

ALL ABOUT ANTIOXIDANTS

You've likely heard of antioxidants before and know they're good for us, but how exactly do they work and what are the best sources? We break it down for you here, plus a list of foods to start adding to your plate to maximize your health benefits.

Free Radicals and Oxidative Stress

To help you understand the health benefits antioxidants have to offer, it's important to first review what free radicals and oxidative stress are. All day long our cells constantly undergo the exchange of electrons and cells can end up with an uneven amount. This causes them to become unstable. These unstable molecules are referred to as **free radicals**. The buildup of free radicals can eventually lead to **oxidative stress** in the body, which can damage the body's cells, causing inflammation, cancer, aging, and other degenerative diseases. **Antioxidants** neutralize free radicals by donating an electron to make the molecule stable. In this way, antioxidants help prevent cellular damage, abnormal tissue growth, and slow the progression of disease. Although free radicals are produced naturally in the body, other factors can contribute to their production such as smoking, environmental factors, pollution, pesticides in food, sunlight, and radiation. Diets filled with antioxidant-rich foods can help reduce oxidative stress in the body and therefore reduce the risk of chronic diseases, such as heart disease, cancer, macular degeneration, and cataracts.

Where Are Antioxidants Found?

Thousands of antioxidant compounds are found in mostly plant-based foods, such as fruits, vegetables, grains, legumes, and nuts. Some of the principal antioxidant nutrients and the best food sources of each include:

- **Vitamin C** – Citrus, red peppers, kale, broccoli, papaya, strawberries, cabbage, kiwi
- **Vitamin E** – Vegetable oils, nuts, seeds, green leafy vegetables
- **Beta-carotene** – Carrots, sweet potatoes, dark leafy greens, apricots, broccoli, winter squash
- **Selenium** – Brazil nuts, sunflower seeds, tuna, oysters, pork, beef, chicken, tofu, shrimp
- **Lycopene** – Watermelon, cooked tomatoes, papaya, grapefruit, sweet red peppers
- **Lutein** – Kale, winter squash, yellow sweet corn, spinach, Swiss chard, sweet potatoes

Phytonutrients also function as powerful antioxidants. These are naturally occurring plant chemicals that provide plants with color, odor and flavor and can help our bodies ward off disease. More than 25,000 phytonutrients are found in various plant-based foods. Deeply colored vegetables and fruits tend to be highest in these chemicals, but tea, chocolate, nuts, flax seeds, turmeric, and olive oil are all excellent sources as well. Some classes of phytonutrients include:

- **Carotenoids** – These phytochemicals can help decrease the risk of certain cancers, macular degeneration, and cataracts. You can find them in bright yellow, red, and orange fruits and vegetables, such as winter squash, carrots, and red peppers.
- **Flavonoids** – These chemicals may have anti-inflammatory benefits and reduce risk of heart disease and cancer. Some good food sources include cocoa, apples, onions, cranberries, tea, and red wine.

- **Isoflavones** – Some health benefits may include protection against age-related diseases, such as cardiovascular disease, osteoporosis, hormone-dependent cancer, and loss of cognitive function. You can find isoflavones in soy, green tea, split peas, peanuts, chickpeas, lentils, and flaxseeds.
- **Lignans** – Health benefits of lignans include lowering the risk of heart disease and lowering cholesterol levels. Flaxseeds are the richest dietary source.
- **Non-flavonoids** – These chemicals have been shown to reduce the risk of cancer, heart disease, asthma, and stroke. Blueberries, blackberries, red wine, and whole grains are some good sources.
- **Phenols and Cyclic Compounds** – These compounds are considered anti-inflammatory. Berries, citrus, apples, peaches, onions, and soybeans are all good sources.
- **Glucosinolates** – These sulfur-containing compounds may reduce the risk of cancer and heart disease. They're found in cruciferous vegetables, such as broccoli, Brussels sprouts, and kale.
- **Tannins** – Can help lower blood pressure and cholesterol levels. You can find tannins in tea, walnuts, cranberries, cacao, grapes, and coffee.

Power Produce

When it comes to maximizing the health benefits you can receive from consuming antioxidant-rich fruits and vegetables, think about variety and eating the rainbow every day. Try and include as many of these power produce onto your plate each day.

Prunes	Sweet Potatoes
Raisins	Kale
Strawberries	Spinach
Plums	Brussels Sprouts
Oranges	Broccoli
Cherries	Beets
Red Grapes	Yellow Corn
Blueberries	Eggplant
Carrots	Butternut Squash

Whole or Sum of its Parts?

The use of antioxidant supplements is controversial and can do more harm than good by interacting with certain medications. There also seems to be a synergistic effect of all the nutrients found in food that offers up the greatest health benefit. As a rule, strive to consume a colorful plant-based diet, seek the advice of a Registered Dietitian Nutritionist or health professional for your specific needs and if your needs cannot be met with food, consider supplementation as a next line of defense with an eye on the most current research and advice.

Sources: <https://www.cancer.gov/about-cancer/causes-prevention/risk/diet/antioxidants-fact-sheet>
<https://www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/nutrition-and-physical-activity-during-and-after-cancer-treatment.html>
<https://www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention/guidelines.html>