Green tea

Around the globe, tea holds an exalted place among beverages. As a matter of fact, next to water, tea is the most consumed beverage in the world. Green tea is one of the richest natural sources of antioxidants. Most of the published health research on Green tea has been in regard to preventing disease, such as certain types of cancer, but other health benefits from Green tea have been studied in test tube, human and animal trials with many positive results. Green tea is loaded with vitamins, minerals and antioxidants. As chemists investigate how Green tea works its medicinal magic, they have zeroed in on a family of antioxidants known as catechins. Catechins are members of the flavonoid family and are naturally occurring in a number of plant-derived foods. Some of the catechins in Green tea are more powerful than a number of familiar antioxidants.

Definition

Green tea is derived from the leaf of a plant called Camellia sinensis. The leaves are processed and used to make tea.

Green, black and oolong teas are all sourced from Camellia sinensis. The differences in processing determine which kind of tea the leaves become.

Benefits of Green tea

1. Cancer Prevention: The majority of research to date on Green tea focuses on cancer prevention. Population studies in Asia have found lower rates of cancer among those who consume large amounts of Green tea.[10] A study of Japanese men and women with a 13 year follow up revealed that increased consumption of Green tea was associated with a delay of diagnosis of cancer.[1] Mean age at cancer onset among men or women who consumed over 10 cups of Green tea a day was 7.6 years later than those consuming less than three cups. It was noted that the delay in cancer was only relevant to those below the age of 79. Animal, human and test tube studies have shown that Green tea may reduce the risk of prostate, breast, esophageal, lung, skin, pancreatic and bladder cancers.[2]

Of the hundreds of studies done on Green tea, only about 10% have involved humans.[10] While the data is promising, it is still limited. The good news is that this data is providing insight and direction for further studies to be done on the chemopreventive effects of Green tea.

2. Protecting the heart: There is early evidence, though not conclusive, that regular intake of Green tea may reduce the risk of cardiovascular diseases. Several well designed studies have demonstrated significant risk reduction in people who drink Green tea regularly.

> Coronary Heart Disease

A recent cohort study assessed the effects of Green tea on 8,522 Japanese men over a period of 12 years. The data showed that men who drank 10 cups of Green tea daily versus the men who consumed only three cups daily had a lower risk of death from coronary heart disease.[3]

> Stroke

A cohort study of Japanese women demonstrated an inverse relationship between Green tea consumption and the incidence of stroke. The study followed 5,910 Japanese women who neither smoked nor drank alcohol for four years. The incidence of stroke was significantly lower in women who consumed at least three to four cups of Green tea per day.[3] [11]

> Hypertension

In a study published in the Archives of Internal Medicine, researchers concluded that consumption of Green or oolong tea at 120 ml or more per day, for one year, significantly reduced the risk of developing hypertension.[8] Researchers also examined the impact of long term tea consumption on the risk of developing hypertension in 1,507 men and women. Those who consistently drank 120 ml or more of tea per day had a lower risk of developing hypertension.

3. Exercise Endurance: People have long used Green tea for energy. A new study might shed light on Green tea as a tool for endurance. Published by the American Physiological Society, the study demonstrated that Green tea extract markedly improved endurance capacity in mice.[5] Swimming time to exhaustion was evaluated in mice fed Green tea extract. The mice that were fed Green tea extract had prolonged endurance capacity by 8-24% and the effect was accompanied by a stimulation of lipid metabolism. It is also noted that the effects were dose dependent. Although not yet confirmed in human studies, these results suggest Green tea might be a useful tool for athletes.

4. Weight Loss: The newest research on Green tea has been in the area of weight loss. Research suggests Green tea promotes weight loss by favorably affecting lipid metabolism in the blood, and through the stimulation of thermogenesis (fat-burning).[4,12] Regarding Green tea and thermogenesis, a study examining the benefits of functional foods for weight control showed that Green tea increased energy expenditure over a 24-hour period. This is probably due to the combination of catechins and caffeine naturally occuring in Green tea.[4] Green tea extract looks to be a promising new tool for weight loss.

Green tea: supplement vs. beverage

While most of the studies on Green tea have been done on the consumption of brewed tea, a study published in the American Journal of Clinical Nutrition found that catechin absorption was enhanced when tea polyphenols were administered as a Green tea supplement in pill form.[9] Simply put, the Green tea in supplement form showed enhanced bioavailability compared with that of Green or black tea in beverage form. Whether you prefer to drink tea or take a pill, you are still getting the health benefits of Green tea.

Dietary recommendations

250-500 mg standardized Green tea extract daily.
Make sure the label reads standardized to polyphenol content or EGCG content. You can either take Green tea extract in supplement form or brew your own tea.

References

1. Nakachi, K., et al., "Can teatime increase one's lifetime?" Ageing Res Rev. 2003;2:1-10.
2. "About Herbs: Green Tea" Memorial Sloan-Kettering Cancer Center, <http://www.mskcc.org/mskcc/html/11571.cfm> (12/16/2004).
3. Higdon, J.V., Frei, B., "Tea Catechins and Polyphenols: Health Effects, Metabolism, and Antioxidant Functions" Critic Rev Food Sc Nutr, 2003;43(1):89-143.
4. Srejic, E., "Green Tea as a Commercial Ingredient: Applications and Challenges", Natural Products Industry Insider, 4/26/04 <http://www.naturalproductsinsider.com/articles/451tea.html> (3/02/2005).
5. Murase, T., et al., "Green tea extract improves endurance capacity and increases muscle lipid oxidation in mice" Am J Physiol Regul Integr Comp Physiol.2005;288:R708-R715.
6. Murase, T., et al., "Beneficial effects of tea catechins on diet-induced obesity: stimulation of lipid catabolism in the liver" Int J Obes. 2202;26:1459-1464.
7. Science Daily, "Green Tea Can Help Prevent Rheumatoid Arthritis", June 1999.
8. "Tea May Prevent Hypertension", Natural Products Industry Insider, 08/16/2004 <http://www.naturalproductsinsider.com/articles/481online18.html> (03/21/2005).
9. Henning, S.M., et al., "Bioavailability and antioxidant activity of tea flavanols after consumption of green tea, black tea, or a green tea extract supplement", Am J Clin Nutr, 2004;80:1558-1564.
10. "HOW GREEN TEA MAY HELP YOUR BODY", Celestial Seasonings<http://www.celestialseasonings.com/research/greentea/research.php>(12/16/2004)
11. Sato T., Nakatsuka H., et al. "Possible contribution of green tea drinking habits to the prevention of stroke", Tohoku J. Exp. Med., 1989;157:337-343.
12. Dulloo AG., Duret C., et al. "Efficacy of a green tea extract rich in catechin polyphenols and caffeine in increasing 24-h energy expenditure and fat oxidation in humans" Am J Clinc Nutr, 1999;70:1040-1045.