



Nutrition Fact Sheet

Antioxidants – What Are They?

What are antioxidants?

Antioxidants are nutrients such as Vitamins A, C and E, zinc, selenium, coenzyme Q10, alpha lipoic acid, bioflavonoids. In total over a hundred antioxidant nutrients have been discovered of different potencies. They work in the body by disarming the dangerous oxidizing chemicals called free-radicals.

What are Free Radicals?

Although oxygen is an essential part of the energy-making process in the body it is also a highly dangerous and reactive chemical. Where it becomes unstable it causes oxidization – think of the rust on a car - which can inflict a lot of damage. Within the body free radicals are the name given to the oxidized chemicals and they can lead to cellular damage unless they are deactivated – they have been likened to bodily nuclear waste! Because of this the body has an army of antioxidants it can throw against the free radicals to de-activate them and prevent deterioration of the cells, ageing and disease. If the supply of antioxidants is not sufficient or the body is having problems absorbing nutrients because of other imbalances which may exist, then free radicals start to win the war with the consequences we are all so familiar with.

Free radicals are also a byproduct of smoking, exhaust fumes, radiation – and sun - exposure, electrical equipment industrial pollution and fried and barbecued food. Stress is also another trigger for their production, so you can see our modern lifestyles leave us exposed to an ever-increasing load of free radicals, no matter how good our diet is.

What are the Results of Oxidative Damage?

One of the most obvious is wrinkles caused by cellular damage to the structure of the skin. Other common effects included arthritis and other inflammatory conditions such as gout and bursitis. Cellular damage can also lead to the development of tumours and cancers, arterial damage, Alzheimer's disease, cataracts and other degenerative diseases. When there is excess free radical activity in our bodies, we can end up destroying more cells than we make, and the widespread damage this leaves behind can have potentially devastating effects on your health.

The early warning signs of oxidative damage are susceptibility to frequent infections, slow healing, easy bruising and more wrinkles for your age than normal! Other signs are feeling groggy and/or achy after being exposed to smoky rooms, pollution, a day in front of electrical equipment or even after a burst of exercise. These are all signs that the body is not de-toxifying as fast as it should.

What Can I Do About It?

You can start by eating a diet high in fresh fruit and vegetables. But due to intensive farming methods, distribution and storage methods and cooking, by the time it reaches our plate much of whatever nutrient a food originally had is depleted or destroyed.

Antioxidant activity in a food is measured by ORACs (oxygen radical absorption capacity). The higher the ORAC value of a food the more potent it is in antioxidants. For example a pear is 134, red grapes 739 and blueberries 2,400.

Antioxidant supplements are freely available and it is wise to take a good one daily. But what is a 'good' antioxidant supplement. First, antioxidants are team-players, so taking a single nutrient is better than nothing, but a combined supplement is substantially more potent. Let's begin by listing a variety of the antioxidant nutrients and enzymes you may find used:

Vitamin A	Glutathione	Co-enzyme Q10
Vitamin C	Alpha Lipoic Acid	Methione reductase
Vitamin E	Anthocyanidin	Lycopene
Selenium	Bioflavonoids	Curcumin
Zinc	Lutein	Proanthocyanidins
Pycnogenol	Zeaxanthin	S.O.D.
Catalase	Phytochemicals	Molybdenum

Next you need to understand the difference between the recommended daily allowance (RDA) of a vitamin/mineral set by the government, and what we will call the Optimum Daily Allowance (ODA). The RDA is the minimum level of a nutrient required to avoid serious disease such as scurvy with Vitamin C. It is not a level that will ever give you optimum good health, hence the need to look to ODA levels which are those nutritionists feel are ideal for good health. Let's look at some of the nutrients above which have an established RDA:

Nutrient	RDA	Average dietary intake	ODA*
Vitamin A (mcg)	800	1500	2500
Vitamin C (mg)	60	200	2000
Vitamin E (mg)	10	50	300
Zinc (mg)	15	10	20

As you can see there is plenty of clear water between even the average daily intake of these nutrients and the ODA. And for the majority of the antioxidants in the above list there is no set RDA!

You can clearly see from the above that even a good diet need supplementation for optimum health, particularly given the pollution, stress and lifestyles modern living exposes us to. A high quality antioxidant supplement is an investment in your future health and well being

*thanks to Patrick Holford, Optimum Nutrition Bible for these figures