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**Re: Breast Health**

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**Soy *Eat one serving of whole soy foods each day to lower your risk of breast cancer by 30-50%.***

Soy is a superstar in your arsenal against breast cancer, and has been a food stable in the Asian diet for thousands of years. Asia has far lower rates of cancer than the United States does, and researchers think that eating a lot of soy may be one of the reasons. Japanese men and women eat about ten times more soy than American men and women. According to many studies, if you eat an adequate amount of soy often enough, your risk of breast cancer will drop by 30–50 percent.

**Genistein**  
There are several substances in soy that are active against breast cancer. A particular type of phytochemical (a naturally occurring plant chemical) called genistein (pronounced gen-is'-teen) appears to be one of the most important protagonists.

* Genistein is classified as a phytoestrogen, or plant estrogen, because it has a weak estrogenic effect.
* There is currently a lot of confusion and misinformation about phytoestrogens. It is important to understand that plant estrogens are **not** the same as the estrogens our body makes or synthetic estrogens found in HRT or BCP. They are very different.
* Phytoestrogens act more like selective estrogen modulators or SERMS (Tamoxifen is a SERM) and as aromatase (an enzyme used in the production of estrogen) inhibitors like the new anti-cancer drug, Arimidex.
* In other words, phytoestrogens act more like estrogen blockers rather than estrogen which I explain in more detail below.
* These types of plant chemicals act in so many complex ways that we may never fully understand them all.

**Two major phytoestrogens in soy are daidzein and genistein**.

* Genistein is the most abundant and well-researched of the three and is usually the only one that is listed on the label of soy products.
* **Research shows that genistein is *extraordinarily* effective at reducing the risk of breast cancer.**
* **It has been shown to stop tumor growth, prevent metastasis, and shut off new blood vessels in growing tumors.**

**One reason why genistein is able to prevent and fight breast cancer is because it blocks the cancer-promoting estrogens from attaching to the estrogen receptors on breast cells.** Breast cancer is a hormonal disease—which means a hormone causes the cancer to develop by inciting cells to grow and divide. For breast cancer, that hormone is estrogen. The more estrogen you are exposed to, the higher your risk of getting breast cancer is.

 Estrogens come in different strengths and behave differently.

* Strong estrogens increase your risk of cancer because they tell cells to grow and divide rapidly.
* **Phytoestrogens and other weak estrogens decrease your risk of cancer because they slow down cell division.**
* Genistein acts like a weak estrogen in the body. It blocks the effects of strong estrogens and slows down cell division.
* Genistein is very weak—in fact, **less than** **one one-hundredth of the strength of estradiol (the most potent type of natural estrogen).** **So, if genistein attaches to an estrogen receptor, the rate of cell division is only one one-hundredth of the speed that it is if estradiol attaches to the receptor. The more genistein there is to compete with estradiol, the slower the rate of cell division is and the lower your risk of breast cancer is.**

This is an extremely simplistic look at a very complicated process.

* Remember, soy is composed of hundreds of components all interacting together.
* Genistein doesn’t act alone. If it’s extracted from whole soy foods and then isolated and consumed without the other soy ingredients, it can actually have detrimental effects.

**How much soy should you consume each day to lower your risk of breast cancer?**

Experts say about 4–12 ounces of a quality soy product. However, if you want to eat less soy but still get the same or even better cancer-fighting effects, you can add certain spices.

**Add a Little Spice to Your Life**  
When you cook, you can exponentially enhance its anticancer power by simply adding a pinch of **turmeric or cumin**.

* Both of these spices defend against and sabotage the growth of breast cancer in many clever ways.
* A 1997 study from Tufts University in Boston found that when turmeric and genistein are combined, they have a synergistic effect. In other words, each one makes the other more effective.
* Researchers used certain highly estrogenic pesticides, endosulfan/chlordane/DDT, to start some tumors—estradiol for others—growing in a breast-cancer-cell line in the laboratory. Both genistein and curcumin (an active ingredient extracted from turmeric and cumin) prevented the growth of the tumor cells—but not completely. When they were added together, the effect was so strong, all tumor-cell growth stopped.

