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Green Tea Extract

Technical Background

- Green tea extract, derived from leaves of the tea plant (*Camellia sinensis*), is rich in a class of bioflavonoid compounds called catechins. These compounds are powerful antioxidants.
- Green tea extract has potent antimutagenic potential against a variety of important mutagens (mutation-causing agents).¹
- Multiple studies indicate that green tea extract may potentially lower the risk of some cancers.² Green tea extract has been found to reduce oxidative damage to DNA,^{3,4} and may also reduce the risk of breast,^{5,6} prostate,^{1,7} colorectal⁸ and stomach cancers.⁹ Green tea may also provide some protection against smoking-related cancers.¹⁰
- Evidence suggests that green tea is also beneficial to the skin. It has been found to have not only an anti-aging effect, but also the ability to protect against chemical carcinogens and ultraviolet-B radiation-induced skin tumors.^{11,12}
- Green tea catechins protected rats from experimentally-induced acute pancreatitis.¹³
- Epidemiological evidence and animal experiments suggest that green tea may help reduce both total serum cholesterol and low density lipoprotein (LDL) cholesterol.^{14,15}
- Importantly, black tea (produced by fermentation of green tea leaves) does not contain high levels of catechins and does not appear to afford the same benefits as green tea.

Sources and Recommended Intake

- There is no established Recommended Dietary Allowance (RDA) for green tea or its extracts. In some Chinese populations, consumption of green tea amounts to several cups per day. No evidence of toxicity has been observed.

Abstracts

Erba D, Riso P, Bordoni A, Foti P, Biagi PL, Testolin G. Effectiveness of moderate green tea consumption on antioxidative status and plasma lipid profile in humans. J Nutr Biochem. 2005 Mar;16(3):144-9. The antioxidant activity of green tea (GT) has been extensively studied; however, the results obtained from dietary intervention studies are controversial. In the present study we investigated the effect of the addition of two cups of GT (containing approximately 250 mg of total catechins) to a controlled diet in a group of healthy volunteers with respect to a group following the same controlled diet but not consuming GT. Antioxidant status and lipid profile in plasma, the resistance from oxidative damage to lipid and DNA, and the activity of glutathione peroxidase (GPX) in isolated lymphocytes were measured at the beginning and the end of the trial. After 42 days, consumption of GT caused a significant increase in plasma total antioxidant activity [from 1.79 to 1.98 micromol Trolox equivalent (TE)/ml, P<.001], significant decreases in plasma peroxides level (from 412 to 288 Carr U, P<.05) and induced DNA oxidative damage in lymphocytes (from 14.2% to 10.1% of DNA in tail, P<.05), a moderate although significant decrease in LDL cholesterol (from 119.9 to 106.6 mg/dL, P<.05) with respect to control. The present

study suggests the ability of GT, consumed within a balanced controlled diet, to improve overall the antioxidative status and to protect against oxidative damage in humans.

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