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Mega Green Tea Extract (93%)
100 capsules
Item Catalog Number: 753

Mega Green Tea Extract capsules contain an unprecedented 725 mg of either lightly caffeinated or decaffeinated 93% standardized green tea extracts, which makes it easy to obtain super-potent doses by taking only one of these low-cost capsules per day. Each Mega Green Tea Extract capsule provides 246.5 mg of EGCG…about ten times more than what is being put into commercial multivitamin supplements today.

EGCG functions as an antioxidant that is about 25-100 times more potent than vitamins C and E.16 One cup of green tea may provide 10-40 mg of polyphenols and has antioxidant effects that are greater than a serving of broccoli, spinach, carrots, or strawberries.

References

Supplement Facts

Serving Size 1 capsule	
Servings Per Container 100	
Amount Per Serving	
Green tea, powdered extract (leaf)	725 mg
Epigallocatechin gallate (EGCG)	246.5 mg
Other polyphenols	427.75 mg

Other ingredients: gelatin, magnesium stearate, rice flour.
This product contains NO wheat, yeast, gluten, corn, or dairy.
Contains NO sugar, artificial sweeteners, flavors, colors, or preservatives.

The botanical extract in Mega Green Tea Extract has been concentrated and dual standardized to ensure the highest quality, consistency, and biological activity. This advanced 93/34 extract contains 93% total polyphenols (674.25 mg per capsule) and 34% Epigallocatechin gallate (EGCG) (246.5 mg per capsule).

Dosage and Use

- Take one capsule per day with or without food.
- Take early in the day if you find that the small amount of caffeine in Mega Green Tea Extract interferes with your sleep.

Warnings

- Keep out of reach of children.
- Do not exceed recommended dose.
- Do not purchase if outer seal is broken or damaged.
- If you have a bad reaction to product discontinue use immediately.
- When using nutritional supplements, please inform your physician if you are undergoing treatment for a medical condition or if you are pregnant or lactating.

Related Keywords

Polyphenols, EGCG, Antioxidant

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LE Magazine November 2005

REPORT

Can Green Tea Protect Against Prostate Cancer?

By Coulson K. Duerksen



In recent years, a growing body of research has established the many health-promoting benefits of green tea, which may include protection against coronary heart disease, stroke, osteoporosis, infections, and other conditions.[1]



Laboratory and epidemiological studies suggest that this long-valued beverage may help prevent and manage certain cancers. Last year, for example, an article published in the prestigious British medical journal *The Lancet* (and reprinted in the January 2005 issue of *Life Extension*) noted that a review of green tea's effects on human leukemia cells "provides a strong scientific basis for the chemopreventive property of green tea that has been inferred from several epidemiological studies."[2]

According to *The Lancet* article, "the importance of nutraceuticals in cancer prevention and treatment remains largely under-exploited despite increasing evidence showing that these molecules have chemopreventive and chemotherapeutic ability . . . Green tea and other diet-derived compounds . . . offer several advantages as anti-cancer products, because these compounds are non-toxic, produce few side effects, are widely available, and are cheap."[2]

Despite mounting evidence of green tea's cancer-preventive effects published in prestigious medical journals, the FDA recently denied a petition that would have allowed companies that make green tea products to include a health claim on their product labels. The proposed health claim would have advised consumers that green tea, when ingested at certain levels, helps fight cancer. While the petitioner cited 135 studies in support of the proposed health claim, the FDA's "systematic review" considered only certain human studies while ignoring the other evidence.

In a statement released on June 30, 2005, Michael Landa, deputy director for regulation at the FDA Center for Food Safety and Applied Nutrition, wrote that the current scientific evidence from human studies does not support



the proposed health claim for green tea. He explained that while some studies showed that green tea decreased risk for breast and prostate cancers, others did not.[3]

According to Landa, “Two studies do not show that drinking green tea reduces the risk of breast cancer in women, but one weaker, more limited study suggests that drinking green tea may reduce this risk. Based on these studies, FDA concludes that it is highly unlikely that green tea reduces the risk of breast cancer.”` Landa also wrote, “One weak and limited study does not show that drinking green tea reduces the risk of prostate cancer, but another weak and limited study suggests that drinking green tea may reduce this risk. Based on these studies, FDA concluded that it is highly unlikely that green tea reduces the risk of prostate cancer.”[3] Landa also noted that the FDA excluded from its review some Japanese research on stomach cancer because dietary salt intake in Japan differs from that in the US.

