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### Tea's Good for the Heart — Studies Show a Few Cups a Day Keep Heart Disease at Bay

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There's nothing like having a hot cup of tea to jump-start your morning or a tall glass of iced tea to cool you off in the summertime.

For more than 5,000 years, various peoples and cultures across the globe have enjoyed drinking tea, making it the most consumed beverage second only to water. Fortunately, our tea-drinking ancestors had the wisdom to recognize its value and the foresight to continue the tradition of enjoying this elixir that we now know has powerful health benefits. One of the many known benefits uncovered by modern research: High tea consumption leads to a healthier heart.

#### Upbeat Findings

According to data published in 2012 in *Food & Function*, black and green tea may reduce the risk of coronary heart disease and stroke by 10% to 20%.<sup>1</sup> Two years before, one of the largest studies on the impact of tea drinking on heart health was published in *Arteriosclerosis, Thrombosis and Vascular Biology*. The study followed more than 37,000 people in the Netherlands for 13 years and found that people who drink plenty of tea are less likely to die of heart disease than people who don't drink tea. Study participants who drank three to six cups of tea per day were 45% less likely to die from heart disease than those who drank less than one cup, and drinking more than six cups of tea per day was associated with a 36% lower risk of developing heart disease than drinking less than one cup.<sup>2</sup>

#### Tea Defined

While all four types of tea known as true teas—white, green, oolong, and black—offer myriad



health benefits, most studies show that black and green teas are the heart-health leaders. Each tea type is made from the leaves of the evergreen shrub *Camellia sinensis*, but the differences between them are due to the ways in which they're processed into individual varieties.

White tea is the least processed and is made from buds and certain leaves of the *Camellia sinensis* plant, which are steamed and dried. Green tea is produced from freshly harvested leaves, which immediately are steamed to prevent oxidation or oxygen exposure. Oolong tea is allowed to oxidize for a short period, and black tea is completely oxidized. The results of the varying degrees of oxidation affect the health-promoting components, which make each type of tea unique.

### **Go Green**

The steaming process of green tea destroys the enzymes that break down the color pigments in the leaves, allowing them to maintain their green color. The leaves then are rolled and dried, preserving their natural polyphenols, the potent antioxidants.

Most of the polyphenols in green tea are in the form of flavonoids, specifically known as catechins, the plant chemicals responsible for green tea's heart-healthy properties. Because of the differences in processing, green tea contains the most catechins of the other tea varieties. Of the six types of catechins in green tea, epigallocatechin-3-gallate (EGCG) is the most studied and most bioactive for heart benefits.

Several recently published studies, such as one in the July 2012 issue of *Pharmacological Reports*, show that the powerful antioxidants in green tea, particularly EGCG, may help prevent atherosclerosis, specifically coronary artery disease, because of their anti-inflammatory effects on plaque buildup in the bloodstream and arterial walls, which can lead to heart disease and stroke.<sup>3</sup>

Green tea catechins also work together to lower cholesterol. A systematic review and meta-analysis in the November 2011 issue of the Journal of the American Dietetic Association reported that of the 20 randomized controlled trials evaluated, "the consumption of green tea catechins is associated with a statistically significant reduction in total and LDL cholesterol levels."<sup>4</sup>

In addition to lowering inflammation in the bloodstream and reducing LDL cholesterol, tea protects LDL particles from becoming oxidized, which causes plaque buildup in the arteries and can lead to atherosclerosis, according to Janet Bond Brill, PhD, RD, LDN, CSSD, an expert on food and fitness for heart health and the author of several books, including the forthcoming *Blood Pressure Down: The 10-Step Plan to Lower Your Blood Pressure in 4 Weeks Without Prescription Drugs*.

### **In the Black**

Black tea may not have as many polyphenols as its green counterpart, but the changes in its polyphenols during the oxidation process produce a set of unique compounds that have their own heart-health benefits. In fact, a 2012 study published in *Preventive Medicine* found that drinking three cups of black tea per day for 12 weeks led to significant reductions in blood sugar levels and triglycerides, an increase in HDL cholesterol levels, and increased blood levels of antioxidants, which can protect against oxidative stress and inflammation.<sup>5</sup>

Other research, such as a 2012 study reported in *Archives of Internal Medicine*, has shown black tea improves endothelial function and blood pressure. This study found that drinking three

cups of black tea per day for six months lowered both systolic and diastolic blood pressure, which the report said could reduce the risk of cardiovascular disease.<sup>6</sup>

### **Herbal Teas**

Even though green, white, oolong, and black teas pack the most powerful antioxidant punch, herbal teas still are a healthful option, according to Emily Bailey, RD, LD, who oversees the corporate wellness program for the Republic of Tea and is director of nutrition coaching at NutriFormance-Fitness, Therapy, and Performance in St Louis. “Herbal teas have lower concentrations of antioxidants because the chemical composition varies widely among the different plants” from which they’re made, she explains. Rooibos, or red tea, made from the South African plant *Aspalathus linearis*, has been shown to have heart benefits, such as in a 2011 study where volunteers drank six cups of rooibos tea per day for six weeks and experienced reduced LDL cholesterol and significantly increased HDL cholesterol, both associated with a lower risk of developing cardiovascular disease.<sup>7</sup>

A common ingredient in many herbal tea blends, hibiscus tea (or tisane) also may be good for the heart. A 2010 study showed that six weeks of drinking hibiscus tea each day lowered blood pressure in pre- and mildly hypertensive adults, which may make it a heart-healthy dietary addition for this group of people.<sup>8</sup>

Herbal teas may be especially relevant for those who don’t like green or black teas; the key is to drink it frequently. “The jury is still out on how much tea should be consumed, but adding any to your typical intake can be very beneficial,” Bailey says. Whether you steep it yourself—Consumer Reports found that tea steeped from bags had the highest antioxidant levels—or choose bottled varieties, Bailey says it’s important to choose the “whole, real food first.”

“As an RD, the body of research supports eating the food rather than the supplement,” Brill says. “The bulk of research supports the people who drink quite a bit of tea.” Popping tea supplements may be tempting if the thought of drinking tea all day seems impossible, but frequency, a little creativity, and variety is all it takes, she says.

### **Steep Often**

To maximize the beneficial effects of tea, Brill recommends enjoying it throughout the day. “It functions as an antioxidant, so keep a high level in your bloodstream,” she explains. Studies support that timing is important to reap green tea’s benefits. A 2004 study in *Circulation* found that when mice were fed a high cholesterol diet and then were injected with green tea extract, they had 55% less plaque in their arteries after three weeks and 73% less after six weeks.<sup>9</sup> A 2008 Greek study found that when people drank green tea they had better blood vessel function just 30 minutes later, which helps prevent atherosclerosis.<sup>10</sup>

Drink tea “several times a day and learn to do it in different ways,” Brill says, “[for example] instead of water, drink iced tea.” Hot or cold, the benefits are the same, but she suggests drinking it without milk, which can blunt the favorable effect on the arteries. On the other hand, feel free to add a squeeze of lemon juice, which is a source of vitamin C, to add an extra health boost to your cup.

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