

IN EVERY ISSUE

Soy Story

BY LENA HUANG

Sorting out the effects of soy products on breast cancer cells.

There has been much discussion on the possible connection between the high consumption of soy products and the low incidence of breast cancer in Asian countries. Soy products contain phytoestrogens, plant compounds that have a similar structure to estrogen and bind to the estrogen receptor.

One theory is that phytoestrogens act like estrogen, possibly fooling the body into producing less estrogen or making the estrogen receptor less active than when it binds to natural estrogen.

Patients with a history of breast cancer may choose to consume products high in phytoestrogens, hoping they may protect against recurrence. Others believe phytoestrogens can act as a natural hormone replacement therapy and can alleviate menopausal symptoms, such as hot flashes, without the side effects of traditional synthetic hormones.

Although there seems to be some connection, the association is still not clear with some studies showing a protective effect and other research revealing stimulatory effects to breast cancer cells in vitro.

“All information that is floating around in the literature is short-term, anecdotal cell-culture and/or animal experiments, not a human intervention trial for the prevention of breast cancer,” says Fazlul Sarkar, PhD, professor of pathology at Wayne State University School of Medicine. “A good longitudinal study needs to be done using higher doses of isoflavones (a type of phytoestrogen present in soy) to see if it can prevent the disease.”

Until more studies are completed, Sarkar advises patients to consult with their physicians about their consumption of soy. And while Sarkar notes that no studies have shown that consumption of naturally occurring soy products, such as tofu, causes any adverse effects, consuming pure soy supplements to achieve higher levels of phytoestrogens could have negative results, such as possibly stimulating breast cancer cell growth.

Jeffrey Tice, MD, assistant professor of general internal medicine at the University of California, San Francisco, agrees that consumption of soy foods is fine and may be beneficial for patients and survivors as part of a healthy, low-fat diet, but, “I would not recommend starting pills containing large amounts of phytoestrogens derived from soy or any other source.”

A 2007 review of studies based on soy and cancer in *CA: A Cancer Journal for Clinicians* concluded that women who are either at high risk for or who survived breast cancer should avoid consumption of high-dose isoflavone supplements, and that some of these supplements “may have detrimental effects compared with soy flour and tofu.” This review also cautions women taking tamoxifen against the use of high-dose soy supplements, as some animal studies have shown an interference with tamoxifen’s ability to slow or stop breast cancer growth.

There are many types of phytoestrogens, but the commonly known types include lignans, coumestans, and isoflavones. Lignans are found in the wood portion of plants and seed coats. Flaxseed is an example of a popular lignan. Coumestans are found in red clover and bean sprouts. Isoflavones are found in red clover and in legumes, such as chickpeas and green peas, and are highly concentrated in soybeans. Soy products, such as tofu and tempeh, may have lower concentrations of isoflavones depending on how the products were processed.

Because they are high in protein, soy products are a common substitute for meat, especially in vegetarian diets. As part of a balanced diet that is low in saturated fats and high in vegetables and fruits, consuming naturally occurring soy products is likely harmless. One area of emerging research is the importance of diet in the recurrence of breast cancer.

“There is reasonable randomized clinical trial evidence supporting the use of a low-fat diet to reduce the risk of breast cancer recurrence,” Tice says. “Soy foods can be a tasty and versatile source of protein in low-fat diets.”