

Soy and Breast Cancer: The Emerging Consensus

In the past few years, questions about whether soy foods prevent or promote breast cancer created a quandary for Americans who embraced soy foods as a healthy choice. Hopes that substances in soy foods might lower breast cancer risk clashed with reports saying the opposite might be true. Now, after 15 years of research, a new analysis of soy and breast cancer seems to put soy's effects in the middle.

Researchers had a hunch that natural soy compounds called isoflavones, which have effects that weakly resemble the hormone estrogen, could lower breast cancer risk. Their theory was that if isoflavones bind to estrogen receptors in breast tissue, they might block the estrogen produced in the body, which is linked to higher breast cancer risk.

But the million-dollar question was: If isoflavones have estrogen-like effects, might they also promote breast cancer? And if so, why did one study find that women in Asia who consume at least one serving of soy foods a day are about 30 percent less likely to develop breast cancer than women who only eat soy occasionally?

Some scientists thought the answer might have to do with when, in a person's lifetime, soy is consumed. Estrogen hormones produced in the body can promote growth of cancerous (and pre-cancerous) cells. After menopause, women's ovaries no longer produce estrogen. But body fat still boosts estrogen levels. Researchers have found that the more body fat a woman has after menopause, the higher estrogen levels are, so that breast cancer risk is higher. Could that mean older women who are overweight or have other risk factors for breast cancer should avoid soy?

The Asian population studies looked at women who had eaten soy from an early age. Researchers are studying the effects of soy consumption on girls and teens theorizing that adolescence may be a time when soy isoflavones convey a unique structural change to breast cells, making them more resistant to cancer later in life. Also, interpretation of other animal and test tube studies may have been skewed by the large amounts of isoflavones used in these experiments – equivalent to five to sixteen times the amount commonly consumed in Asia. As a result, soy's effects on cell growth in a lab may not be the same as amounts that humans consume from food.

Soy Far, Soy Good

The new analysis, published in June's *Nutrition Journal*, concludes that soy isoflavones' estrogen-like effects are probably too weak to have any significant consequence on breast tissue in healthy women – even breast cancer survivors. Research continues to investigate soy's effects on human health, but there seems to be enough evidence now for some solid advice if you want to eat soy foods. Here's the current advice based on all the research to date:

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- Soy consumed at normal dietary levels – one or two servings of whole soy foods daily (up to 100 milligrams of isoflavones) – is probably safe for most women. One serving of soy foods equals 8 oz. of soymilk, 4 oz. of tofu or tempeh or a half-cup of green soybeans (edamame).
- As a precaution, women receiving anti-estrogen treatments should minimize soy foods and avoid isoflavone supplements.
- Evidence does not support adding soy to your diet to help prevent breast cancer. But soy is still a healthful choice. It is low in saturated fat and high in nutrients, fiber and antioxidant phytochemicals.

The bottom line is: It's your overall diet that counts. Soy is a good way to get more plant protein, but it's one food, not magic. So don't expect it to single-handedly protect you from breast cancer and don't avoid it out of fear that it will be solely responsible for increasing your risk. It fits into a healthy diet that is high in a wide variety of plant foods.

The Many Shapes of Soy

You can find soy in many forms, including the following.

Edamame: immature green soybeans are good in a salad and as a snack; available in the freezer section or fresh in the produce section.

Soymilk: the liquid from soaked, ground soybeans, works well on breakfast cereal; sold in shelf-stable boxes or refrigerated in the dairy section; flavored or plain, and in regular or low fat versions, fortified with calcium and vitamins D and B-12

Tofu: soft, firm and extra firm textures for different types of recipes (i.e., soft tofu can be used in a pudding or scrambled like eggs, while firm can be cut into chunks and stir-fried or grilled); found in the produce section, sometimes pre-seasoned

Tempeh: a tender but firm cake that can be used in dishes like stir-fries, kabobs, sloppy joes and burritos; available frozen, refrigerated or in the fresh produce section

Miso: a fermented Japanese paste added to soups and sauces; in the international foods section.

Soy imitations: from hot dogs to cheese to sausage, soy substitutes may stand in for animal products although may be high in non-saturated fats

How about foods containing soy lecithin? These foods, which include soy sauce and soybean oil, should not be counted among soy foods. Foods containing soy lecithin (an emulsifier used in lots of processed foods) should not be considered a source of isoflavones.

