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**American Institute for Cancer Research  
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**Green Tea May Give Full Body Protection**

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**AICR's most recent international conference unveiled new findings on the cancer-fighting power of green tea. Research now shows that a major component in green tea may short-circuit the cancer process more extensively than scientists had realized.**

Green tea is one of the substances in Asian diets that may provide potent protection against cancer, according to research studies. Even though green tea has yet to catch on in the U.S. and other Western countries as a daily drink of choice, a growing number of laboratories are exploring green tea's cancer-fighting effects on a cellular level.

One scientist who has spent the past several years studying a particular phytochemical found in green tea is Dr. Thomas A. Gasiewicz, Professor and Chairman of the Department of Environmental Medicine at the University of Rochester Medical Center.

**Green Tea Short-Circuits the Cancer Process**

"A unique quirk of biochemistry allows green tea's protective effects to extend to many different kinds of cells," says Dr. Gasiewicz. "In fact, one of the active green tea substances - called EGCG (epigallocatechin-3-gallate) - seems to target one protein that is common throughout our bodies. And it does so with a degree of precision that cancer drugs still aren't able to match."

This protein is called HSP90, and it is present at high levels in many cancer cells. Scientists believe that, in some circumstances, HSP90 helps to trigger the series of changes in cells that eventually lead to cancer.

However, when green tea's EGCG binds to this protein, it helps to prevent these changes from happening. "EGCG targets HSP90, binds directly to it, and keeps it from passing on signals that can start the

cancer process," Dr. Gasiewicz explains. "As a result, potentially harmful genes are less likely to get turned on." This is important, because HSP90 is present in all of our cells.

### **Solving a Diet-Cancer Mystery**

"If further research confirms that EGCG's ability to bind to such a basic protein enables it to provide protection throughout our bodies, it explains a scientific mystery," says Dr. Gasiewicz. "Studies that track the diets of human subjects over several years - particularly studies conducted in Asia, where green tea consumption is common - have associated regular usage of green tea with lower risk for cancers that are vastly different from one another."

Asian data links green tea to reduced risk for breast, prostate, bladder, colon, stomach, pancreatic and esophageal cancers. This new finding shows that EGCG may be effective against an important "common denominator" for many different cancers, at the very start of the cancer process.

### **EGCG Does What Cancer Drugs Can't Yet Do**

Green tea's EGCG acts with a natural precision that scientists have not yet been able to duplicate in a drug. Because cancer cells tend to have higher levels of HSP90 than healthy cells, pharmaceutical researchers have tried to develop a drug that keeps HSP90 from sending the biochemical signals that can trigger cancer. But nothing seems to work as perfectly as green tea's EGCG.

Unlike black tea or oolong, regular green tea leaves are baked or steamed before they can oxidize, so their EGCG level remains high. Regular green tea has more EGCG than decaffeinated green tea, although you can drink more cups of the decaffeinated kind to compensate. As for caffeine alone, regular green tea has 30 mg per cup compared to 43 mg in black tea and 135-179 mg per cup of caffeinated coffee.

### **Warm Up to Green Tea's Benefits**

An AICR telephone survey showed that Americans rarely drink green tea, even though it is higher in beneficial phytochemicals and lower in caffeine than black tea, coffee, or colas. Even those who said they drank it every day drank far smaller amounts than Asian populations.

Japanese and Chinese people drink an average of 3-4 cups of green tea daily, per person. According to the AICR survey, fewer than 1 percent of Americans are drinking the equivalent amount (roughly 2-3 American-size cups) of green tea. Nearly 7 in 10 Americans (68 percent) said they drank green tea rarely or never. By comparison, a recent scientific study reported that only 8 percent of Japanese people say they drink green tea rarely or never.

"Drinking some green tea every day is a good way to add to the cancer protection we get from eating a diet high in plant foods and low in fat and salt," says Dr. Ritva Butrum, Senior Science Advisor at AICR.

Try different kinds of green tea to find which ones you like best. More than 40 types of Chinese green tea and eight different types of Japanese green teas can be found either at specialty stores or through web sites. Create your own special brew with lemon, honey or mint.

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