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## **Vitamins and Minerals** [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 03/2014

### **Key Messages:**

- Vitamins and minerals are essential to your health.
- Although some vitamins and minerals help counteract the effect of cell damage, this doesn't mean that they prevent cancer.
- Vitamin and mineral supplements are more likely to reduce cancer risk in people who do not have enough of a certain nutrient and therefore require more to correct their deficiency. People who eat well and get enough nutrients may not benefit and could be harmed by extra supplementation.
- Talk with your doctor or another member of the health care team before supplementing with vitamins or minerals to prevent cancer.

### **About vitamins and minerals**

Your body needs vitamins and minerals so it can perform essential functions, grow and develop, and repair itself. Research on whether they prevent cancer continues, with mixed results.

Vitamins your body needs include:

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? Vitamin A

? Vitamin D

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? Thiamin

? Vitamin E

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? Riboflavin

? Vitamin K

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? Niacin

? Folic acid

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? Vitamin B<sub>6</sub>

? Pantothenic acid

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? Vitamin B<sub>12</sub>

? Biotin

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? Vitamin C

Minerals your body needs include:

- Calcium
- Chromium
- Copper
- Iodine
- Iron
- Manganese
- Magnesium
- Potassium
- Selenium
- Sodium
- Zinc

### **Antioxidants and cancer prevention**

All cells in the body are exposed to oxidants, which are substances that can damage cells to cause cancer and other diseases. Cigarette smoke and a gas called ozone are examples of oxidants. Vitamins, minerals, and other nutrients that help protect your body against damage from these substances are called antioxidants. It is possible that adding antioxidants to your diet can lower the risk of disease, including cancer.

Vitamins, minerals, and other nutrients that are antioxidants include:

- Vitamin E
- Vitamin A and carotenoids. These are substances that give fruits and vegetables an orange or yellow color, such as beta-carotene and lycopene; carotenoids allow the body to make vitamin A.
- Vitamin C
- Selenium
- Other plant chemicals, such as flavonoids, which are found in berries, broccoli, tea, and dark chocolate

Although multiple laboratory studies have shown antioxidants may slow or help prevent cancer, it is not yet clear if they actually do in people.

### **Summary of clinical studies involving vitamins and minerals**

A review of research studies in people, called clinical trials [3], shows the following:

**Beta-carotene.** High-dose supplements containing beta-carotene do not seem to prevent cancer. In studies of current and former smokers, high-dose beta-carotene supplements actually raised the risk of lung cancer.

**Vitamin C.** Although some research studies show that higher amounts of vitamin C in the diet are associated with a lower risk of stomach cancer, the results have not been consistent.

**Vitamin E.** A large clinical trial called the Selenium and Vitamin E Cancer Prevention Trial (SELECT) tested the relationship between vitamin E and prostate cancer. Results showed that selenium and vitamin E, taken alone or together for an average of five years, did not prevent prostate cancer. In 2011, updated data from the study showed that participants who took vitamin E alone had an increased risk for prostate cancer compared to those who took an inactive pill called a placebo.

**Selenium.** As mentioned above, selenium has been studied for cancer prevention in laboratory research. However, in a study of skin cancer, selenium supplements did not prevent a second skin cancer in people who already had the disease, but it lowered the new cases of prostate, lung, and colorectal cancers. In some studies, selenium supplementation has been linked to increased risk for diabetes, so be cautious about considering supplements that contain selenium.

### **Additional vitamin and mineral cancer prevention studies**

A few association studies have examined to see if taking a multivitamin reduces your risk of cancer. Generally the studies have not shown a protection. The exception is one study that showed people who took multivitamins for more than 10 years showed reduced polyp formation. Because polyps are linked to colorectal cancer risk, this study suggests a multivitamin might reduce colorectal cancer risk. But, these are difficult data to interpret because usually the healthiest people who get regular cancer screening are also the people taking multivitamins.

**Women's Health Initiative (WHI) study.** The WHI was a large study of women who had been through menopause and were generally well-nourished. One part of the study tested whether daily supplements of calcium and vitamin D could prevent colorectal cancer. These nutrients were tested together because vitamin D is necessary for calcium to be absorbed by the body. After at least seven years, researchers found that supplemental calcium and vitamin D had no effect on the number of new cases of colorectal cancer. Read more about vitamin D and cancer risk [4].

**Folate studies.** Folate is a generic description of a B vitamin that is found in foods such as leafy, green vegetables, fruit, and dried beans and peas. Folic acid is a form of folate made in the laboratory that is found in supplements and fortified foods, such as breads and cereals. Studies show that people with low levels of folate have an increased risk of breast, colon, and pancreatic cancers. Folate may also counteract alcohol-related increases in cancer. So far, studies in people have not shown a relationship between folic acid and cancer prevention.

## Vitamins, minerals, and survivorship

All people, including those with cancer and cancer survivors, need vitamins and minerals, regardless of whether they prevent cancer. A balanced diet can provide most people with all of the vitamins and minerals they need. If you choose to take dietary supplements, talk with your doctor, because some supplements may interfere with cancer treatment. In addition, taking some vitamins and minerals in high amounts can be dangerous.

Many cancer survivors want information on healthy eating and the use of vitamin and mineral supplements to help lower the risk of a cancer returning or of preventing a second cancer. However, in the studies to date, there is no clear evidence that any particular vitamin or mineral helps prevent a recurrence or a second cancer. Part of the reason for this may be because people have different health histories and different habits regarding nutrition, tobacco use, and exercise.

Dietary recommendations for cancer survivors are similar to those for the general population, and include quitting smoking, avoiding weight gain, being physically active, limiting alcohol, and eating more plant-based foods. Learn more about [nutrition recommendations during and after treatment](#) [5].

### More Information

[Chemoprevention](#) [6]

[Plant-Based Foods](#) [7]

[About Dietary and Herbal Supplements](#) [8]

[The Role of Major Nutrients in Cancer Prevention](#) [9]

### Additional Resource

National Cancer Institute: [Antioxidants and Cancer Prevention](#) [10]

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#### Links:

[1] <http://www.cancer.net/navigating-cancer-care/prevention-and-healthy-living/diet-and-nutrition/vitamins-and-minerals>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24863>

[4] <http://www.cancer.net/node/24397>

[5] <http://www.cancer.net/node/24985>

[6] <http://www.cancer.net/node/24973>

[7] <http://www.cancer.net/node/24986>

[8] <http://www.cancer.net/node/25039>

[9] <http://www.cancer.net/node/24983>

[10] <http://www.cancer.gov/cancertopics/factsheet/prevention/antioxidants>