



## Food Sources: Antioxidants

Antioxidants are compounds that neutralize free radicals. Free radicals are produced in the body as a part of normal metabolism, but are also produced in higher amounts from things like smoking, poor diet, exposure to toxins, and even exercise.<sup>1</sup> Because free radicals have the ability to damage cells, it is important to neutralize them with antioxidants.

Antioxidants like vitamin C, vitamin E, resveratrol and many others are found in food. Some are also made by the body. These include glutathione (GSH), superoxide dismutase (SOD), and alpha-lipoic acid (ALA).<sup>3</sup> Eating a diet rich in antioxidants protects cells from free radicals and supports the body's ability to produce its own antioxidants.

A food's potential to neutralize free radicals is measured as the Oxygen Radical Absorbance Capacity, or ORAC. It is important to understand that ORAC scores come from in vitro (test tube) studies and do not measure actual levels of antioxidants in the body.<sup>2</sup> Phytonutrient-rich foods—like those listed below—are the most concentrated source of dietary antioxidants and other health promoting compounds. Aiming for 9-13 servings of a variety of phytonutrient-rich foods daily has been shown to decrease damage from free radicals in the body and reduce the risk of many chronic diseases.<sup>1</sup> The antioxidant content of food is influenced by several factors, including whether the food is fresh or cooked, and if the food is wild or commercially grown. For example, the antioxidant content of wild blueberries is significantly higher than commercially grown varieties.<sup>2</sup>

Food	Antioxidant Content in mmol (per 100 grams = 3.5 ounces)
Blackberries	5.75
Walnuts	3.72
Strawberries	3.58
Artichokes, cooked	3.56
Cranberries	3.13
Coffee	2.96
Blueberries	2.68
Clove spice, ground	2.64
Grape juice	2.56
Dark chocolate	1.67
Red cabbage, cooked	1.61
Pineapple	1.28
Oranges	1.26
Pinto beans	1.14
Spinach, frozen	1.05

For more information, ask your practitioner about IFM's suite of **Phytonutrient Spectrum** resources.

### References

1. Halvorsen B, Carlsen M, Phillips K, et al. Content of redox-active compounds (ie, antioxidants) in foods consumed in the United States. *Am J Clin Nutr.* 2006;84(1):95–135. doi:10.1093/ajcn/84.1.95
2. U.S. Department of Agriculture, Agricultural Research Service. Nutrient Data Laboratory. USDA Database for the Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods, Release 2. <https://naldc.nal.usda.gov/download/43336/PDF> Accessed March 17, 2020.
3. He L, He T, Farrar S, Ji L, Liu T, Ma X. Antioxidants Maintain Cellular Redox Homeostasis by Elimination of Reactive Oxygen Species. *Cell Physiol Biochem.* 2017;44(2):532–553. doi:10.1159/000485089

