

Beta-carotene and Cancer Risk



This Information Sheet provides information on beta-carotene, beta-carotene and cancer risk and the benefits of getting beta-carotene from eating a wide variety of nutritious foods.

Key Messages

Beta-carotene acts as an antioxidant in the body and can protect against cell damage.

Beta-carotene is an important part of a healthy diet and the best sources are from canned, frozen or fresh whole fruits and vegetables rather than from supplements (vitamin pills).

The Cancer Society recommends you get your nutritional requirements from whole foods rather than as individual nutrients in a supplement or tablet and that you avoid taking high doses (greater than 18mg/day) of beta-carotene supplements unless prescribed.

What is beta-carotene?

Beta-carotene, an organic compound, is the orange pigment that is found mainly in yellow, orange and dark green vegetables such as carrots, kumara, pumpkin, silverbeet, spinach and broccoli, and in fruits such as apricots, cherries, plums, peaches and rock melon.

Beta-carotene acts as an antioxidant in the body and can protect against the damaging effects of free radicals¹ and is converted to vitamin A in the body. It is important part of a healthy nutritious diet.

Beta-carotene and cancer risk

Some clinical studies have shown there is a convincing association between taking beta-carotene supplements and an increased risk of lung cancer in people who smoke cigarettes. However, when beta-carotene is eaten in whole foods, evidence suggests it probably reduces the risk of some cancers including cancer of the lung, mouth, pharynx, larynx and oesophagus.

Beta-carotene—dietary supplements or food?

Most people do not need dietary supplements if they eat a wide variety of nutritious foods. Getting vitamins, minerals or antioxidants from supplements is not as good as getting them naturally from fresh, frozen or canned foods.

Foods, especially a variety of different coloured fruit and vegetables, contain many different beneficial nutrient substances. These nutrients in food work together in the body and help to protect cells from damage and to maintain a healthy digestive system. Many of these nutrients are not contained in supplements.

Studies suggest people who eat a diet containing plenty of plant foods—fruit, vegetables and wholegrain cereals—are at lower risk of getting some types of cancers. However, it is not certain exactly which components (or combinations of components) in the diet provide the greatest protection.

Including a variety of fruit and vegetables in your diet (preferably the recommended five plus a day) can also help you to maintain a healthy weight. This is important as being overweight increases the risk of some cancers.

¹ An atom or molecule with at least one unpaired electron, making it unstable and reactive. When free radicals react with certain chemicals in the body, they may interfere with the ability of cells to function normally. Antioxidants can stabilize free radicals.

Excessive beta-carotene

Too high a consumption of beta-carotene from food can lead to harmless yellow-orange discolouration of the skin, which fades when consumption is lowered.

Taking too much of the preformed vitamin A, found in dietary supplements, in pregnancy can lead to birth defects and liver toxicity. This risk is highest during the first few weeks of pregnancy. Beta-carotene only converts to the retinol form of vitamin A when needed. Because of this built-in limiting mechanism, you cannot overdose on beta-carotene.

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Advice for smokers

Research has found that if smokers take supplementary forms of beta-carotene they may have an increased risk of lung cancer. Therefore, smokers should not take beta-carotene supplements. If you are, or have been, a smoker eat a diet high in fruit and vegetables. The best way to reduce your risk of lung cancer is to stop smoking.