

ANTIOXIDANTS AND CANCER THERAPY



Introduction



Some people with cancer take large amounts of vitamins, minerals and other dietary supplements in an effort to boost their immune system, destroy cancer cells or reduce the side effects of treatment. Large doses of some of these substances can be harmful and may even reduce the effectiveness of chemotherapy or radiation treatment.

What Do Antioxidants Do?

Our body's natural use of oxygen creates free radicals which are toxic materials that can cause tissue damage at the cellular level.

Antioxidants, as natural protectors, react with free radicals, neutralize them and keep them from damaging your cells. Some examples of antioxidants are Vitamin C, Vitamin E, beta-carotene (vitamin A) and selenium.

Mr. Antioxidant
"Good Guy"



Mr. Free Radical
"Bad Guy"



Our body's natural defense system against free radicals is not 100% effective, leaving a place for antioxidants from the diet to "top up" the protection. A healthy diet rich in fruits and vegetables provides enough dietary antioxidants to inactivate the normal production of free radicals.

Cigarette smoke, pollution, radiation, UV rays, inflammation, alcohol, and fatty diets create even more free radicals.



When there are more free radicals than antioxidants, cell damage occurs. Chronic diseases like heart disease and cancer are thought to occur because of this excess of free radicals in the body.

Encouraging Research

Some studies have shown that vitamin E and selenium supplements reduce the incidence of prostate and colon cancer.

Discouraging Research

Some research concerning antioxidant vitamins and cancer is discouraging, especially concerning beta-carotene. Based on evidence from some trials beta-carotene should be considered hazardous for smokers, as it can lead to higher death rates and incidences of cancer.

Drug Interactions

Radiation and several types of chemotherapy drugs work by producing free radicals. These free radicals ⇒ cancer cell damage ⇒ cancer cell death or inability to divide and make new cancer cells



While cancer cells are the main target of chemotherapy, normal cells may also be affected, causing side effects like hair loss, low blood cell counts and mouth sores.

Antioxidants bind and inactivate free radicals. This may decrease the damage caused by chemotherapy on normal cells (meaning less side effects) but it also decreases the damage to cancer cells.

Doses of antioxidants that are larger than that provided in a normal diet may potentially interfere with the effectiveness of radiation and certain chemotherapy drugs by reducing their action in cancer cells. This means that people who take antioxidant supplements may not be receiving the full benefit of their cancer treatment.

At the present time, there are no studies published on the long-term effects of antioxidant supplements during cancer therapy. This means there is no scientific data on the safety of antioxidant supplements or their effect on survival.



Recommendations



- Combining large doses of antioxidant supplements with cancer therapy may lessen your side effects in the short term but may hinder your long-term response to cancer treatment.
- Taking large doses of antioxidant supplements is usually not recommended if you are having chemotherapy or radiation.
- If you still choose to take supplements, it is acceptable to take a regular strength multiple vitamin/mineral supplement.

- If you are considering taking any vitamin, mineral or herbal supplement, talk with your doctor and dietitian first. Bring the bottle with you to verify the dose and to ensure that the ingredients do not interfere with your health or cancer treatment.

Food Vs. Pills

More than 200 studies from around the world show that populations eating 5 or more servings of vegetables or fruit per day are less likely to have chronic disease like cancer or heart disease. To date there is no firm scientific evidence that antioxidant supplements alone provide the same protection.

Besides vitamins and minerals, fruits and vegetables also provide other beneficial substances like fibre and phytochemicals which also help in the fight against disease. When you take single vitamin or mineral supplements, you miss out on these important substances.

Antioxidants seem to work together as a team. Eating some of them as single supplements may leave out other important team members.

Antioxidant supplements alone do not provide all the health protection we need, For this reason, if you want to take in more antioxidants in your diet, health experts recommend eating foods rich in antioxidants. Choose whole-grain breads, cereals, crackers and pastas. Eat 5 - 10 servings of fruits and vegetables each day. A serving is 125 mls (1/2 cup) of juice or 1 medium fruit or ½ cup cooked vegetable or 1 cup salad.

These are your top food choices if you want to boost your intake of antioxidants:

Vitamin C	Vitamin E	Selenium	Carotenoids
Citrus fruit/juice	Vegetable oil	Brazil nuts	Carrots
Apple juice	Wheat germ	Grain products	Cantaloupe
Kiwi fruit	Nuts	Wheat germ	Sweet potatoes
Strawberries	Peanut butter	Wheat bran	Pumpkin
Broccoli	Sunflower seeds	Oat bran	Broccoli
Brussel sprouts	Papayas	Fish, shellfish	Pink grapefruit
Peppers	Avocadoes	Meat, poultry	Tomatoes
Potatoes	Sweet potatoes	Eggs	Dark green, leafy vegs
Tomatoes		Beans	

