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Cancer Center

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There is no definitive evidence to support use of beta-carotene supplements for preventing cardiovascular disease or cancer.

Beta-carotene is an antioxidant that is found in yellow and orange fruits, such as apricots, cantaloupe, and papaya, as well as squash, carrots, sweet potatoes, pumpkin, leafy greens, and broccoli.

High dietary intake of fruit and vegetables has been associated with reduced risk of cancer and heart disease. Although beta-carotene supplements do not appear to prevent or effectively treat either of these diseases, beta-carotene obtained from the diet may be beneficial. This is because it may interact with other phytochemicals in fruits and vegetables and have a greater effect on the body than do supplements.

What are the potential uses and benefits?

- As an antioxidant
Several studies support this use.
- To prevent cancer
Available evidence does not support the use of beta carotene supplements for preventing cancer. In fact, high beta-carotene intake has been linked to higher risk of lung cancer in male smokers and aggressive prostate cancer.
- To prevent and treat heart disease
Several large and well-designed clinical trials and population studies show that taking beta-carotene supplements does not reduce the risk of myocardial infarction (heart attack), angina, or coronary artery disease. In fact, a review of clinical trials showed that beta-carotene was associated with a small increase in overall death as well as death to cardiovascular disease.
- To prevent cataracts
Clinical trials generally have shown that taking beta-carotene supplements does not reduce the risk of developing cataracts,

but a small study found that amounts of beta-carotene in the blood were associated with decreased cataracts, indicating that beta-carotene obtained from the diet, but not supplements, may be helpful.

- To prevent and treat macular degeneration

One clinical trial suggested that taking an antioxidant supplement plus zinc reduces the risk of macular degeneration, but it is not clear whether beta-carotene, or any of the other antioxidants in this supplement, were responsible for these effects.

- To treat AIDS

Although small studies have suggested that beta-carotene supplements could increase CD4 cell counts, clinical trials have not been able to replicate these results.

- To stimulate the immune system

Some laboratory experiments show that beta-carotene stimulates certain aspects of the immune system, but it is not certain that this effect occurs in the human body.

- To treat oral leukoplakia

Several clinical trials have shown that beta-carotene supplementation can induce remission of oral leukoplakia, a pre-cancerous lesion in the mouth.

- To treat type 2 diabetes

Data are conflicting.

- To improve cognition

Clinical findings suggest that long-term supplementation with beta-carotene may improve cognition.

What are the side effects?

- Prolonged intake of high doses of beta-carotene can lead to carotenoderma, a harmless yellowish discoloration of the skin.

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.

Beta-Carotene - Last updated on March 24, 2023

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