In short, the FDA concluded that the existing evidence does not support a qualified health claim associating green tea consumption with a reduced risk of breast, prostate, or any other type of cancer. The agency stated that it will evaluate any new evidence that becomes available to determine whether to change its decision.

Italian Study Contradicts FDA Position

Contrary to the FDA’s claims, a breakthrough clinical trial in Italy study found that green tea indeed is effective in preventing prostate cancer in men at high risk for developing the disease.[4] Led by Salverio Bettuzzi, PhD, a team comprising researchers from two Italian universities demonstrated that green tea catechins were 90% effective in preventing prostate cancer in men with pre-malignant lesions.[4]

Prostate cancer is the second most commonly diagnosed cancer in men after non-melanoma skin cancer.[5] According to the American Cancer Society, more than 232,000 new cases of prostate cancer will be diagnosed this year in the United States alone. While often slow to develop, prostate cancer can be lethal—more than 30,000 US men will die from the disease this year.

REASONS TO INCLUDE GREEN TEA IN YOUR WELLNESS PROGRAM

Laboratory research has long shown that green tea catechins, including epigallocatechin-3 gallate (EGCG), inhibit cancer cell growth. However, results from the new Italian study—which were presented at the 96th annual

meeting of the American Association for Cancer Research in April 2005—demonstrate that green tea can prevent prostate cancer in men with pre-cancerous lesions.[4] Men at risk for prostate cancer should thus give serious thought to adding green tea or green tea supplements to their diets.

Bettuzzi and his colleagues recruited 62 men, aged 45-75, with high-grade prostatic intraepithelial neoplasia, a pre-malignant condition that leads to prostate cancer within one year in nearly one third of all cases. Excluded from the study were vegetarians, consumers of green tea or green tea products, and men who had used antioxidants or anti-androgenic therapies.[4]

Thirty-two subjects received 200 mg of green tea catechins (50% EGCG) three times daily, while the other 30 men received a placebo. Biopsies were conducted at six months and one year later. Remarkably, only one man in the treatment group was diagnosed with prostate cancer, compared to nine men in the control group who developed the disease. No side effects or adverse reactions were reported in the subjects who received the green tea catechins.[4]

Among other benefits, green tea:

1. Contains antioxidants. Antioxidants may help protect your body from the effects of aging and pollution.[1]
2. Has less caffeine than coffee. An eight-ounce cup of coffee contains about 135 mg of caffeine, while tea contains only 30-40 mg per cup.
3. May reduce your risk of heart attack and stroke. Drinking green tea may help promote cardiovascular and cerebrovascular health.[1]
4. Protects your bones. Tea drinkers appear to have a reduced risk for osteoporosis.[1]
5. Gives you a sweet smile. Tea contains tannins that may help fight plaque.[28]
6. Boosts your immune system. Drinking tea may reduce the risk of bacterial and viral infections.[1]
7. Supports your metabolism. Green tea may support weight-loss efforts and promote healthy body weight.[29]

“A projection of our data suggested that up to 90% of chemoprevention efficacy could be obtained by [green tea catechin] administration in men prone to developing prostate cancer, such as the elderly, African-Americans, and those with a family history of prostate cancer,” Dr. Bettuzzi noted. He and his team will follow the study’s participants for five years, and they hope to conduct a larger confirmatory trial in the future.

Possible Mechanisms of Action

While green tea contains numerous potential cancer-fighting compounds, studies suggest that its anti-cancer activity is primarily associated with the catechin known as EGCG. With a chemical structure similar to substances found in red wine and vegetables such as broccoli, EGCG’s superior bioavailability (or ability to be absorbed into the body) may account for its effectiveness. As to how green tea prevents cancer, the research to date indicates that green tea has several chemopreventive mechanisms of action:

- *Promoting cancer cell apoptosis.* Bettuzzi and his colleagues

found that EGCG specifically targeted prostate cancer cells for programmed cell death, or apoptosis, without damaging the benign controls. Clusterin, the most important gene involved in apoptosis, might be a mediator for catechin action, according to the researchers. Previous laboratory studies have shown that apoptosis prevents metastasis, while tumor promoters often inhibit apoptosis.[6] Thus, if EGCG induces apoptosis specifically in cancer cells, it may be very useful in the management and therapy of metastatic cancer.



