

Soy and Your Health

PHYSICIANS COMMITTEE FOR RESPONSIBLE MEDICINE

5100 WISCONSIN AVE., N.W., SUITE 400 • WASHINGTON, DC 20016
PHONE (202) 686-2210 • FAX (202) 686-2216 • PCRM@PCRM.ORG • WWW.PCRM.ORG

What are soy foods?

Soy products have recently enjoyed increasing popularity. In addition to soybeans themselves (sold fresh as edamame, but also available dried or canned), soy products include soymilk, tofu, tempeh (made from fermented soybeans and grains), miso (soybean paste), and vegetarian meat and dairy substitutes, such as soy meats and soy cheeses. Soy can contribute a number of nutrients to a healthy balanced diet and evidence suggests that soy offers certain health advantages. Like most other plant foods, the most healthful choices in soy foods are those that are minimally processed so they retain all of their original nutrients.

Is soy required for a healthy vegetarian diet?

Variety is important in a healthy diet that is based on beans, vegetables, grains, and fruits. Soy can be part of that variety. A healthy vegan diet does not need to include soy foods to be nutritionally complete. People who like soy's taste or versatility but avoid it due to allergy or other reasons will find many good substitutes. Rice milk, for example, is similar to soymilk. Beans or seitan (a meat substitute made from wheat gluten) substitute well for tofu and tempeh in meals.

Soy products can make eating a vegan diet easier for some people. Soy products make convenient and tasty substitutes for meat and other unhealthy foods that people, quite rightly, are looking to avoid. But incorporating a variety of vegan protein sources in the diet will allow you to get a variety of nutrients that soy doesn't contain.

Health benefits and soy

Many people are including soy foods in their diets because of the reputed health benefits. Some of these findings include the following:

- Epidemiological studies have found that soy protein may reduce the risk for cancers including breast, colon and prostate.¹
- Soy protein has been shown to be useful for heart disease due to its ability to lower cholesterol, enhance coronary artery function, and reduce other heart disease risk factors.^{2,3,4} After reviewing the evidence for soy protein's effect on cholesterol, the Food and Drug Administration allowed the food industry to place the health claim that 25 grams of soy protein may lower cholesterol on labels of foods containing soy protein.

- Soy foods have been found to have a favorable effect on bone mineral density through the isoflavones it contains in addition to soy protein intake, which reduces the amount of calcium lost in the urine when compared to animal protein intake.⁵

It is important to remember that the benefits seen in soy food consumption in epidemiological studies may be due, in part, to people replacing meat, chicken, dairy, and eggs with plant protein sources. Consuming some soy as part of a vegan diet based on whole grains, fruits, vegetables, and legumes will allow for far more benefits than just adding soy to a diet with animal products in it.

Soy and Alzheimer's disease

A prospective study found that Alzheimer's disease rates were slightly higher in individuals in Hawaii who had consumed significant amounts of tofu throughout their lives.⁶ There may be a number of reasons for this result that do not have any relation to soy products. Tofu in Hawaii may have higher levels of aluminum, which may be linked to Alzheimer's disease, than in the rest of the United States. But this study did not measure aluminum levels, so no other correlations were made. Also, countries in Asia where soy intake is high do not have a high rate of Alzheimer's disease. In fact, despite the high intake of soy in Okinawa, Japan, rates of dementia are much lower than those in this country.^{7,8,9} Some researchers have suggested that the tofu consumption in this study may be a marker for another factor that contributed to the higher rate of cognitive decline.¹⁰ Since only one study has found a possible correlation between soy and cognitive function, it cannot yet be concluded that soy poses a risk. The research is clearer, however, that a healthy lifestyle based on a diet of plant foods, exercise, and mental stimulation is associated with reduced risk of dementia in aging.^{11,12}

Soy and thyroid function

Some researchers have speculated whether soy consumption may influence thyroid function. The results of human studies on the effects of soy consumption on thyroid function have not found that soy causes thyroid problems in people who are healthy and meeting their nutrient needs for iodine.^{13,14,15}

It is important to keep in mind that the mineral iodine plays a crucial role in proper thyroid function. Kelp and other seaweeds are rich in iodine and other minerals and are low in sodium. Iodized salt contains about 150 mcg of iodine per ½

teaspoon of salt. Other sources include fruits and vegetables grown in coastal soil, drinking water, and commercially prepared baked goods made with dough conditioners that contain iodine. Most multi-vitamins also contain iodine. The recommended daily intake for iodine is only 150 mcg per day.

Soy and breast cancer

Researchers believe that certain chemicals in soybeans called isoflavones are responsible for the reduced risk for breast cancer among Asian women.¹⁶ Isoflavones are phytoestrogens (phyto means "plant"). They keep estrogen levels under control, as they can act like a weak estrogen when body estrogen levels are low and can inhibit estrogen's effects when body estrogen levels are high.¹⁷

The question of whether soy consumption may contribute to an increased cancer risk due to estrogenic effects has been raised.^{18,19} However, there is evidence that consuming soy at a young age reduces cancer risk later in life.²⁰ Other studies have found no effect or a favorable effect on breast tissue density in women consuming soy.²¹ For women who have had breast cancer, however, it may be prudent to restrict soy until further research reveals otherwise.

Soy and reproductive health

There is no evidence that soy negatively affects reproductive health. Studies in male and female reproduction found soy was no hindrance to reproduction.^{22,23} Also, adults who were fed soy formula as infants had the same level of reproductive health as adults who were fed cow's milk formula.²⁴

Other concerns

Some other questions about the consumption of soy foods include the following:

- Many people think that by adding soy to a diet that contains meat, fish, chicken, eggs, and dairy products they are making their diet healthier. However, a healthy diet that is high in fiber, low in fat, and without cholesterol, is a plant-based diet, since only animal products contain cholesterol.
- People who emphasize soy products, such as veggie meats, and miss out on a variety of beans, grains, fruits, and vegetables, should enlarge their diets to include these foods. Also, it is useful to remember that the more we mimic a meat and dairy diet by using soy products that are altered in various ways for flavor and mouth-feel, the further away we get from healthier foods.
- Some soy products can be high in fat. This can be a problem for someone trying to lose weight or maintain a weight loss.

Conclusion

Soy has many attributes that make it useful for those transitioning to healthful diets, although it is quite easy to follow a healthy, low-fat, vegan diet without using soy. For those who

prefer to add soy products to their diets, it is prudent to emphasize the least processed sources of soy, such as edamame, tempeh, tofu, and soymilk, as part of a diet that includes other legumes, whole grains, fruits, and vegetables. Other soy products, including vegetarian meat and dairy substitutes, may be helpful for people who are making healthful changes from meat- and dairy-based diets.

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