**Many studies show that young girls who eat soy products before they go through puberty have a substantially lower risk of breast cancer later in life.**

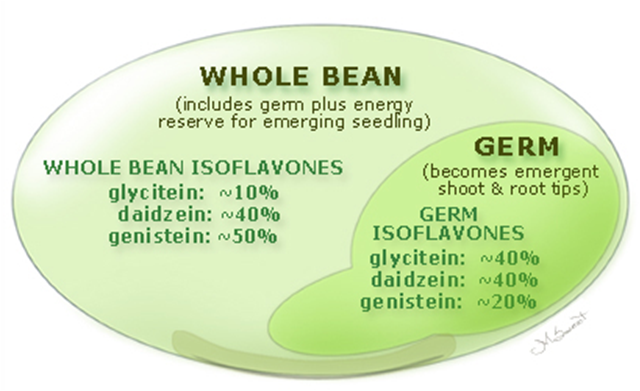
* One explanation for this finding is that a woman’s breast tissue is considered “immature” before she has had her first baby. Immature breast tissue is more sensitive to environmental toxins and other carcinogens. **Soy has been found to help mature the breast tissue, making it more resistant to environmental toxins.**
* **According to a study published in *Carcinogenesis* in 2004, exposure to soy prior to puberty triggers another protective action—it "up-regulates" the Breast Cancer 1 (BRCA1) gene, a tumor-suppression gene. In other words, soy turns on a gene that suppresses tumor growth—and keeps it on.**

**THE SOY CONTROVERSY**

* Some physicians warn their patients not to eat soy foods because they fear that soy may increase the risk of breast cancer instead of decreasing it. Their mistaken fear comes primarily from one study from the University of California, San Francisco published in October 1996. In this study, women were given 38 grams of genistein a day for one year. It’s important to note that these women were not given genistein as it occurs naturally in whole soy foods. Rather, they were given genistein that had been extracted and isolated from soy foods and prepared as a supplement—a supplement composed *only* of genistein with none of the hundreds of other nutrients in soy.
* The researchers were surprised to discover that instead of having a protective effect, the genistein supplement appeared to be harmful. After one year on the genistein supplement, the women had elevated the amounts of estradiol in their blood and their breast cells showed signs of stimulation and increased growth. This unexpected result concerned researchers. Could soy actually *increase* the risk of cancer? Hundreds of other studies show that women who eat the most soy have the lowest risk of breast cancer. So, how could a genistein isolate have the opposite effect?
* The women in the controversial study didn’t eat fresh whole soy foods. They were given an isolate of genistein—something that doesn’t naturally occur in Nature. When you isolate a substance from the whole, the isolate often behaves differently. Your body was designed to eat, digest, and metabolize fresh *whole* foods, which contain hundreds, even thousands, of substances all interacting with one another. Those interactions can be critically important. One substance may balance the effect of another, make it more or less effective, take away its toxic effects, increase its absorption, or modify how your body uses it in some important way.
* Research shows that when genistein is consumed as part of whole soy foods, it’s absorbed very differently from how it is in an isolated supplemental form. Genistein in whole soy is activated by intestinal bacteria during digestion, whereas genistein taken as an isolated supplement is absorbed *before* it reaches the bacteria in the intestines. This may be part of the reason that genistein supplements appear to have an effect different from that of whole soy foods. So, until research shows otherwise, stay away from genistein supplements and eat whole soy foods.

The latest study, which involved researchers from the National University of Singapore, Cancer Research U.K. and the U.S. National Cancer Institute, found that **women who consumed large amounts of soy had less suspicious breast density patterns on their** [**mammograms**](http://www.imaginis.com/breasthealth/mammography.asp) **that put them at a lower risk of developing breast cancer, compared to women who did not eat an abundance of soy.**

Though much research is still needed to better understand the effects of soy on breast cancer risk, this latest study provides more promising data that soy may help protect against the disease.



**Source:** US Department of Agriculture, Agricultural Research Service.

1999. USDA–Iowa State University database on the isoflavone content of foods.

URL: <http://www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isfl_tbl.pdf>

(accessed 04.23.2008).