- *Inhibiting 5-alpha reductase and DHT.* Other studies of green tea have shown that EGCG and epicatechin-3 gallate, known as ECG, are effective in inhibiting the enzyme 5-alpha reductase type 1, thus reducing the synthesis of dihydrotestosterone (DHT), a potent form of testosterone implicated in contributing to prostate enlargement and cancer.[7]
- *Preventing angiogenesis.* In order to grow, tumors must have an adequate blood supply provided by local blood vessels. Numerous studies show that green tea catechins, particularly EGCG, block the development of new blood vessels, a process known as angiogenesis.[8] If green tea prevents angiogenesis in human tumors, then it would explain why green tea seems to be effective in preventing so many different types of cancer.
- *Inhibiting enzymes.* In-vitro data show that in human cell lines, EGCG and ECG may inhibit enzymes that are associated with an elevated risk of colon cancer, one of the most prevalent cancers in both men and women.[9] In a Japanese study, researchers found that green tea catechins inhibited secretion of collagenase enzymes by highly metastatic lung cancer tumor cells. Collagenase enzymes may be involved in tumor cell invasion and metastasis.[10]
- *Antioxidant activity.* Green tea's antioxidant activity may help prevent cancer by impeding oxidative damage and scavenging free radicals.[11] This mechanism of action is not fully known, as the green tea polyphenols may act synergistically with other constituents of the plant.
- *Binding Heat Shock Protein 90.* Researchers from the University of Rochester in New York recently reported that EGCG from green tea targets a protein known as heat shock protein 90, which is present in higher levels in cancer cells than in normal cells.[12] Heat shock proteins enable some cancer cells to survive even in the face of toxic radiation and chemotherapy. By binding with heat shock protein 90, EGCG may help thwart cancer cell growth and survival.

Other research suggests that green tea catechins may also work by suppressing the formation of heterocyclic amines (toxic compounds created during the grilling of food),[13] supporting liver pathways and enzymes that detoxify undesirable compounds,[14,15] and behaving like methotrexate, a drug used to treat cancers of the breast, lungs, blood, bone, lymphatic system, and uterus.[16]

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REPORT

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Green Tea and Cancer Prevention

Numerous animal and human cell studies suggest that green tea catechins may act as powerful inhibitors of cancer,[17,18] particularly colon, rectal, and prostate cancers,[19,20] as well as cancers of the lung, stomach, and kidney.[21] Green tea catechins appear to be effective chemopreventive agents against a variety of carcinogens.

In addition to laboratory studies, population studies tracking the health of large groups of people who drink tea in abundance demonstrate the cancer-preventive benefits of green tea. Population studies have found reduced cancer rates in Asian countries where green tea is a dietary staple.[22,23] In one Asian study, tea drinkers were about half as likely to develop stomach or esophageal cancer as men who drank little tea, even after adjusting for smoking and other health and dietary factors[24] Japanese men, who commonly drink four to six cups of green tea daily, also have significantly lower rates of cancer incidence and mortality than Westerners.[18,25]

It has long been noted that the lung cancer rate in Japan is one of the lowest in the world, despite that nation's high rate of smoking. Data from a case-controlled study conducted in Okinawa, Japan, from 1988 to 1991 showed that the greater the intake of Okinawa tea (a partially fermented tea), the smaller the risk of squamous cell lung cancer, particularly in women.[26] These findings suggest that tea consumption has a protective effect against lung cancer in humans.

Another interesting fact relating to green tea consumption is that the cancer mortality rate in Shizuoka Prefecture, located in central Japan, is much lower than the Japanese average. As it turns out, green tea intake is even more habitual in the Shizuoka Prefecture than in other areas of Japan.[27]

FACTS ABOUT TEA

- All teas (green, black, and oolong) are derived from the same plant, Camellia sinensis. They differ in how the plucked leaves are prepared.
- Unlike black and oolong tea, green tea is not fermented, so the active constituents remain unaltered in the herb.
- Green tea contains abundant antioxidants and may be as important as fruits and vegetables to your daily nutritional intake.[30]
- To get an adequate amount of tea polyphenols, you may need 3-10 cups of green tea daily or 300-1200 mg of green tea extract in capsule form.

