

The Power of Antioxidants

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It doesn't matter whether you are in or entering your transition cycle, base training or still racing. A healthy immune system is important at all times and while certain things like decreasing stress and getting more sleep are beneficial, often times the power of certain foods are overlooked in maintaining a strong immune system. This article will focus on these immune building foods, or antioxidants, and how to get more of them in your eating plan.

The family of antioxidants has expanded greatly and includes not only the well-known vitamins C and E, beta-carotene and selenium but also includes substances such as grape seed, lutein, tocopherols, alpha lipoic acid, phytochemicals and many others. Because there are so many compounds that can be classified as antioxidants, it gets somewhat confusing evaluating them and knowing which ones have scientific merit and which ones do not. Before gaining a better understanding of antioxidants, it is important to first discuss why endurance athletes may need antioxidants.

Oxidative Stress

Oxidative stress happens throughout the day during training and non-training times. Oxidative stress can happen due to higher intensity training, pollutants in the air, inflammation and altitude exposure. Oxidative stress gives rise to free radicals, which are molecules that contain oxygen that have unpaired electrons. It is important to understand that these unpaired electrons can lead to cellular damage. Because endurance athletes constantly train under UV rays, in pollution, and require an overall greater oxygen demand, oxidative stress is unavoidable.

Antioxidants

An antioxidant is a nutrient that offers an electron-rich binding site for the damaging free radicals, giving them a preferential site to bind to and pair up with missing electrons. This means an increased ability to "quench" oxidative stress and therefore improve health, performance and possibly recovery time.

Similar to developing nutritional deficiencies, the damaging effects of oxidative stress can take years. Antioxidants should be viewed as insurance agents against this damage. If you train heavily day in and day out, antioxidants from different foods and possibly pills/powders/drinks should be a staple in your eating program.

Antioxidants in Food

Even though it's easier to take a supplement, a healthy eating program should be the foundation of your daily antioxidant intake because there are more than just antioxidants contained in these foods. Fiber, water, other vitamins and minerals are examples of these additional compounds. Whole foods are always a better choice for acquiring all of your nutrient needs. Choose brightly colored fruits and vegetables, grains, seeds, and nuts.

Here are a few examples:

Vitamin C rich foods	Vitamin E rich foods	Carotenoid rich foods (beta carotene, lycopene, lutein)
Orange, orange juice	Almonds	Tomatoes
Cantaloupe	Hazelnuts	Sweet potatoes
Papaya	Sunflower seeds	Carrots
Grapefruit, grapefruit and cranberry juices	Spinach	Broccoli
Strawberries	Sweet potato	Mango
Kiwi	Olive, sunflower, canola oils	Spinach
Asparagus	Wheat germ	Kale
Spinach	Fortified cereals	Collard greens
Broccoli		Cantaloupe
Sweet red peppers		

If you are thinking “I can’t eat that many fruits and vegetables to get enough of my antioxidants” then you are not alone. There are many different choices on the shelves and if you need to turn to a supplement, I recommend choosing a formula that contains a variety of antioxidants, not just one or two. You should consider the following in your search for an appropriate formula: alpha lipoic acid, grape seed extract, carotenoids, lutein, lycopene, bioflavonoids, turmeric and quercetin.

Take Home Messages

Taking into consideration all of the newest research on antioxidants and endurance athletes, there are a few points to consider:

- Athletes typically do not eat enough fruits and vegetables to obtain adequate amounts of antioxidants.
- Antioxidant supplementation may not be needed in short duration, high-intensity exercise.
- In ultra-endurance events, oxidative stress is high and antioxidant levels are compromised.

Overall, increasing fruit and vegetable intake to a minimum of 6-9 servings per day should be your goal and will supply you with a good amount of vitamins, minerals and

antioxidants. However, if you are competing in longer duration events or training, antioxidants may become more beneficial and therefore you should pay closer attention to your overall eating and antioxidant supplementation programs.