

Phytoestrogens

Phytoestrogens are plant compounds with structures similar to estrogen, which give them the ability to cause estrogen-like effects on the body. Examples include:

- **Isoflavones** from soy, lentils, and legumes
- **Lignans** from flaxseed, cereal grain, and vegetables
- **Coumestans** from red clover, sunflower seeds, and bean sprouts

Research on phytoestrogens has been promising yet inconsistent in showing improvements in menopausal symptoms. The variation in therapeutic effects of phytoestrogens in the treatment of menopause may be influenced by a woman's intestinal bacteria and its ability to metabolize phytoestrogens into therapeutic substances in the body (i.e. converting daidzein into equol).¹

Hot Flashes. The North American Menopause Society's isoflavones report from 2011 concluded, "there are mixed results of the effects on midlife women. Soy-based isoflavones are modestly effective in relieving menopausal symptoms."² Multiple meta-analyses have documented improved frequency of hot flashes with use of isoflavones in doses ranging from 50-100 mg daily.^{1,3-6}

Vaginal Dryness. Soy isoflavones showed improvement in vaginal symptoms (dryness, irritation, painful intercourse) when compared to control in a systematic review of 17 trials.⁷

Overall Health. A systematic review of 23 randomized controlled trials concluded that phytoestrogens likely have beneficial effects on bone health in menopausal women.⁸ A meta-analysis showed that soy isoflavone supplementation (60-120 mg/day) has a positive effect on cognitive function and visual memory in postmenopausal women.⁹

Some women may find that eating a diet high in phytoestrogens helps their menopausal symptoms, in addition to providing other health benefits. In some Asian cultures, where women consume 50-200 mg of isoflavones daily, hot flashes are rare as compared to Americans, whose typical diets contain only 3-5 mg daily. Soy, in particular, improves cholesterol levels and is a great plant source of protein. The highest quantities of isoflavones are found in less-processed foods and fermented soy products. The best food sources include soybeans or edamame, soy nuts, tofu, tempeh, and miso (refer to Table 1).

TABLE 1. AMOUNT OF ISOFLAVONES PER SERVING OF SOY

Soy product	Approx. amount of isoflavones (milligrams)
Tofu, 3 ounces	20
Soy beans, ½ cup	47
Soy milk, 8 ounces	30
Miso, ½ cup	59
Tempeh, 3 ounces	37

Flaxseed is another great source of phytoestrogens, fiber, and alpha-linolenic acid (a source of omega-3 fatty acids). As opposed to flaxseed oil, the seeds must be ground in order for them to be adequately digested. They can be sprinkled on salads, yogurt, smoothies, or cereal. A small study of 30 women showed that eating 2 tablespoons of flaxseed twice daily decreased their total number of hot flashes by half after six weeks. Hot flash intensity also decreased.¹⁰

Women may consider maximizing these healthy foods in their diets, with a goal of 50-100 mg of isoflavones daily. These foods may cause some bloating and increased gas, so intake should be increased gradually. Refer to the section below for a list of foods high in phytoestrogens.

Historically, women with estrogen-sensitive conditions were counseled against high isoflavone intake due to the concern of stimulating cancer growth. Population studies suggest that dietary soy is protective against breast and uterine cancers.¹¹ Women with a history of breast, ovarian, or uterine cancer should discuss with their oncologist before using isoflavone supplements. For more information on the use of soy, a particular type of phytoestrogen and its use in breast cancer, see the "[Cancer Care](#)" overview.

TABLE 2. FOODS HIGH IN PHYTOESTROGENS

Vegetables	Fruits	Beans	Grains	Seeds and Nuts
<ul style="list-style-type: none"> winter squash green beans collard greens broccoli cabbage alfalfa sprouts 	<ul style="list-style-type: none"> dried prunes peaches raspberries strawberries 	<ul style="list-style-type: none"> soybeans lentils navy, kidney, pinto beans 	<ul style="list-style-type: none"> wheat rye oats barley 	<ul style="list-style-type: none"> flaxseed sesame seeds pistachios sunflower seeds almonds

Resource Links

- [Cancer Care](https://www.fammed.wisc.edu/integrative/resources/modules/cancer-care/): <https://www.fammed.wisc.edu/integrative/resources/modules/cancer-care/>

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