

Green Tea – Does a body good!

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Teas have been used as medicine for over 10,000 years. The benefits of the varieties are amazing and wide spread. The growth of green tea, in particular, is seen all over the world in the past 10 years. What about green tea makes it so special? The important components in green tea that show antimicrobial properties are the catechins (GTC), the most studied being epigallocatechin-3-gallate (EGCG). Green tea is an abundant source of plant polyphenols exhibiting numerous effects that are potentially beneficial for human health. Green tea is considered the most predominant source of catechins among all dietary sources, ahead of chocolate, red grapes, wine, and apples. It's even been shown to prevent skin aging caused by UV irradiation – induced acceleration of skin aging as a result of the initiation of collagen and elastic fiber breakdown, conferring an anti-wrinkle affect.

A few of the benefits include..

Inflammation: Green tea has been shown to aid in chronic inflammation from Irritable Bowel Disease (IBD), Nonalcoholic Fatty Liver Disease (NASH), cardiovascular disease (CVD), and many more. The EGCG with potent antioxidants is reported to neuroprotect outer retinal degeneration by decreasing inflammatory markers. The antioxidant prosperity of green tea polyphenols suggests a possible application in autism spectrum patients. The polyphenols have shown varieties of possible applications, including increasing antioxidants (e.g., GSH, cysteine) depots in vital organs and protecting against chronic inflammation in in vivo and in vitro models. ⁱ

Obesity: Available evidence shows that green tea can interrupt lipid emulsification, reduce adipocyte differentiation, increase thermogenesis, and reduce food intake, thus green tea improves the systemic metabolism and decreases fat mass. ⁱⁱ

Diabetes: If it helps in obesity, then Type2 Diabetes is a no brainer! Outside of fat loss, it can aid in insulin resistance. Although the research is a little inconsistent with the exact benefits of green tea on diabetes, we know that reducing inflammation and lowering body fat has been shown multiple times to reduce and even eliminate the onset of T2D, all of which green tea has been proven to do.

Neuroprotection: Several human observational and intervention studies have found beneficial effects of tea consumption on neurodegenerative impairment, such as cognitive dysfunction and memory loss. These studies supported the basis of tea's preventive effects of Parkinson's disease. The targets of GTCs include the abnormal accumulation of fibrous proteins, inflammation, elevated expression of pro-apoptotic proteins, and oxidative stress, which are associated with neuronal cell dysfunction and death in the cerebral cortex. These studies support the idea that green tea can be both protective and preventive in neurodegenerative diseases.

Anxiety: The green tea amino acid, L-theanine (L-THE) is associated with several health benefits, including improvements in mood, cognition and a reduction of stress and anxiety-like symptoms. As well studied, anxiety and depression are most often caused by inflammation. New ways of dealing with these issues is with anti-inflammatories, and green tea has been proven to be just that.

Cancer: The catechins found in green tea are shown to have diverse mechanisms against cancer. These mechanisms include anti-oxidant activity, cell cycle regulation, receptor tyrosine kinase pathway inhibition, immune system modulation, and epigenetic modification control.ⁱⁱⁱ

Oral infections: Green tea with its wide spectrum of activities could be a healthy alternative for controlling the damaging reactions seen in oral diseases, specifically, chronic periodontitis, dental caries and oral cancer.^{iv}

Consumption..

Harvesting time seems to have an impact on the quality of the leaves. Young leaves (up to the 7th leaf) were found to have higher amounts of caffeine, EGCG, ECG, and other catechins when compared to older leaves.

A safe intake level of 338 mg EGCG/day for adults was derived from toxicological and human safety data for tea preparations ingested as a solid bolus dose. An Observed Safe Level (OSL) of 704 mg EGCG/day might be considered for tea preparations in beverage form based on human AE data. ^v The evidence showed that ingestion of green tea when brewed as tea or consumed as a beverage or with food is the safest way to prevent liver issues and hepatotoxicity.

ⁱ Oz HS. Chronic Inflammatory Diseases and Green Tea Polyphenols. *Nutrients*. 2017;9(6):561. Published 2017 Jun 1. doi:10.3390/nu9060561

ⁱⁱ Dinh TC, Thi Phuong TN, Minh LB, et al. The effects of green tea on lipid metabolism and its potential applications for obesity and related metabolic disorders - An existing update. *Diabetes Metab Syndr*. 2019;13(2):1667-1673. doi:10.1016/j.dsx.2019.03.021

ⁱⁱⁱ Shirakami Y, Shimizu M. Possible Mechanisms of Green Tea and Its Constituents against Cancer. *Molecules*. 2018;23(9):2284. Published 2018 Sep 7. doi:10.3390/molecules23092284

^{iv} Gaur S, Agnihotri R. Green tea: a novel functional food for the oral health of older adults. *Geriatr Gerontol Int*. 2014;14(2):238-250. doi:10.1111/ggi.12194

^v Hu J, Webster D, Cao J, Shao A. The safety of green tea and green tea extract consumption in adults - Results of a systematic review. *Regul Toxicol Pharmacol*. 2018;95:412-433. doi:10.1016/j.yrtph.2018.03.019