



## RD Resources for Consumers:

# Safety of Soyfoods

**Soyfoods can play an important role in vegetarian diets. Tofu, tempeh, soymilk, and foods made from soy protein are good sources of a number of nutrients.**

These foods may also have key health benefits. However, articles in magazines and on the Internet have raised questions about the safety of soyfoods. These questions focus on soy isoflavones and the absorption of minerals from soyfoods.

## Soy Isoflavones

Isoflavones are plant estrogens, also known as phytoestrogens. They are not, however, the same as the hormone estrogen. In some parts of the body, isoflavones act like estrogen while in others, their effect is the opposite of estrogen. This means that isoflavones may provide some benefits of estrogen without the hormone's harmful side effects.

### Effects in Men

Two men who ate very high amounts of soyfoods—as many as 14 to 20 servings per day—experienced some feminizing effects. But studies of men who eat more usual amounts of soy show no such effects. In fact, even when men ate 6 servings of soy per day, which is much more than the usual Asian intake of 1 to 3 servings per day, there were no effects on testosterone levels. Studies also show that isoflavones have no effect on sperm or semen.

### Effects on Breast Cancer

While estrogen therapy may increase breast cancer risk in older women, most research shows that soy isoflavones don't have this effect. In fact, eating



soyfoods is linked to better prognosis in women who have breast cancer. Additionally, young girls who eat soy may have a lifelong lower risk of breast cancer.

### Thyroid Function

Soyfoods have no effects on thyroid function in healthy adults. This is true even when people regularly consume soyfoods for several years. A small number of people with poor thyroid function who are not taking medication may need to monitor their thyroid when first adding soyfoods to their diet to see if any changes in thyroid function occur. Those who take thyroid drugs, however, can safely consume soyfoods as long as they consistently eat about the same amount of soy each day. Changes in soy intake may require small changes in thyroid medication since soy protein affects medication absorption.

### **Cognitive Function**

In one study in Hawaii, men who ate tofu were more likely to have impaired cognitive function. Other studies have not found this to be the case. A recent panel of experts concluded that the research in humans suggests that soy has some benefit on cognitive function in women younger than age 65. However, a recently published 3-year intervention study found that isoflavone-rich soy protein had no impact on cognitive function in postmenopausal women.

### **Soyfoods in Diets of Children**

In Japan, tofu and miso soup are common baby foods. Babies usually begin to eat soyfoods between the ages of 6 and 12 months. They continue to eat soyfoods throughout childhood. As mentioned previously, early intake of soyfoods in girls may reduce breast cancer risk later in life.

As with adults, clinical research in children shows that soy protein directly lowers serum cholesterol levels. In two small studies—one looking at teenage boys and the other looking at children—there was no hormonal effect of isoflavones.

### **Soy and Nutrient Absorption**

Soybeans, like all beans and whole grains, contain compounds that bind to minerals such as calcium, iron, and zinc, and lower their absorption. However, the iron in soyfoods appears to be in a form that makes it well-absorbed. In one study, women who ate 2 to 3 servings of soy per day had similar iron status to women eating meat.

Calcium is also absorbed well from soyfoods. In most brands of calcium-fortified soymilk, calcium absorption is similar to that from cow's milk. Calcium is also well-absorbed from calcium-set tofu.

Raw soybeans also contain enzyme inhibitors which can impact the digestion of protein. Cooked and fermented soyfoods have lower levels of these compounds, however.

### **Soy and Nutrient Absorption**

Soyfoods have been consumed in China for at least 1,500 years and in Japan for at least 1,000 years. In Japan, people consume about 1 to 1½ servings of soy per day. Many older people who eat more traditional diets eat 2 to 3 servings per day. A serving is ½ cup of tofu or tempeh or one cup of soymilk.

Many types of soyfoods including tofu, miso, tempeh, soymilk and whole soybeans are consumed throughout Asia today. Based on studies of soyfoods and Asian diets, Western vegetarians can safely consume as many as 3 servings of soyfoods per day as part of a varied diet.

A registered dietitian can help you develop a healthy vegetarian eating plan that meets your needs. To find an RD in your area, visit [www.eatright.org](http://www.eatright.org).

### **Resources**

For more information on the safety of soy, go to:

[http://www.veganhealth.org/articles/soy\\_wth](http://www.veganhealth.org/articles/soy_wth)

