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A diet containing adequate amounts of vitamin E is important in maintaining general health, and may prevent against some forms of cancer. The ability of vitamin E to prevent or treat Alzheimer's disease or heart disease requires further study.

Vitamin E, also known as alpha-tocopherol, is a natural antioxidant that is found in foods such as plant oils, eggs, nuts, green leafy vegetables, and whole grains. Its major function is to neutralize free radicals, meaning that it protects cells from their damaging effects. Therefore, vitamin E is being investigated in conditions such as Alzheimer's disease and cancer, in which free radical damage is known to play a part.

Clinical trials show that vitamin E supplementation does not help prevent cardiovascular disease, and it may increase risk for a certain kind of stroke. Data on whether it can reduce cancer risk are also mixed, and under some circumstances taking vitamin E supplements may actually increase risk. For chronic disease prevention including conditions such as heart disease and cancer, a meta-analysis concludes that nutrients like vitamin E are best obtained from the diet.

What are the potential uses and benefits?

- To prevent progression of Alzheimer's disease

One clinical trial showed that vitamin E reduced progression of Alzheimer's disease. A few population-based studies suggest that high dietary intake of vitamin E may lower risk of developing Alzheimer's disease.

- To prevent cancer

Data on whether Vitamin E supplementation can reduce cancer risk are mixed. Large population-based studies suggest it may reduce risk of prostate and colorectal cancers in male smokers. However, initial data from the SELECT Trial shows vitamin E taken alone or with selenium for 5 years did not reduce prostate cancer risk, and even increased risk after 7-year follow-up. Vitamin E also had no effect on lung, urinary tract, pancreas, mouth or stomach cancer risks. Another trial in

patients with head and neck cancers found that patients who received vitamin E had a higher rate of second primary cancers compared with placebo, and that vitamin E may interfere with radiation therapy.

- To manage cardiovascular disease

Data from clinical trials show that vitamin E supplementation does not help prevent heart disease, and it may increase risk for a certain kind of stroke. For chronic disease prevention, a meta-analysis concludes that nutrients like Vitamin E are best obtained from the diet.

What are the side effects?

- Symptoms of vitamin E toxicity from long-term consumption include fatigue, dizziness, weakness, rash, and vein inflammation due to a blood clot.
- Vitamin E supplementation may increase stroke risk.

What else do I need to know?

Patient Warnings:

- An analysis of commercially available vitamin E supplements found the actual content to vary considerably from the labeled dosage, from 41% less to 57% more than the labeled amounts.
- This product is regulated by the FDA as a dietary supplement and is not required to be manufactured under specific standardized conditions. Therefore, it may not have been tested for safety or effectiveness, may not contain the labeled amount, or may be contaminated.

Do Not Take if:

- You are taking warfarin or other blood thinners: Doses of vitamin E greater than 400 IU per day may increase the risk of bleeding. PT and INR should be monitored if vitamin E is started or discontinued.

Special Point:

- Vitamin E supplements derived from plant oils contain d-alpha-tocopherol, which is believed to be the active form, while synthetic vitamin E supplements are a mixture of d-alpha-tocopherol and l-alpha-tocopherol (inactive forms).
- It is controversial whether antioxidants like vitamin E can lessen or negate the effects of chemotherapy and radiation therapy. Because these therapies work by creating free radicals that kill cancer cells, some physicians have suggested that high levels of antioxidants can neutralize these free radicals and thereby protect cancer cells from these therapies. So what protects healthy cells may protect cancer cells as well. This question is still not fully understood and patients who are interested in taking more than the RDA of any antioxidant should consult with their doctor.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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