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Are You Getting Enough Antioxidants? Here's Why 'Eating The Rainbow' Is More Important Than Ever



"Why and how do we age?" is the question that scientists have been trying to answer for centuries. In more recent years, longevity and aging experts have narrowed down a large portion of the explanation of human life span to little molecules in our body, called free radicals, and little molecules that fight them off, called antioxidants. You've likely heard of antioxidants before, probably in the context of nutrition, disease, and even skin care (or maybe when a friend was trying to convince you that having red wine and chocolate for dinner was a healthy choice?). Whatever your current level of knowledge is, here's what everyone should know about antioxidants, free radicals, and health.

The basics of free radicals and aging.

We're going to get nerdy for a minute — are you ready? Free radicals are oxygen molecules that, due to normal chemical reactions and processes, have split into individual atoms with unpaired electrons. This isn't ideal because electrons like to have a buddy; and when they find themselves all alone, they try to swipe a buddy electron from one of our cells, causing damage. Free radicals can weaken cell walls, disrupt DNA, and impair mitochondria — the all-important energy powerhouses in our cells. Over time, this damage, called oxidative stress, amounts to wrinkled skin, cognitive decline, and chronic disease.

Unfortunately, these annoying little compounds are generated by everything from pollution to sun rays. Even breathing creates free radicals — you can't avoid 'em. They aren't all bad, though: Free radicals can help the immune system by fighting off bacteria, and they play an important role in cell signaling. It's when there are too many free radicals that they become an issue. Luckily, our body has a system in place to keep free radicals at bay to minimize their destructive tendencies.

Antioxidants and aging.

On the flip side, we have antioxidants — some of which are made by the body and others that are absorbed from diet — that act as a defense system against free radicals. Antioxidants are molecules that offer up one of their electrons to the free radicals, thereby neutralizing the free radicals and keeping them from stealing an electron from our cells. At its best, this strong network of warriors can stop up to 99 percent of free radicals from damaging our cells. Unfortunately, over time, our defenses weaken and the damage builds up. To make things worse, a lot of things we do and encounter every day can ramp up free radical production in our body. Luckily, we can minimize or modify most of them, like stress, poor diet, smoking, and even exercise — others not so much, like toxins, pollution, and sun exposure. Free-radical-caused oxidative stress is responsible for typical signs of aging, like wrinkles, and has been tied to everything from cancer to neurodegenerative diseases to heart disease.

So what can we do to stop, or at least slow down, these pesky age-inducing molecules? It all comes down to the antioxidants. These free-radical-fighting compounds have been associated with protecting cells from damage, warding off disease, and increasing longevity. In fact, one study found that healthy centenarians (that's over 100 candles on the birthday cake!) had particularly high levels of vitamins A and E — two powerful antioxidants. Clearly, these antioxidants had been putting in some hard work. Other great antioxidants include glutathione, vitamin C, CoQ10, melatonin, resveratrol and pterostilbene, and phenols.

In addition to fighting off disease and the signs of aging, antioxidants can provide more immediate benefits. You probably know that vitamin C is great for boosting the immune system, but did you know glutathione is critical for supporting liver detoxification? It works by making toxic chemicals more water-soluble, so we can easily excrete them in urine. And in addition to improving sleep, melatonin can improve digestion and may help those who suffer from irritable bowel syndrome (IBS). Antioxidants are all-around great for our health in the long term and the short term.

Antioxidants in the diet.

While the body produces some antioxidants on its own, it gets a lot of them from our diet as well. You can find antioxidants in all your favorite fruits and vegetables (they are primarily found in plants). Hint: Look for bright colors since antioxidants are what give things like orange peppers and red tomatoes their vibrant hues. Although all antioxidants work to disarm free radicals, they do so in distinct ways and in different parts of the body. Some also have synergistic effects and work better together, like vitamin C and vitamin E, so it's important to consume a variety of antioxidant-rich plant foods. Eating a diet rich in antioxidants has been shown to promote health and longevity. In fact, polyphenols, one type of antioxidants, has been associated with a 30 percent reduction in mortality in older adults. Added bonus: It can give you glowing skin.

Luckily, antioxidants can be found in tons of foods and drinks you probably are already eating. Blueberries, matcha green tea, and our favorite, dark chocolate, are all great sources of disease-fighting antioxidants. And did you know artichokes have the highest levels of antioxidants of all vegetables? So yeah, it might just be worth the hassle of trimming and cooking those delicious power-packed veggies. Even spices like ground cinnamon and ground clove contain antioxidants. Try sprinkling some berries over your oats and some cinnamon in your matcha for an antioxidant-rich start to your day.

Antioxidant supplements for anti-aging.

Due to dietary shifts and changing micronutrient profiles in food, many people have trouble consuming an adequate amount of antioxidants. The Dietary Guidelines list multiple antioxidants, including vitamins A, E, and C, as underconsumed nutrients, putting many Americans at risk for nutrient deficiencies. That's where supplements come in. Supplements have been shown to decrease the percentage of the population that falls below the recommended intake levels.

While supplements can certainly increase the amount of antioxidants consumed, there is some conflicting evidence about their effectiveness for improving skin, preventing disease, and increasing longevity. Some studies have shown that antioxidant supplementation can lower cancer risk and mortality, but others have found no effect. Keep in mind that megadoses of some antioxidants have proved to be dangerous.

It is always best to get your vitamins and nutrients from whole-food sources first, but antioxidant supplements can be there to pick up the slack, especially since we're exposed to more toxins now than ever before. And as always, talk to your doctor before starting any new supplement.

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