



This monograph was prepared by The Ottawa Integrative Cancer Centre (OICC), in collaboration with the Complementary Medicine Education and Outcomes (CAMEO) Research Program. It is part of a series of monographs being developed to share results of a review of the research evidence related to common therapies and products used within cancer patient care.

The following monograph is designed to summarize evidence-based research and does not advocate for or against the use of a particular therapy. Every effort is made to ensure the information included in this monograph is accurate at the time it is published.

Please note that this monograph does not include an exhaustive list of all potential adverse events; individuals may experience unique side effects. The information in this monograph should not be interpreted as medical advice nor should it replace the advice of a licensed health care provider. Prior to using a new therapy or product, always consult a licensed health care provider.

For the safe use of natural health products, please consider the following:

- Consult a licensed health care provider prior to using a natural health product and make a plan to monitor its effectiveness and any side effects. This is particularly important for pregnant or breast-feeding women and people with serious medical conditions.
 - To help prevent interactions with your prescribed medication, ensure your health care provider is aware of any drugs or natural health products you may be using. Make sure to note all natural health ingredients listed in compound products.
 - Read and follow all instructions on the product label.
- If purchasing natural health products in Canada, look for Health Canada approved products. Look for Natural Product Number (NPN) or Homeopathic Medicine Number (DIN-HM) on the label to identify licensed products. Avoid internet pharmacies, as the quality of products cannot be guaranteed and products might not be licensed for sale through Health Canada. For more information, visit <http://www.hc-sc.gc.ca/dhp-mps/prodnatur/about-appropos/cons-eng.php>

Please note: While the aim was to draw from the most extensive research, in some circumstances the information used was limited by the selection and caliber of available research studies. Full references are available in the corresponding full-length monographs found on the OICC website.

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Patient Resource: Breast Cancer

Soy and Soy Isoflavones



Overview

Soy is derived from soybeans and is commonly used for the treatment of hot flashes and the prevention of breast cancer and breast cancer recurrence. Soy is thought to modulate the effect of estrogen. Research suggests soy may have a modest effect on hot flashes. Higher soy consumption might also reduce the risk of developing breast cancer. There is limited evidence regarding the interaction between soy and hormone therapies such as Tamoxifen. Soy should only be used as recommended by your health care provider.

What is soy?

Soy comes from soybeans, also known as *Glycine max*. Soy may be taken in several forms including soy foods such as soybeans, edamame, tofu and soy milk; as a soy-based protein powder; or as soy isoflavone-based supplements available in capsule form.

What is soy used for?

Taken orally, soy is commonly used for the management of hot flashes and the prevention of breast cancer and breast cancer recurrence.

Does soy work?

Research from 5 controlled studies suggests that soy may have a modest effect on hot flashes, although the effects might not be different from those seen with placebo. Many, but not all, studies suggest that higher soy food consumption, equivalent to 1-3 servings per day, may reduce the risk of developing breast cancer. Soy does not seem to increase the risk of developing breast cancer. While less evidence exists regarding the effect of soy on breast cancer recurrence, 2 of 4 studies showed a reduced risk of recurrence with higher soy consumption. Importantly, no studies have found an increased risk of recurrence from consumption of soy. The results of many studies in healthy women and patients with breast cancer suggest that soy does not appear to have estrogen-like effects on hormonally-responsive tissues such as the breast or the uterus, and does not increase blood levels of estrogen.

How does soy work?

The precise way in which soy works is not clear. The active ingredients are called 'isoflavones'; these include genistein, daidzein, and glycitein. Isoflavones are thought to modulate the activity of the female hormone estrogen in the body. While soy does not increase blood levels of estrogen, it may act to inhibit the effects of estrogen on the cells.

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What are some possible side effects of soy?

The most common side effects of soy reported in human studies are mild gastrointestinal side effects. However, these effects were generally equally reported by people in both soy and placebo groups.

Is soy safe?

According to the American Cancer Society, soy foods are safe for women with breast cancer when consumed in dietary amounts (2-3 servings per day). Due to lack of data regarding long-term use, caution should be used by women on hormonal therapy (anti-estrogen) with regards to using concentrated isoflavone isolates or supplements. You should avoid using soy if you have a known or suspected soy allergy or intolerance.

Safety specific to hormone-sensitive cancers

Research from a large body of evidence in breast cancer patients and healthy women shows that soy does not have estrogenic effects. A total of 33 randomized controlled trials and nine uncontrolled trials assessed the impact of soy food and/or soy isoflavones on blood estrogen levels as well as effects on tissue responsive to estrogen including the uterine lining and menstrual cycle changes, breast density and nipple fluid volume, or vaginal cells. Results indicated that soy is not likely to have estrogen-like effects on these hormonally responsive tissues.

Are there any interactions with soy?

The main concern with the use of soy in breast cancer is the potential for interactions with hormone therapies (anti-estrogen) such as Tamoxifen or Anastrozole, due to limited research. So far, the evidence from 4 large studies suggests that consumption of soy foods does not interact with these medications, and may further decrease breast cancer recurrence and death. However, until more data are available, caution is necessary. Women should consult their health care provider prior to taking supplements.

If you choose to use soy:

Research suggests consuming 2-3 servings of soy foods per day as part of a healthy diet. Alternatively, the recommended amount per day for isoflavones supplements is 40mg.

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