

Tea Flavonoids & Antioxidant Science

New Science Brings ‘Radical’ Change In What We Thought We Knew About Antioxidants!



Drinking tea has been linked to several health benefits, which are often attributed to its flavonoid content. Antioxidant activity (i.e. free radical scavenging) has long been proposed as the mechanism of action by which tea flavonoids may deliver health benefits. However, this hypothesis has recently been dismissed by scientific experts. Experts now agree that tea and tea flavonoids most likely exert their health benefits via mechanisms *other than* an antioxidant activity. This is a radical change in thinking!

Dietary Antioxidants

Dietary antioxidants include a wide range of compounds, such as vitamin C, vitamin E, zinc, selenium, and flavonoids, that are naturally present in foods and beverages.

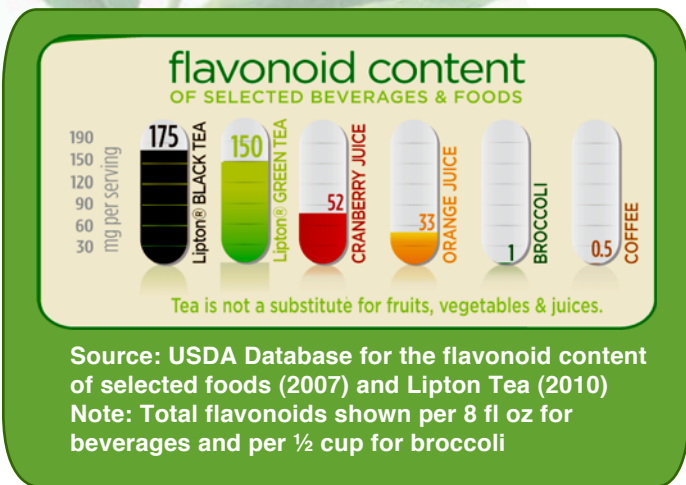
Tea

Tea (black, green, oolong and white) is a rich natural source of flavonoids. The level of flavonoids varies among types of tea.¹ It may range between 100 and 300 mg of total flavonoids per cup (240 ml). On average, the flavonoid content in black tea is approximately 180 mg and in green tea is approximately 160 mg per cup (values based on tea brands available in the United States). Decaffeinated teas have a slightly lower content of flavonoids because some of the flavonoids are lost during the decaffeination process.

Tea is the major dietary source of flavonoids in the United States. According to 1999-2002 NHANES data, 65.4% of total flavonoids intake in adults is from tea, 20.8% is from cocoa and 13.4% is from other sources such as grapes, apples, citrus fruits, etc.^{2,3} Numerous studies have associated drinking tea with health benefits which are often attributed to the flavonoids naturally found in tea.

“Radical” Change

There is abundant evidence that supports the fact that flavonoids act as antioxidants against free radicals *in vitro* (in test tubes).⁴ However, the ability of flavonoids to act as antioxidants *in vivo* (in the body) has not been demonstrated.^{5,6} Therefore, while experts still agree research supports that drinking tea is linked to health benefits, the current scientific consensus is that tea and tea flavonoids most likely exert their health benefits via mechanisms *other than* an antioxidant/free radical scavenging activity.⁷ Based on the evidence, it is therefore more accurate to focus on health benefits of tea drinking associated with specific tea components.



You will see the Tea Goodness Seal on many LIPTON Tea packages. The Goodness seal signals the tea naturally contains tea flavonoids.

Tea Goodness

What Are The Health Benefits Of Tea And Tea Flavonoids?

LIPTON INSTITUTE OF TEA

Tea consumption has been associated with several health benefits, such as hydration, cardiovascular health, cognition and weight management. These different health-related benefits have been attributed to specific dietary compounds found in tea, such as flavonoids (including catechins), theanine and caffeine.

Hydration

Nutrition experts agree that calorie-free tea is an excellent hydration fluid.^{8,9} Healthy adults should consume 74 fluid ounces (2.2 L) for women and 101 fluid ounces (3.0 L) for men of fluids every day.¹⁰ Hydration is fundamental to a number of physical and mental performances – for example concentration, alertness, speed and sports performance.^{8,9}

There is belief that tea acts as a diuretic and may be dehydrating because of its caffeine content. However, research shows that the levels of caffeine in regularly consumed amounts of tea do not lead to dehydration, and in fact the fluid in tea contributes to hydration.^{8,9,11}

Cardiovascular health

There is growing scientific evidence that tea drinking is associated with a reduced risk of cardiovascular disease. For example, epidemiological studies showed that tea drinking (3 cups or more of tea daily) is associated with an 11% reduced incidence of myocardial infarction and with a 21% reduced risk of ischemic stroke.^{12,13} Several mechanisms have been proposed for these effects of tea, but improved blood vessel (or vascular) function seems the most likely. Vascular function can be determined non-invasively by measuring flow-mediated dilation (FMD) of the brachial artery. A large number of well-designed intervention studies have shown that tea may improve FMD, most probably due to its flavonoid content.^{14,15,16} FMD as a cardiovascular disease risk predictor is gaining acceptance based on many prospective studies. Research suggests that drinking 2 to 3 cups of black or green tea daily helps maintain healthy vascular function.

Cognition

Research suggests that drinking 2-3 cups of black tea (delivering 45 mg of theanine and 100 mg of caffeine) within 1-2 hours can help maintain focus and improve alertness. Theanine in combination with caffeine is likely responsible for these effects.¹⁷

Weight management

Tea, when served without milk or sugar, contains virtually no calories. This makes tea an ideal choice for helping people manage a healthy weight, especially when substituting for sweetened beverages.

Also, there is growing evidence that catechins-enriched green tea may have a beneficial effect on body composition and weight management.¹⁸ The effects have been repeatedly shown in Asian populations, but need to be replicated in Western populations.

Emerging Research

Emerging areas of research in which tea drinking has been associated with potential health benefits are oral health, blood glucose regulation, neuroprotection, immune function, and digestion, but more research is needed before this link can be confirmed.



Tip for consumers:

So with all this good news about tea, advise consumers to enjoy 2-3 cups of tea daily as a simple step in a healthy lifestyle!



For more information on tea & health please visit www.liptoninstituteoftea.org

References

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