

## Keeping Your Cells Healthy with Antioxidants

Free radicals are highly unstable molecules that are naturally formed when you exercise and when your body converts food into energy. Your body can also be exposed to free radicals from a variety of environmental sources, such as cigarette smoke, air pollution, and sunlight. Free radicals can cause “oxidative stress,” a process that can trigger cell damage. Oxidative stress is thought to play a role in a variety of diseases including cancer, cardiovascular diseases, diabetes, Alzheimer’s disease, Parkinson’s disease, and eye diseases such as cataracts and age-related macular degeneration.

**Antioxidants are chemicals that interact with and neutralize free radicals, thus preventing them from causing damage.** Antioxidants are also known as “free radical scavengers.” The body makes some of the antioxidants that it uses to neutralize free radicals. These antioxidants are called endogenous antioxidants. However, the body relies on external (exogenous) sources, primarily the diet, to obtain the rest of the antioxidants it needs. These exogenous antioxidants are commonly called dietary antioxidants. Fruits, vegetables, and grains are rich sources of dietary antioxidants. Some dietary antioxidants are also available as dietary supplements. Examples of dietary antioxidants include beta-carotene, lycopene, and vitamins A, C, and E (alpha-tocopherol).

- **Carotenoids** - Among the 600 or more carotenoids in foods, beta-carotene, lycopene and lutein are well-known leaders in the fight to reduce the damage from free radicals. Foods high in carotenoids may be effective in helping prevent certain cancers and may help decrease your risk of macular degeneration. Foods high in carotenoids include red, orange, deep-yellow and some dark-green leafy vegetables; these include sweet potatoes, spinach, carrots, tomatoes, Brussels sprouts, winter squash and broccoli.
- **Vitamin E** - Research has demonstrated the broad role of vitamin E in promoting health. The main role of vitamin E is as an antioxidant. Research has looked at its possible role in helping to protect your body from cell damage that can lead to cancer, heart disease and cataracts as we age. Vitamin E works with other antioxidants such as vitamin C to offer protection from some chronic diseases. Vitamin E is found in vegetable oils, wheat germ, whole-grains and fortified cereals, seeds, nuts and peanut butter.
- **Vitamin C** - Perhaps the best-known antioxidant, vitamin C offers a wide variety of health benefits. These benefits include protecting your body from infection and damage to body cells, helping produce collagen (the connective tissue that holds bones and muscles together) and helping in the absorption of iron. To take advantage of these benefits, eat foods rich in vitamin C such as citrus fruits (including oranges, grapefruit and tangerines), strawberries, sweet peppers, tomatoes, broccoli and potatoes.

The best way to build a healthful eating plan is to eat well-balanced meals and snacks each day and to enjoy a wide variety of foods. For most adults, eating at least 1 1/2 cups of fruits and 2½ cups of vegetables daily is a good start for healthful living. Remember: fresh, frozen, dried and canned fruits and vegetables are all nutritious! Choose frozen and canned options without added sugars or salt.

### Sources:

Academy of Nutrition and Dietetics ([www.eatright.org](http://www.eatright.org))  
National Center for Complementary and Integrative Health