

Green Tea

Kills Prostate Cancer Cells

April 1998. Green tea contains compounds that kill prostate cancer cells. Most people in the USA and around the world drink black tea, if they drink tea at all. Only about a quarter of all tea drunk is green. Both kinds of tea leaves are from the same plant, the evergreen shrub *Camellia sinensis*. Black tea is made from the withered, fermented leaves. The leaves sold as green tea have been steamed after picking, and are not fermented. This makes a difference. Green tea, evidence suggests, is more potent in anti-cancer ingredients.

All plants contain compounds called polyphenols. These are especially high in tea, coffee, red grapes, kidney beans, raisins, prunes, and red wine. In December 1997 researchers at the Case Western Reserve University School of Medicine reported that an ingredient in the polyphenols in green tea kills cancer cells while sparing healthy cells.

The researchers tested this ingredient, epigallocatechin-3-gallate, on human and mouse prostate cancer cells and on normal human skin cells. It caused apoptosis (programmed cell death) in cancer cells while leaving healthy cells unharmed. A report is in the **Journal of the National Cancer Institute** (Dec 17, 1997).

The scientist in charge, Hasan Mukhtar, says the compound kills cancer cells by fragmenting their DNA - typical of apoptosis. Apoptosis happens all the time in a healthy body. Mukhtar says: "It is likely that this compound conveys a message to cancer cells through a highly ordered and well-regulated signal transduction pathway.... " The chemical messenger tells the cells "You must commit suicide (programmed cell death) or I am going to kill you." The cells then decide that instead of being murdered, they will commit suicide."

Mukhtar believes study of green tea will lead to fuller understanding of the process of apoptosis. Researchers will try to decipher the molecular mechanism of green tea's protective effects. They will try to find out how to interfere with cancer development by administering purified polyphenolic derivatives, said Mukhtar. "Green tea appears to be potentially an ideal agent for chemoprevention." The investigators want to run clinical trials to see if indeed green tea can prevent cancer in humans.

A nutritional trial for prostate cancer including green tea in the diet is ongoing at Memorial Sloan-Kettering Hospital in New York.

A search of "green tea" in National Cancer Institute's [CANCERLIT® Bibliographic Database](#) pulls in over 150 recent studies. Boil these down by entering "green tea prostate" in the search form. You'll reach listings of the CWRU study and, for now, three earlier studies. You can read the abstracts online.

Ahmad N, Feyes DK, Nieminen AL, Agarwal R, Mukhtar H: **Green tea constituent epigallocatechin-3-gallate and induction of apoptosis and cell cycle arrest in human carcinoma cells.** *J Natl Cancer Inst*; 89(24):1881-6 1997 "Green tea may protect against cancer by causing cell cycle arrest and inducing apoptosis [programed cell death]. It needs to be evaluated in human trials."

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