

You'll often hear me talk about eating foods that are high in antioxidants, one of many reasons a colorful diet is beneficial to good health.

I get many questions, though, about why that really matters. So, today I'm going to break down the concept of antioxidants and how oxidation works in the body, to help you understand just how essential antioxidant-rich foods are.

To get the basic gist of the oxidative process, think about the way metal rusts or how an apple will turn brown once it's cut. These are signs of degeneration; these are visual cues of oxidation, which are helpful for understanding what can happen internally when left unchecked.

It's important to note that oxidation is a natural process that happens in the body each and every day as a basic part of metabolism, but certain things can accelerate it—like smoking, drinking alcohol, pollution, stress, and eating processed foods rich in the [wrong fats](#) and [refined carbohydrates](#). These all create a greater risk for inflammation and dis-ease.

The concept of oxidation starts at the molecular level. For a molecule to be stable, it has to have an even amount of electrons. When molecules lose an electron, they become a free radical. This can happen when they are exposed to [prooxidants](#), which are reactive oxygen or nitrogen derived molecules that are natural byproducts of energy production but can also come from the harmful factors I mentioned above.

Since electrons like to stick together in pairs, these free radicals with an uneven amount of electrons go on the hunt for another one—causing a dangerous chain reaction that turns other molecules into free radicals. Considering that free radicals can [damage cells, proteins, lipids, and DNA](#), which damage different tissues throughout the body, it's easy to understand why they are so dangerous.

The body, with all of its amazing capabilities, of course has a system in place to deal with free radicals.

This is where antioxidants come into play, some of which our bodies produce as part of normal metabolic processes and others we can get through wholesome foods. [Endogenous antioxidants](#) (those produced within the body) can be in the form of nutrients or enzymes, with enzymes requiring the right vitamins and minerals to do their job.

Problems arise when the free radicals outnumber the body's ability to quell them; this imbalance is called oxidative stress. Oxidative stress is linked to inflammation, accelerated aging, cancer, dementia, and a wide variety of other chronic diseases. This is why eating a diet rich in antioxidants is an important part of disease prevention.

Remember how I mentioned that free radicals have an uneven number of electrons, but that molecules prefer to have pairs? Well, some types of antioxidants can step in to give those molecules one of their extra electrons, to neutralize the free radical and halt the damaging cascade, which they can do without becoming a free radical themselves. Other antioxidants, those that act enzymatically, can break down and remove free radicals.

There are so many different types of nutrients that directly act as antioxidants and support those beneficial enzymes, like vitamins A, C, E, selenium, copper, and zinc.

Eating nutrient-dense foods helps to fight oxidative stress by giving those protective enzymes the right fuel and supporting the body's natural ability to recycle antioxidants.

This is the perfect example of food as medicine—through colorful, nourishing foods we are able to give our bodies the right ingredients to fight disease and stay strong. Stay tuned for next week's

newsletter; I'll be sharing some of my favorite antioxidant-rich foods and tips for reducing the risk of oxidative stress.

Wishing you health and happiness,
Mark Hyman, MD