HIV take vitamin E?

Vitamin E may decrease some of the negative effects of HIV on the immune system and help the immune system fight viral infections more effectively. Here are a few more points about why PHAs use this vitamin:

1. To meet increased demand by the body

Studies have found vitamin E deficiencies in some people with HIV/AIDS (PHAs). Research suggests that such deficiencies are more likely to occur the longer a person is living with HIV. Researchers speculate that the stress of fighting HIV and other infections may increase the body's need for more antioxidants, including vitamin E.

2. To increase immune resistance to viral infection

Although many PHAs take supplements of vitamin E, most of the information we have about

its impact on the immune system is based on animal and test-tube studies. These studies suggest that excessive amounts of free radicals may trigger some of the unfavourable immune changes seen in PHAs. In studies of mice infected with a virus that causes an AIDS-like disease, vitamin E supplements appeared to slow down the damage caused by this infection.

Several other studies suggest that vitamin E may help fight some viral infections:

- In one study, HIV positive people who took vitamins E and C for three months tended to have lower viral loads, although a clear effect could not be demonstrated.
- Another study tested vitamin E in people with the liver-damaging hepatitis B virus (HBV). The study found that people who took vitamin E were less likely to have signs of virus in their system one year later (53% of those who took vitamin E vs. 18% of those who didn't) and were more likely to have normal liver function (47% of the vitamin E group vs 6% of the others). Although these results are promising, they need to be confirmed in a larger study.

3. To protect from free radicals

When the body is working hard to fight infection or break down drugs, more free radicals are produced. These free radicals can damage cells, in the same way that rust can damage a car. Test-tube studies suggest that excess free radicals may also damage the energy producing portions of the cell (called mitochondria). Mitochondrial damage may cause muscle



weakness and fatigue, symptoms that are associated both with HIV infection and the use of anti-HIV drugs such as AZT. One group of researchers found evidence of increased free radical damage in people with HIV and in laboratory mice treated with AZT. They also found that high doses of vitamins E and C help protect mouse muscle cells from damage. Other animal studies have suggested that vitamin E might also help protect the bone marrow from drug-associated toxicity, but no human studies in HIV positive people have confirmed these effects.

Available forms

Many different forms of vitamin E are available. Naturopaths usually suggest vitamin E from natural sources. Although the body absorbs both synthetic and natural vitamin E easily, according to the United States Office of Dietary Supplements, the natural form is more active. Natural source vitamin E is often labelled “natural” and contains d-alpha-tocopherol; synthetic forms contain dl-alpha-tocopherol.

Food sources

Vitamin E is made up of several different molecules naturally present in the following foods:

- nuts
- seeds
- whole grains
- vegetable oils
- egg yolks
- green leafy vegetables

Vitamin E must be eaten with some oil or fat to be absorbed.

Dosage

Most **adult** PHAs taking vitamin E supplements use products containing between 400 and 800 IU (international units) of vitamin E per day, in addition to food sources.

Dietary Reference Intakes (DRI) for most

vitamins have been agreed upon by joint committees of Canadian and U.S. scientists. A DRI is the average amount of a nutrient that a healthy person need to stay healthy. The DRI for vitamin E is:

- 15 mg = 22 IU natural vitamin E = 33 IU synthetic vitamin E

Because many people, including PHAs, take high doses of vitamin E for its antioxidant effects, the committee also set an upper level for safe use of vitamin E. The upper level dose for vitamin E is:

- 1,000 mg = 1,500 IU natural vitamin E = 1,100 IU synthetic vitamin E

Side effects

Although side effects from vitamin E are uncommon (even above 1,000 mg), there is an increased risk of spontaneous bleeding, such as nosebleeds or ulcers, with higher doses of vitamin E.

Cautions and concerns

1. Amprenavir

The anti-HIV drug amprenavir (Agenerase) already contains large amounts of vitamin E. People taking amprenavir should not take additional vitamin E supplements.

2. Bleeding

Because of its impact on blood clotting, vitamin E should not be combined with anti-coagulant medications (blood-thinning medications that help prevent clots). People who already have low platelets or other bleeding problems such as haemophilia should **not** use vitamin E supplements.

Credits

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Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV-related illness and the treatments in question.

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