

## Soy and breast cancer; an end to the controversy

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*Translated from Le Journal de Montréal, April 10, 2017*

*A recent study has confirmed, yet again, that the regular consumption of soy does not pose any risk for women who have had breast cancer and that it even diminishes the risk of the cancer's recurrence.*

Foods derived from **soy** (edamame, tofu, miso, tempeh) have, for at least 3000 years, been part of the culinary traditions of Asian countries due to their nutritional and medicinal values. Aside from being an excellent source of protein and of complex carbohydrates (like most other beans), soy is also notable for its exceptional content of isoflavones, a group of polyphenols whose molecular structure resembles that of estrogens and which are consequently also known as "phytoestrogens".

Due to this structural similarity, these phytoestrogens act as antiestrogens and could thus interfere with the development of cancers whose growth depends on these hormones, notably breast cancer; this is an antagonistic effect. This phenomenon is of considerable importance because women in Asian countries, who regularly eat soy, have an incidence of breast cancer that is much lower than that seen in Western women who eat far less soy. The data currently available indicate that the consumption of soy during childhood and adolescence is most directly associated with this diminished risk<sup>1</sup>.

### FALSE CONTROVERSY

Over 75% of breast cancers are diagnosed in women over the age of 50 and, in the vast majority of these cases, the cancers are dependent on estrogens. Despite the very well documented protective effects of soy in young women, it has been feared that the ability of these isoflavones to interact with the estrogen receptor could promote the development of mammary tumors in menopausal women (who have low levels of estrogens) or in women who have been diagnosed with a breast cancer; this is what is called a positive agonist effect.

However, numerous studies performed in recent years have clearly shown that regular consumption of soy in women who have experienced breast cancer is absolutely without danger and is even associated with a significantly smaller risk of recurrence of this disease.

For example, survivors of breast cancer who regularly eat soy-based foods showed risks of recurrence and mortality that were decreased<sup>2</sup>, all without interfering with the medicines currently used to diminish the risk of recurrence (tamoxifen or anastrozole). These observations were confirmed by another study which studied 6235 women who had been diagnosed with breast cancer and, in



this study, the researchers observed that women who consumed more soy had a risk of premature death that was 21% lower than that in the subjects who ate little or no soy<sup>3</sup>.

The take-home message is quite clear: the controversy around soy is groundless and the consumption of soy is actually quite beneficial even for breast cancer survivors.

### NO SUPPLEMENTS

The isoflavones of soy are present in significant quantities within the beans themselves (edamame), in tofu and even in miso, and these foods represent simple, fast and economical ways to take advantage of the anti-cancerous activity of these molecules. Soy milk, little consumed in Asia, is an industrially processed product which is not a good source of these molecules.

Moderate consumption of soy (about 50-100 g per day) allows the absorption of 25-40 mg of isoflavones, which produces the positive effects on health in the general population as well as in women who have been diagnosed with breast cancer. For young girls, addition of soy to their dining habits could prove to be particularly beneficial because it is the duration of the exposure to isoflavones which seems to be the most important parameter in diminishing the risk of breast cancer.

We should, however, avoid supplements which can contain up to 100 mg of isoflavones per pill, a quantity much larger than that obtained through food. As if often the case, an excess of something can be as bad as too little.

- (1) Lee SA et al. Adolescent and adult soy food intake and breast cancer risk: results from the Shanghai Women's Health Study. *Am. J. Clin. Nutr.* 2009;89:1920-1926.
- (2) Shu X et al. Soy food intake and breast cancer survival. *JAMA* 2009;302:2437-2443.
- (3) Zhang FF et al. Dietary isoflavone intake and all-cause mortality in breast cancer survivors: The Breast Cancer Family Registry. *Cancer*, published online March 6 2017.