

# ANTIOXIDANTS AND ALMONDS



The body needs oxygen; it is essential for life. However, when the body burns oxygen, unstable molecules called free radicals form. Free radicals are harmful because when they look to replace their missing electron, they can damage the body's cells, tissues, and DNA. Researchers believe this process may contribute to the development of some chronic diseases, such as cancer and heart disease. Antioxidants help the body neutralize free radicals by immediately donating the needed electron.

The Dietary Guidelines for Americans and the American Cancer Society recommend eating a variety of fruits and vegetables daily, which provide vitamins, minerals, and antioxidants.<sup>2,3</sup> Antioxidants can also be found in other foods, like almonds.<sup>4</sup>

Almonds aren't typically known for their antioxidants beyond vitamin E, but in previous research, experts determined total antioxidants (phenols, flavonoids, and phenolic acids) in California Almonds' skins and kernels using high-performance liquid chromatography (HPLC)/electrochemical detection, UV detection and mass spectrometry. They found that almonds contain flavonoids and phenolics in their skins similar to fruits and vegetables.<sup>4</sup>

## ALMONDS ARE IN GOOD COMPANY

The Oxygen Radical Absorbency Capacity (ORAC) is a scientific test measuring the total antioxidant potential of various foods. Values are reported in Trolox Equivalents (TE) per 100 grams.<sup>1</sup> Below you can see that almonds are in good company, ranking higher per 100 grams than many other antioxidant-rich fruits and vegetables.

## ORAC SCORES OF SELECTED FOODS

Blueberries	6552 umol TE/100g
Plums	6259 umol TE/100g
Blackberries	5347 umol TE/100g
<b>ALMONDS</b>	<b>4454 umol TE/100g</b>
Sweet Cherries	3365 umol TE/100g
Concord Grape Juice	2377 umol TE/100g
Baked Sweet Potato	2115 umol TE/100g
Avocados	1933 umol TE/100g
Raw Broccoli	1362 umol TE/100g
Green Tea	1253 umol TE/100g

1. USDA, Agricultural Research Service, Beltsville Human Nutrition Research Center, Nutrient Data Laboratory. *Oxygen Radical Absorbance Capacity of Selected Foods 2007*.

Accessed from: <http://www.ars.usda.gov/Services/docs.htm?docid=15866>

2. USDA, US Department of Health and Human Services, *Dietary Guidelines for Americans, 2005*. Accessed from: <http://www.health.gov/DietaryGuidelines/dga2005/document/default.htm>

3. American Cancer Society. Accessed from <http://www.cancer.org/docroot/home/index.asp>

4. Milbury, P.E.; Chen, C.; Dolnikowski, G.; Blumberg, J. *Determination of flavonoids and phenolics and their distribution in almonds*. *J. Agric. Food Chem.* 2006, 54, 5027-5023.