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 carotenodermia, a harmless yellowish discoloration of the skin.

If you have any questions, contact a member of your care team directly. If you're a patient at MSK and you need to reach a provider after 5 p.m., during the weekend, or on a holiday, call 212-639-2000.

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