



# HerbClip™

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**File: ■ Green Tea (*Camellia sinensis*)  
■ Cancer**

**HC 090395-393**

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**RE: Review Finds Insufficient Evidence to Support Green Tea Consumption for Cancer Prevention**

Boehm K, Borrelli F, Ernst E, et al. Green tea (*Camellia sinensis*) for the prevention of cancer (review). *Cochrane Database of Systematic Reviews*. 2009, Issue 3. Art. No.: CD005004. DOI: 10.1002/14651858.CD005004.pub2.

Brewed tea from the leaves of *Camellia sinensis* is the second most common beverage consumed worldwide.<sup>1,2</sup> Green, black, or oolong tea are made from the leaves of this plant. About 20% of the world's tea from *C. sinensis* is in the form of green tea, which has a high vitamin and mineral content, including riboflavin, niacin, folic acid, pantothenic acid, magnesium, potassium, and manganese. In trials, green tea consumption has been shown to decrease total cholesterol and low-density lipoprotein cholesterol and to decrease the risk of myocardial infarction. Also, it has been suggested that green tea's main ingredients, its polyphenols, may inhibit cell proliferation and have cancer-preventative effects. These authors conducted a review to assess a possible association between green tea consumption and the risk of cancer incidence and mortality. They looked at studies comparing a healthy population with well-matched cancer patients and at studies observing one group of healthy participants over time.

Catechins are a subgroup of green tea's polyphenols and are powerful antioxidants. Epigallocatechin-3-gallate is a catechin believed to be important to the therapeutic qualities of green tea.

For this review, the authors included studies in which green tea had been habitually consumed and which were carried out using interventional studies (randomized controlled trials, or RCTs), observational studies (prospective cohort studies), and retrospective case-control studies. Studies with both healthy adults and adults with various forms of cancer were included. The primary outcome measures were the number of participants developing cancers (incidence) and the number of participants dying from cancers (mortality).

The authors searched the following databases in January 2009: Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, Amed, CancerLit, PsycINFO, and Phytobase. References from published studies were also checked for further studies.

The Cochrane Complementary Medicine Field was contacted and asked to search its register. Green tea manufacturers were contacted for long-term surveillance data on green tea products.

Of the 675 articles retrieved from the literature searches, 51 studies met the criteria for this review: one RCT, 23 prospective cohort studies, and 27 retrospective case-control studies. The 51 studies included 1,236,687 participants from five countries and were published between 1985 and 2008.

Of the 23 cohort studies, 18 measured cancer incidence, four measured cancer mortality, and one measured both. All of the 27 case-control studies assessed any association between green tea consumption and cancer risk. The lone RCT measured cancer incidence and quality of life, among other outcomes.

Studies included data on the following types of cancer: gastrointestinal tract (gastric, esophageal, pancreatic, colorectal, and liver); urogenital tract (prostate, ovarian, and urinary bladder); breast; lung; and oral (tongue, gum, floor, palate, and other parts of the mouth).

The methodological quality of the epidemiologic studies was measured with the Newcastle-Ottawa scale (NOS). Nine of the cohort studies were of high methodological quality, 13 of medium quality, and one of low quality. One retrospective case-control study was of high methodological quality, 21 of medium quality, and five of low quality.

The authors report conflicting results of the observational studies measuring the effect of green tea on the incidence of digestive tract cancers, except for liver cancer, for which limited evidence reported a preventive effect of green tea consumption.

Conflicting results were also found regarding the incidence of prostate and breast cancer. However, say the authors, in prostate cancer, observational studies with higher methodological quality and the only RCT suggested a decreased risk in men consuming higher amounts of green tea or green tea extracts. For breast cancer, two of the case-control studies but not three of the cohort studies suggested influence of green tea consumption on the risk of breast cancer. The authors report limited evidence in regard to the consumption of green tea and a decrease of the incidence of ovarian cancer and oral cancer in women. In contrast, there was limited-to-moderate evidence that the consumption of green tea did not have any preventative effects on lung cancer, especially in men, and urinary bladder cancer or that it could even increase the risk of the latter.

The authors found moderate-to-strong evidence that consuming green tea does not decrease the risk of dying from gastric cancer and limited-to-moderate evidence that this is also true for lung, pancreatic, and colorectal cancer.

Among the limitations of this review is the varied methodological quality of the observational studies. Also, the authors note that, based on the included studies, they could make only limited statements about the association between green tea intake and cancer incidence or mortality because most of the studies were carried out in Asia, where drinking green tea is more of a culturally based tradition than in other parts of the world. Apart from this possible location bias, the authors say, observational studies are affected by a number of variables, which may explain their controversial results.

The authors conclude that the consumption of green tea appears to be safe at moderate, regular, and habitual use and can be seen as a healthy addition to the human diet. However, they continue, "there is insufficient and conflicting evidence to give any firm recommendations regarding green tea consumption for cancer prevention."

—*Shari Henson*

**References**

<sup>1</sup>Graham HN. Green tea composition, consumption, and polyphenol chemistry. *Prev Med.* 1991;21(3):334-350.

<sup>2</sup>Weisburger JH. Tea and health: a historical perspective. *Cancer Lett.* 1997;114(1-2):315-317.

The American Botanical Council has chosen not to reprint the original article.

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