Conclusion

FDA regulators believe the evidence that green tea prevents cancer is insufficient to merit a limited health claim, and that, based on the “limited” research available, green tea is highly unlikely to reduce the risk of prostate or any other type of cancer.

Given the limited information available concerning the biological processes that lead to the development of prostate cancer, it is wise to examine all possible prevention strategies. While a larger, confirmatory study is needed, the Bettuzzi study shows that green tea catechins may be an excellent prophylactic agent against prostate cancer in men at high risk for the disease.[4]

Most modern medicines used to treat cancer have serious side effects, high costs, and other associated risks. Green tea, on the other hand, is safe and widely available as a beverage and a nutritional supplement. Furthermore, growing scientific evidence suggests that green tea is effective in preventing many diseases associated with aging, including prostate and other cancers.

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REPORT

Green tea: prevention and treatment of cancer by nutraceuticals

Editor's note: The following independently written article was originally published in the September 18, 2004, issue of the British medical journal The Lancet [Elsevier Lancet 2004 Sep 18;364 (9439):1021-2.] British spelling was retained in this article, which is reprinted with permission. For more information on recent research indicating the numerous health benefits of green tea, please refer to the article on page 38.

Green tea[1] has always been considered by the Chinese and Japanese peoples as a potent medicine for the maintenance of health, endowed with the power to prolong life. Recently, Yean Lee and colleagues[2] looked at the effects of the main active green tea constituent, epigallocatechin-3 gallate (EGCG) on chronic lymphocytic leukaemia B cells isolated from leukaemic patients. These cells are characterised by their resistance to apoptosis because they secrete and bind vascular endothelial growth factor (VEGF), a potent angiogenic cytokine that also acts as a crucial survival factor for tumour cells. The researchers showed that addition of EGCG to these cells markedly decreased VEGF-receptor phosphorylation, leading to the disruption of the VEGF-dependent autocrine pathway that protects the cells from apoptosis and cell death.

These results support our observations[3] on the potent inhibition of the activity of VEGF-receptor tyrosine kinase by components of green tea, and provide strong evidence that this inhibitory effect may have profound repercussions on tumours that depend on this cytokine for progression. Of considerable importance is the low concentration of EGCG required to trigger the observed biological effects, because VEGF-receptor activity can be inhibited[3] and apoptosis of leukaemia B cells can be induced[2] with concentrations of EGCG in the plasma after moderate drinking of green tea (2-4 cups a day).[4] Although more extensive investigation on the effects of this compound in patients with chronic lymphocytic leukaemia B is required, these findings nevertheless raise the interesting possibility that green tea could be used as a combination agent for treating leukaemia.

VEGF is also crucially important to tumour angiogenesis, the process by which tumours grow and invade surrounding host tissues.[5] In the initial phases of tumour growth, angiogenesis by low-dose delivery of EGCG, as seen in vitro,[3-7] could thus have beneficial in-vivo effects against several other types of cancer. This mechanism also provides a strong scientific basis for the chemopreventive property of green tea that has been inferred from several epidemiological studies which showed that frequent drinking of green tea is inversely associated with the risk of developing several types of human cancer, such as oesophageal cancer.[8]

With the notable exception of the use of retinoic acid for the treatment of



promyelocytic leukaemia,[9] the importance of nutraceuticals in cancer prevention and treatment remains largely under-exploited despite increasing evidence showing that these molecules have chemopreventive and chemotherapeutic ability. Notwithstanding the considerable progress made in the design of novel anticancer drugs in recent years, one clear lesson from the past decades of research into cancer is that, although we can treat cancer and induce remission, survival rates have changed little in most cancers. Moreover, most anticancer drugs have several toxic side effects that may produce a poor quality of life for patients and considerable cost in supportive care. Green tea and other diet-dervived compounds, such as curcumin, phyto-estrogens and carotenoids,[10] offer several advantages as anticancer products, because these compounds are non-toxic, produce few side effects, are widely available, and are cheap. It would thus be interesting to examine the beneficial effects of including green tea in the diet of patients undergoing treatment for cancer as well as in patients at high risk of recurrence, such as those in remission after treatment and those at risk for a second neoplasm.

We believe that anticancer agents designed by nature and used for several thousands of years with little toxicity may prove useful in treating and preventing cancer. Results such as those obtained by Lee and co-workers[2] show that food derived chemicals constitute a complementary source of anticancer agents.

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