

# ANTIOXIDANTS

## nature's protection



### **What are antioxidants?**

Nature supplies antioxidants to protect us from the destructive effects of free radicals caused by nuclear radiation, x-rays, ultra-violet rays from the sun, and exposure to pesticides, insecticides, and herbicides. Using antioxidants helps slow down and prevent free radical damage that speeds up aging and cell damage. The antioxidant gives one of its electrons to the free radical neutralizing the free radical. The antioxidant is no longer functional once it gives up the electron and more antioxidants are needed to replace it.

### **What substances are considered antioxidants?**

Antioxidants may be in the form of [vitamins](#), minerals, plant extracts, and other substances. The antioxidants work together to neutralize free radicals. Each one works in a slightly different pathway, so it is best to take several antioxidants rather than all one kind. Some common antioxidants and their major functions are listed below.

<b>Antioxidant</b>	<b>Function</b>
<b>Vitamin C</b>	Vitamin C particularly binds to nitrates, which play a role in the development of some cancers. It is also called ascorbic acid or sodium ascorbate.
<b>Vitamin E</b>	Vitamin E is fat soluble and protects the lipid (fat) parts of the cells such as cell walls and cell membranes. Also called alpha-tocopherol.

<b>Beta-carotene</b>	Beta-carotene is a form of Vitamin A. It is one of the most effective and efficient scavengers of a free radical called 'singlet oxygen.'
<b>Zinc</b>	Zinc is a mineral that helps to maintain the health of cell membranes, protecting them from injury from free radicals.
<b>Selenium</b>	Selenium is a mineral needed by the body to synthesize sufficient amounts of glutathione peroxidase, which is an important antioxidant enzyme that protects against free radical damage. Works synergistically with Vitamin E.
<b>Quercetin</b>	Quercetin is a bioflavonoid, which stabilizes cell membranes.
<b>Bromelain</b>	Bromelain enhances the absorption of quercetin and also has anti-inflammatory properties.
<b>Alpha lipoic acid</b>	Alpha lipoic acid increases the effectiveness of Vitamin C and Vitamin E. It is especially important to maintain the health of small cellular structures called mitochondria.
<b>Rutin</b>	Rutin is a bioflavonoid that scavenges a certain type of free radical called superoxide radicals.
<b>Lycopene</b>	Lycopene is a carotenoid which protects cells from the injurious effects of oxygen and light. It has the highest antioxidant activity of all carotenoids. In man it has been shown to lower the risk of certain cancers and other age-associated diseases.

**What are the benefits of antioxidants?**

Antioxidants protect the body from free radicals, which can increase the risk of cancer, and accelerate the aging process. Antioxidants may slow the progression of some of the behavioral changes we see in older pets. Antioxidants help to reduce damage to the liver from certain drugs or toxins.

Antioxidants can benefit the entire body and are especially useful to help support liver, joint, and immune system. Ask your veterinarian if your dog could benefit from antioxidant support.