

## What We Eat Can Determine Our Fate

7/10/2008



You've heard time and again how important it is to eat a healthy, balanced diet. Now researchers are discovering even more reasons why diet is so important. Certain dietary compounds may slow the spread of cancer and increase the effectiveness of current cancer treatments, potentially saving lives.

"What we eat can determine our fate," explains Daniel Sliva, PhD, senior investigator and director of the Cancer Research Laboratory at Methodist Research Institute, and the Indiana University School of Medicine. "There are a lot of different natural products in food...that are important for cancer prevention."

Dr. Sliva singled out three products—green tea, soy, and a type of mushroom—for a report published in the June issue of *Mini-Reviews in Medicinal Chemistry*. In his lab, he has investigated how these foods interfere with cancer cells' ability to multiply and spread. "There are specific molecules which are apparently active in cancer cells, and these molecules are regulating signaling in cells," he says. Signaling enables the cancer cells to grow uncontrolled and spread, and speeds the production of blood vessels that feed the cancer cells (called angiogenesis). "We can actually inhibit these signaling pathways or some enzymes that are responsible for over-activation of these pathways."

The major active compound in green tea, EGCG, affects various cancer signaling pathways, and may help reduce the invasiveness of breast, pancreatic, colon, and other types of cancer cells. What's more, EGCG has anti-inflammatory properties. Chronic inflammation has been implicated in cancer development, Dr. Sliva says.

For evidence of soy's cancer fighting ability, researchers say look to the East. Asian countries with a high-soy diet tend to have a low incidence of cancer. The main anti-cancer component in soy is genistein, which appears to slow the spread of a number of cancers, including breast, prostate, and lung cancers. One caveat is that some research has found soy might actually contribute to a higher risk of breast cancer in some women, so soy supplements should be used with caution, Dr. Sliva says.

The last natural compound in the trio Dr. Sliva studied is the Asian medicinal mushroom, *Ganoderma lucidum*, which has been used in traditional Chinese medicine to treat a variety of ailments. Its active components are polysaccharides, which stimulate the immune system, and triterpenes, which help suppress the spread of cancer cells. Researchers are investigating the mushroom's potential for preventing and treating breast, prostate, bladder, and other types of cancers.

These nutrients might also prove helpful in combination with traditional cancer treatments such as chemotherapy and radiation. For example, adding genistein to chemotherapy drugs such as cisplatin or docetaxel in the lab inhibited cancer cell growth and led to the death of more cancer cells than the chemotherapy drugs alone. Incorporating these natural compounds might cut down on some of the severe side effects that normally arise with cancer treatment. "The majority of treatments for cancer use doses that are close to toxic. We are trying to cure cancer, but may harm the patients," explains Dr. Sliva. "If you can use the natural products in combination with chemotherapy, you can lower the doses of chemotherapy and reduce side effects."

One day, soy, green tea, and other natural compounds might help researchers identify new cancer targets, Dr. Sliva says. They could also aid in the development of cancer therapies that are more effective and have fewer side effects than drugs currently available. For now, making these nutrients part of an overall healthy diet could prove a powerful cancer-prevention tool.

If you are interested in using natural products like green tea, soy, or mushroom to prevent or manage cancer, talk to your licensed health practitioner.

Source:

Sliva D. Suppression of cancer invasiveness by dietary compounds. Mini-Reviews in Medicinal Chemistry. 2008;8:677-688.

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