

## Antioxidants <sup>[1]</sup>

Dear Alice,

What is the role of antioxidants in health?

### Answer

Dear Reader,

The term “antioxidant” has become a health buzzword, and yet, it’s often unclear what antioxidants actually do. Antioxidants are the vitamins, minerals, carotenoids, and polyphenols that protect the body from cell damage (more on this later) and help prevent disease. The body produces some antioxidants (e.g., vitamin D), while others are consumed through diet (e.g., beta-carotene). While there are antioxidant supplements available, they’re most beneficial when consumed through a nutritious and balanced diet.

Backing up a little bit, it’s helpful to understand how these health defenders operate within the body. In humans, a small but significant percentage of oxygen molecules become electrically charged due to natural cellular activity (called oxidation) and exposure to environmental pollutants. When an oxygen molecule undergoes this process of oxidation, it becomes what’s known as a “free radical.” Free radicals are a necessary consequence of basic cell metabolism and aren’t inherently harmful. In fact, they may even be helpful in certain situations, such as when it comes to signaling the body to remove unwanted cells and foreign pathogens (disease causing agents such as bacteria and viruses). On the other hand, free radicals only contain one electron and are, therefore, very reactive molecules. Once free radicals are formed, they can spark a chain-reaction, creating even more free radicals. This domino effect may damage cells and potentially play a role in the development of certain conditions such as heart disease and cancer. Antioxidants are helpful because they neutralize free radicals either by providing an extra electron or breaking down the free radical molecule.

There’s some research that links an excess of free radicals in the body to a number of degenerative diseases associated with aging. However, the jury is still out as to the specific role free radicals play in this process. More recent evidence suggests that the ideal ratio of free radicals-to-antioxidants may vary by individual and may be due to multiple factors. Researchers are also investigating the benefits of the antioxidants produced by the body versus those

ingested through diet. When it comes to consuming antioxidants, your best bet is to eat a diet rich in fruits, veggies, and whole grains. Some well-established sources of antioxidants include vitamins and minerals, such as:

- **Vitamin A:** Rich sources of this vitamin include dairy products and fish.
- **Vitamin C:** This can be found in many fruits and vegetables, including but not limited to, citrus, broccoli, bell peppers, and sweet potatoes.
- **Vitamin E:** This can be found in seeds and nuts, vegetables such as avocado and red peppers, among others.
- **Selenium:** Various sources such as meats, shellfish, Brazil nuts, and some grains all contain selenium.
- **Beta-carotene:** Foods such as carrots, sweet potatoes, spinach, and kale can be sources of beta-carotene.

If you're hoping to stock up on these antioxidants beyond what you'd get in your diet, it's good to know that more doesn't always equal healthier. For example, it's possible to consume more than the recommended daily value of certain vitamins and minerals such as vitamin A and E. An antioxidant supplement is another option available on the market, but research has shown that they may do more harm than good for well-nourished and otherwise healthy individuals. Specific groups of people, such as those with non-cancerous gastrointestinal conditions, however, may benefit from these supplements. If you think you might need supplements in your diet, it's best to speak with your health care provider.

Reader, more research needs to be done to examine the benefits of antioxidants and their role in preventing certain health conditions. It's clear, however, that consuming a balanced diet, rich in colorful fruits and veggies, has *many* health benefits. For example, in addition to being a great source of antioxidants, fruits and vegetables also provide an abundance of essential nutrients that many folks don't get enough of — talk about getting some bang for your dietary buck! Consider speaking with a registered dietitian for more information on incorporating these nutrient rich foods into your diet.

Alice!

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