Armstrong's Coffee & Vending Service
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Chai Green Tea

Benefits

- Anti-atherogenic / Helps manage healthy cholesterol & triglyceride levels
- Healthy blood clotting
- Enhances immune function
- Enhances weight loss
- Anti-cancer properties reported by the National Cancer Institute

Boxes of 15 servings each
$4.99 per box includes shipping anywhere in the Continental US

The active constituents in green tea are powerful antioxidants called polyphenols (catechins) and flavonols. Tannins in tea are large polyphenol molecules and form the bulk of the active compounds in green tea, while catechins make up nearly 90% of the tannins. Several catechins are present in significant quantities and account for the bulk of research: epicatechin (EC), epigallocatechin (EGC), epicatechin gallate (ECG) and epigallocatechin gallate (EGCG).

EGCG

EGCG accounts for 10-50% of the total catechin content and appears to be the most powerful of the catechins. Its antioxidant activity is about 25-100 times more potent than vitamins C and E. One cup of green tea may provide 10-40mg of polyphenols and has antioxidant activity greater than a serving of broccoli, spinach, carrots or strawberries.

Anti-atherogenic Properties

Research shows that green tea may be **anti-atherogenic** by helping manage cholesterol & triglycerides levels already in the normal range; supports healthy blood clotting; enhances immune function; and enhances weight loss.

Antioxidant Activity

Theoretically, the high **antioxidant activity** of green tea makes it beneficial by protecting the body from oxidative damage due to free radicals. Many diseases are associated with free radical damage, suppressed immune function, and accelerated aging.

In the laboratory, green tea is an effective antioxidant. It can protect against experimentally induced DNA damage. There is also evidence from some studies that green tea provides significant immunoprotective qualities, particularly in the case of cancer patients undergoing radiation or chemotherapy. White blood cell count appears to be maintained more effectively in cancer patients consuming green tea compared to non-supplemented patients.

Anti-obesity Action

There may also be an **anti-obesity action** of green tea. In one study, mice receiving green tea in their diets had a significant suppression of food intake, body weight gain and fat tissue accumulation. Also, levels of cholesterol and triglycerides were lower in mice receiving the green tea diet and leptin levels in serum showed a decrease with green tea treatments – indicating that green tea may have a direct effect reducing body weight.

Green tea is second only to water as the most consumed beverage in the world. It has been used medicinally for centuries in India and China. Green tea is prepared by picking, lightly steaming and allowing the tea leaves to dry whereas black tea is fermented before drying. Fermentation can destroy some of the active components of black tea.

Scientific Support

Although numerous laboratory investigations have shown the powerful antioxidant activity of green tea and green tea extracts, prospective clinical studies in humans are few. From the laboratory findings, it is clear that green tea is an effective antioxidant, that is provides clear protection from experimentally induced DNA damage and that it can slow or halt the initiation and progression of cancerous tumor growth. There is also evidence from some studies that green tea provides significant immunoprotective qualities, particularly in the case of cancer patients undergoing radiation or chemotherapy. White blood cell count appears to be maintained more effectively in cancer patients consuming green tea compared to non-supplemented patients

In terms of heart disease protection, the potent antioxidant properties of polyphenols would be expected to reduce free radical damage to cells and prevent the oxidation of LDL cholesterol – both of which would be expected to inhibit the formation of atherosclerotic plaques.

Aside from the clear benefits of green tea as an antioxidant, recent studies have suggested a role catechins in promoting weight loss. In one animal study, the anti-

obesity effect of green tea was evaluated by feeding different levels of green tea (1-4% in their diets) to female mice for 4 months. The study found that the mice receiving the green tea in their diets had a significant suppression of food intake, body weight gain and fat tissue accumulation. In addition, levels of cholesterol and triglycerides were lower in mice receiving the green tea diet. Perhaps the most interesting finding from this study was that Leptin levels in serum showed a decrease with green tea treatments – indicating that green tea may have a direct effect on the regulation of body weight (downward).

In some studies, green tea is associated with a mild increase in thermogenesis (increased caloric expenditure) – which is generally attributed to its caffeine content. At least one study has shown that green tea extract stimulates thermogenesis to an extent that is much greater than can be attributed to its caffeine content per se – meaning that the thermogenic properties of green tea may be due to an interaction between its high content of catechin-polyphenols along with caffeine. A probable theory for the thermogenic effect of green tea is an increase in levels of norepinephrine – because catechin-polyphenols are known to inhibit catechol-O-methyl-transferase (the enzyme that degrades norepinephrine).

One study examined this theory, and the effect of green tea extract on 24-hour energy expenditure in 10 healthy men – who each consumed 3 treatments of green tea extract (50mg caffeine and 90mg epigallocatechin gallate), caffeine (50 mg), and placebo (at breakfast, lunch, and dinner). The results of the study showed that, relative to placebo, the green tea extract resulted in a significant (4%) increase in 24-hour energy expenditure (approximately 80 calories per day) and a significant increase in the body's use of fat as an energy source (24-h Respiratory Quotient). In addition, the 24-hour urinary norepinephrine excretion was 40% higher during treatment with the green tea extract than with the placebo. It is interesting to note that treatment with caffeine in amounts equivalent to those found in the green tea extract (50mg) had no effect on energy expenditure of fat oxidation – suggesting that the thermogenic properties of green tea is due to compounds other than its caffeine content alone.

Dosage

Typical dosage recommendations are for 1 to 4 cups of green tea per day or 125-500mg/day in tablet form – preferably of an extract standardized to at least 60% polyphenols and/or EGCG as a marker compound.

Side Effects

Green tea consumption of as much as 20 cups per day has not been associated with any significant side effects, other than frequent urination. In high doses, teas that contain caffeine may lead to restlessness, insomnia, and tachycardia. Individuals taking aspirin or other anticoagulant medications (including vitamin E and ginkgo biloba) on a daily basis should be aware of the possible inhibition of platelet aggregation (blood clotting) associated with green tea (in some cases, green tea may prolong bleeding times). Decaffeinated versions of green tea and green tea extracts are available – but the amounts of phenolic/catechin compounds can vary between extracts