

# Tea

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Update 2005

Clinical trial:

Phase

II Randomized Study of Adjuvant Erlotinib and Green Tea Extract (Polyphenon® E) in Preventing Recurrence and Progression in Former Smokers With Resected High-Grade Superficial Transitional Cell Carcinoma of the Bladder > Erlotinib:

A substance that is being studied as a treatment for cancer. It belongs to the family of drugs called epidermal growth factor receptor tyrosine kinase inhibitors. Also called CP-358,774 and OSI-774.

The studies continue to describe benefits from the use of tea against cancer, see this UK article:  
Tea

2003

Green Tea derivative successful in animal studies as intravesical therapy for superficial bladder tumors:

Inhibition of bladder tumor growth by the green tea derivative epigallocatechin-3-gallate. In group 2 (EGCG instillation) 18 of the 28 animals (64%) were free of tumor.

Kemberling JK, Hampton JA, Keck RW, Gomez MA, Selman SH. Department of Urology, Medical College of Ohio, 3065 Arlington Avenue, Dowling Hall 2170, Toledo, OH 43614-5807, USA J Urol. 2003 Sep;170(3):773-6. Mediline Abstract  
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There has been quite a bit of attention being paid to the anti-oxidant effects of tea.

NCI funded research published in June 2007 suggests that

Epigallocatechin Gallate (EGCG) - a major biologically active constituent of green tea - has an anticancer effect by inhibiting

EGFR, a protein that has been shown to be active in many muscle invasive bladder tumors. Specifically, EGCG was active in:

1. Inhibiting activation of the Epidermal Growth Factor Receptor (EGFR).
2. Altering lipid order in colon cancer cells.
3. Inhibiting downstream signaling pathways in several types of human cancer cells - by an unknown mechanism.
4. Inhibiting the binding of EGF to the EGFR - and the subsequent dimerization and activation of the EGFR by altering membrane

organization.

5. Inhibiting activation of other membrane-associated receptor tyrosine kinases (RTKs) by a similar means.

Published : 'Cancer Research', July 1, 2007.

If we follow the above logic, it would appear that EGCG extracts and/or drinking generous amounts of green tea may be very beneficial to bladder cancer patients - especially those with high risk tumors. The one proviso whenever it comes to large doses of any supplement - particularly synthetic supplements (which EGCG is not) - is that they can be unpredictable.

There are a large number of green tea extracts on the market - however they vary enormously in cost and EGCG level. Always check the

EGCG level before purchasing.

(Thanks to Pete Granger for his research).

Here is an article from Alternative Medicine which sums up the subject very nicely.

Black Tea, Green tea, Iced Tea

All Have important anti-oxidant effects.

In China and Japan, many epidemiological studies have found that tea drinkers have a lower than average incidence of cancer. Over the past decade, studies from other parts of the world have supported this conclusion.

In a study involving 35,000 women in Iowa, those who drank at least two cups of tea a day had 60% less kidney and bladder cancer and 32% less cancer of the esophagus and colon. A 15-year study of men in the Netherlands concluded that those who drank more than four cups of green tea a day were 69% less likely than others to suffer a stroke. In Ohio, a study by Dr. Hasan Mukhtar of Case Western Reserve University found that mice which were given green tea and exposed to chemical carcinogens or ultraviolet light developed 90% fewer tumors than mice which were not given tea.

The mechanisms by which tea conveys its health benefits are not yet fully understood. However, University of Kansas chemist Lester Mitscher, Ph.D., maintains that, "Tea is the most powerful anti-oxidant there is." According to studies at Tufts University, one cup of green or black tea has more anti-oxidant power against the most common kind of free radical in the body, the peroxy radical, than one-half cup of broccoli, carrots, spinach or strawberries. In numerous animal and test tube studies, compounds in tea called catechins have been effective against a broad spectrum of cancers. Dr. Mitscher found that one catechin, EGCG, was 100 times more potent than vitamin C and 25 times more potent than vitamin E. "EGCG blocks an enzyme that tumors use to grow new capillaries," explains Jerzy Jankun, a tumor biologist at the Medical College of Ohio. Studies of mice in Japan suggest that catechins also protect tissues from sun damage, cigarette smoke, air pollutants and

Some bacteria seem susceptible to catechins as well. Asian studies have shown that green tea inhibits bad breath, gum disease and tooth decay in laboratory rats. Two ongoing studies are further investigating tea's anti-cancer properties: Dr. Mitscher is studying the effects of the equivalent of four cups of tea a day in women at high risk for breast cancer, and patients at M.D. Anderson Cancer Center in Houston are being tested for the effects of large quantities of tea on tumor shrinkage. According to experiments by Dr. Mitscher, green tea has about twice the anti-oxidant effect of black tea. One cup of green or black tea has more anti-oxidant power than one half cup of broccoli, carrots, spinach or strawberries.

Commercial tea preparations of bottled iced tea or powdered tea mix have similar effects and decaffeinated tea is also effective. Herbal infusions, like chamomile or peppermint, are not true teas from the plant *Camellia sinensis* and thus do not have the same healthful properties.

ALTERNATIVE MEDICINE MAY 1999

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