

What Gymgoers Need to Know About Antioxidants

Antioxidants seem to be one of the trendiest buzzwords popping up in supermarket aisles and circulating inside health articles everywhere.

Blueberries, cereal, even iced tea and soda all boast antioxidant prowess on their labels and their advertisements. But what are these super-nutrients anyway, and how and when should we consume them?

In a nutshell (perhaps an almond shell, since almonds are rich in the antioxidant vitamin E), antioxidants are beneficial because they block the action of free radicals, which are ubiquitous molecules with unpaired electrons. Free radicals make it their mission to find another electron, and in so doing damage surrounding molecules which results in the deterioration of oil, rubber, plastics and foods and can also contribute to heart attacks, strokes and cancer.

When you and I work out, free radicals are created and oxidative stress increases, leading many a logical thinker to conclude that consuming antioxidants promptly after they leave the gym, track or trail is advantageous. However, this habit could be more harmful than helpful.

You probably know well that God has “fearfully” and “wonderfully” created your body to self-heal, manage toxins and stress, and build itself back up again to be stronger than ever after it’s taken a hit. In a similar fashion, this is essentially what your body does after you exercise. Post-workout antioxidants violate your body’s innate code of repair and regrowth, and do so in two primary ways:

- 1. They impede muscle growth.** The free radicals produced during your workout are needed to stimulate optimal muscle

growth. Though the precise mechanisms by which free radicals help initiate hypertrophy (growth and increase of muscle cells) are unknown, it seems that the molecules serve as signals to your muscle cells, telling them to return bigger and stronger than before. If you quench these free radicals by taking antioxidant supplements immediately after you exercise, you're actually hindering muscle growth and undoing much of the hard work you put forth in the gym.

2. They decrease insulin sensitivity. You may know that one of the most amazing perks of exercise is that it temporarily improves our muscles' ability to respond to the hormone insulin. A recent study in the *International Journal of Behavioral Nutrition and Physical Activity* looked at how insulin sensitivity is mediated by exercise. Insulin resistance was improved by 25 percent going from no exercise to 60 minutes of exercise per day. It improved 50 percent from no exercise to 120 minutes of exercise. In addition to the more vigorous types of exercise, there was a trend for higher insulin sensitivity even doing light exercise such as walking, but not a significant one.

A scientific paper entitled "Antioxidants Prevent Health-Promoting Effects of Physical Exercise in Humans" found that supplemental antioxidants can interfere with exercise's positive effect on insulin. The researchers concluded, "Based on the evidence derived from the current study, we here propose an essential role for exercise-induced ROS (reactive oxygen species) formation in promoting insulin sensitivity in humans."

In their study, the use of supplemental vitamin C and E prevented the necessary formation of free radicals (aka ROS) and as a result forbade the boost in insulin sensitivity normally experienced after exercise.

So, back to the question posed at the beginning of this article: When *should* we consume antioxidants? And, for that

matter, should we bother to buy supplements?

As we saw in the study above, megadoses of vitamins C and E were detrimental to the increase of insulin sensitivity. Likewise, other studies have pointed to a heightened risk of prostate cancer among otherwise healthy men taking high-dose vitamin E and to a possible association between high-dose selenium supplementation and an increased risk of skin cancer. The operative phrase is *high-dose* and refers to the abnormal amount of antioxidants found in supplements and vitamins, not the low concentrations found naturally in fruits and vegetables.

Studies suggest that unless you need megadoses of antioxidants to treat a specific condition, there isn't a reason to add them to your diet. Just make sure that a variety of fruits and vegetables compose the cornerstone of your diet. Here is a list of foods that are jam-packed with antioxidants:

- Spinach
- Broccoli
- Berries
- Walnuts
- Pecans
- Almonds
- Flaxseeds
- Apples (especially the skin)
- Green tea
- Coffee (yay!)
- Dark chocolate (double yay!)

If you are healthy and exercise on a regular basis, focus on fitting in these and other antioxidant-rich foods throughout the week. Consider limiting them directly after your workout, and refuel with an all-natural protein shake instead.

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