

THE BATTLE

By Dan Young

ANTIOXIDANTS VS FREE RADICALS

A war is being waged right now. I'm not talking about one of the wars on foreign soil; the war I am referring to is in your body, and only good nutrition and a healthy lifestyle can bring in the reinforcements.

The bad guys are called free radicals – groups of atoms with an unpaired set of electrons, making them unstable. Free radicals are highly reactive by nature and when they encounter healthy cells with a stable structure, they try to steal electrons and can damage tissue, or even worse, DNA. DNA acts as a blueprint for your cells; mess with your blueprint, and you mess with your very structure.

The good guys are called Antioxidants – molecules that interact with free radicals and help prevent the damage by stopping the electron exchange with healthy cells. Antioxidants donate their own electrons to free radicals to make them stable, in turn, making themselves unstable.

FREE RADICALS

Free radicals are constantly bombarding your body from external sources; including herbicides, pesticides, alcohol, air pollutants (such as cigarette smoke), ultraviolet light, and stress. However, free radicals are most commonly produced as a byproduct of your body's processing of oxygen. Basically, your body employs paired electrons from oxygen to produce energy through a process called oxidation. This process creates those byproducts (the dangerous free radicals) that cause oxidative damage to your cells. When you exercise, oxygen usage increases, thus increasing the production of those byproducts. Consider what happens to your body during a 60 minute session on the tread mill; the amount of oxygen consumed is multiplied 10, 20, 100 fold. This means that the oxidative stress is multiplied too. Free radicals are created at an alarming rate. Unless you can find a way to stop breathing (which I don't advise), a certain amount of oxidative stress is inevitable. Oxidative stress is caused by an imbalance between the production of reactive oxygen and the body's ability to detoxify the byproducts of that production or to easily repair the resulting damage. Oxidative stress has been linked to all sorts of diseases, including cancer, Alzheimer's disease and Parkinson's disease. It is time to call in the reinforcements – Antioxidants.

ANTIOXIDANT SUPERSTARS

Oxidative stress is combated by Antioxidants manufactured by your body and present in the foods that you eat. Your body only produces so many, so you need to bolster your consumption of foods rich in Antioxidants. Folks who workout are more affected by free radicals than couch potatoes, and even some of the muscle soreness after a workout is due to free radical damage. It doesn't stop there. The

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elevated production of free radicals can lower an athlete's immune systems, increasing the need for Antioxidant consumption. In order to maintain basic health and combat the increased risk of free radical damage, several Antioxidants should be ingested frequently, including:

- **Vitamin E** - The body's primary fat-soluble Antioxidant. It can both neutralize free radicals and help prevent free radical formation. It is believed to be the primary defense against cellular membrane damage.
- **Vitamin C** - The body's primary water-soluble Antioxidant. It helps the body to recycle other Antioxidants (especially Vitamin E) so they can neutralize more free radicals. It generally works inside the muscle cells.
- **Selenium** - A mineral Antioxidant that works with Vitamin E. It is especially important for protecting cell membranes. It appears to play a role in preventing cancer of the colon, lung and prostate.
- **Beta-Carotene** - A powerful Carotenoid Antioxidant that both neutralizes free radicals and prevents free radical formation. The



body can turn beta-carotene into Vitamin A.

- **Alpha-Lipoic Acid (ALA)** - The universal Antioxidant because ALA is both water and fat soluble. It can fight free radicals almost anywhere in the body, including the brain. Also, ALA improves the function of Insulin, which helps maintain healthy blood-sugar levels.
- **COQ10** - A fat-soluble Antioxidant present in every cell in the body. It is thought to be especially effective in preventing signs of skin aging and is crucial for energy production and heart health.

While Antioxidant consumption is important for everyone, anyone who works out should pay special attention to the foods they eat, making sure to take in increased amounts. Just a few extra carrots or berries a week will keep your DNA, your cells and you healthier longer.

Dan Young is the founder of Simple Again. A former bodybuilder and endurance athlete, he is currently competing in regional Triathlons while training for his first Iron Man. He is certified in Personal Training and Sports Nutrition.



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