

Self selecting an antioxidant-rich diet

Antioxidants are now recognized as critical nutrients to prevent cardiovascular disease, cancer, diabetes, and other related chronic diseases. In general, supplementation with antioxidant vitamins or minerals in clinical trials has not proven to be very effective in this regard, while benefits are seen in those who eat more of the whole-food fruits and vegetables that contain antioxidants. Notably, the foods contain many beneficial antioxidants beyond their vitamin and mineral content. In the accompanying trial, researchers made a distinction between foods that were higher or lower in antioxidant effects, and counseled the subjects to select the healthier foods. At the end of only two weeks, the subjects selecting for high antioxidant foods had dramatically lowered their indicators of systemic inflammation, to a greater extent that is achieved with antiinflammatory drugs.

TABLE 1

Dietary instructions for subjects during the high total antioxidant capacity (HT) and low total antioxidant capacity (LT) diets

HT instructions	HT food list	LT instructions	LT food list
Five medium-sized portions a day	Fruit: red berries, oranges, grapefruit, plums (red), grapes (black), pineapple Vegetable: spinach, beet, Swiss chard, pepper (red bell), Brussels sprouts, broccoli, rocket, radicchio, olive (black), mushrooms, broad beans	Five medium-sized portions a day	Fruit: apple, pear, banana, grape (white), melon Vegetable: aubergine, leek, potatoes, courgettes, French beans, carrots, celery, lettuce, cucumber, radish, beans
At least 2 cups of hot beverages a day	Coffee (espresso, cappuccino, American coffee, barley coffee), tea (black and green), hot chocolate	No hot beverages allowed	—
At least 200 mL of drink	Fresh-squeezed orange juice, fresh-squeezed grapefruit juice, blueberry juice, mixed juice (orange, carrot, and lemon), orange juice	No restrictions of the following drinks	Apple juice, cola, ¹ soda ²
Fats allowed	Extra-virgin olive oil	Fats allowed	Refined olive oil
Alcoholic beverages allowed (if used)	Red wine	Alcoholic beverages allowed (if used)	White wine, beer
Sweets allowed	Black chocolate bars, red berries ice cream	Sweets allowed	White chocolate bars, vanilla ice cream
Other items allowed	Walnuts, red vinegar	Other items allowed	Peanuts, white vinegar

¹ Coca-cola; Coca-Cola HBC, Italy.

² Sprite; Coca-Cola HBC.

Valtueña S, Pellegrini N, Franzini L, Bianchi MA, Ardigò D. Food selection based on total antioxidant capacity can modify antioxidant intake, systemic inflammation, and liver function without altering markers of oxidative stress. *Am J Clin Nutr.* 2008 May;87(5):1290-7.

The table at the right shows how antioxidant content is increased for some foods by various cooking methods. On the following page, the table from the same research article shows a ranking of the foods with the highest antioxidant content.

TABLE 5

Effects of processing on the antioxidant contents of foods

Product	Type of processing	Antioxidant content <i>% of nonprocessed food</i>
Carrots	Microwave cooking	113–143 ¹
Spinach	Microwave cooking	103–121
Mushrooms	Microwave cooking	113
Corn grits	Microwave cooking	21–32
Asparagus	Cooking by steaming	205
Broccoli	Cooking by steaming	122–654
Cabbage	Cooking by steaming	448
Red cabbage	Cooking by steaming	270
Carrots	Cooking by steaming	291
Green pepper	Cooking by steaming	467
Red pepper	Cooking by steaming	180
Potatoes	Cooking by steaming	105–242
Tomatoes	Cooking by steaming	112–164
White rice	Cooking by steaming	33–70
Spaghetti	Cooking by steaming	42–63
Carrots	Boiling	121–159
Corn grits	Boiling	27–29
Spinach	Boiling	84–114
Sweet potatoes	Boiling	413
Bagels	Toasting	134–367
French bread	Toasting	177
Wheat bread	Toasting	153–185
Whole-wheat bread	Toasting	184–214
Pie crust	Baking	311–1450

¹ Range (all such values).

TABLE 4The 50 foods with the highest antioxidant contents per serving size¹

Product	Antioxidant content
	<i>mmol/serving</i>
Blackberries	5.746
Walnuts	3.721
Strawberries	3.584
Artichokes, prepared	3.559
Cranberries	3.125
Coffee	2.959
Raspberries	2.870
Pecans	2.741
Blueberries	2.680
Cloves, ground	2.637
Grape juice	2.557
Chocolate, baking, unsweetened	2.516
Cranberry juice	2.474
Cherries, sour	2.205
Wine, red	2.199
Power Bar, chocolate flavor ²	1.875
Pineapple juice	1.859
Latino beverages, guava nectar	1.858
Juice drinks, 10% juice, blueberry or strawberry flavor, vitamin C-enriched	1.821
Cranapple juice	1.790
Prunes	1.715
Chocolates, dark, sugar-free	1.675
Cabbage, red cooked	1.614
Orange juice	1.510
Apple juice, with added vitamin C	1.462
Latino beverages, mango nectar	1.281
Pineapple	1.276
Oranges	1.261
Bran Flakes, breakfast cereals ³	1.244
Plums, black	1.205
Pinto beans, dried	1.137
Canned chili with meat and beans	1.049
Spinach, frozen	1.045
Canned chili with meat, no beans	1.040
Whole Grain Total, breakfast cereal ⁴	1.024
Chocolate, sugar-free	1.001
Kiwi fruit	0.987
Molasses, dark	0.980
Potatoes, red, cooked	0.956
Cheese lasagna, frozen and cooked	0.942
Potatoes, white, cooked	0.918
Sweet potatoes, baked	0.900
Iced tea, brewed, unsweetened	0.881
Potatoes, russet, cooked	0.862
Baked beans, pork and beans in brown sugar sauce	0.852
Condensed tomato soup, one brand	0.826
Broccoli raab, cooked	0.823
Peppers, red, cooked	0.820
Broccoli, cooked	0.780
Latino beverages, tamarind nectar	0.761

¹ The antioxidant content per serving size was calculated as indicated in Table 6. Mean values are provided for products for which different brands are comparable.

² POWERBAR Co, Berkeley, CA.

³ Ralston Foods, Battle Creek, MI.

⁴ General Mills, Inc, Milwaukee, WI.

Typical food serving sizes for the table

Food	Serving size
Blackberries	1 cup
Walnuts	1 oz
Strawberries	1 cup
Artichokes, prepared	3 oz
Cranberries	1 cup
Coffee	1cup
Raspberries	1 cup
Pecans	1 oz.
Blueberries	1 cup
Cloves, ground	1 tsp
Grape juice	8 oz
Chocolate, unsweet.	1 oz
Cranberry juice	8 oz
Cherries, sour	1 cup
Wine, red	3.5 oz.

Halvorsen BL, Carlsen MH, Phillips KM, Bohn SK, Holte K, Jacobs DR Jr, Blomhoff R. Content of redox-active compounds (ie, antioxidants) in foods consumed in the United States. *Am J Clin Nutr*. 2006 Jul;84(1):95-135.