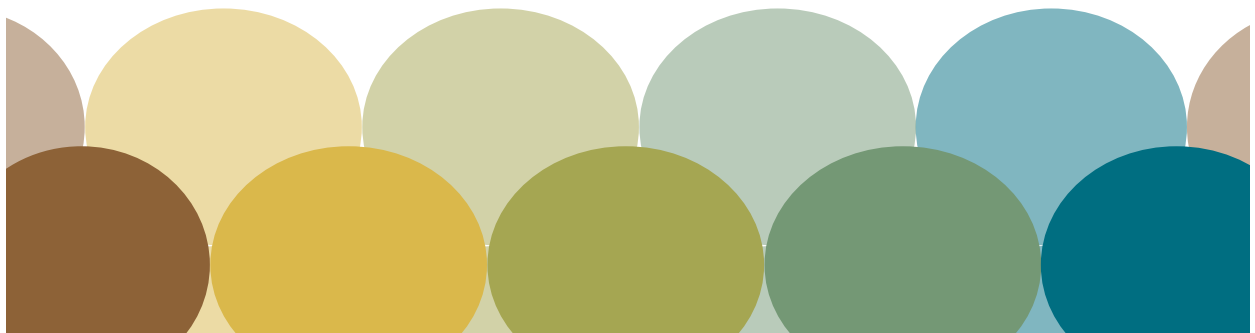


# *Soyfoods*

AND YOUR HEALTH





## Soybean History

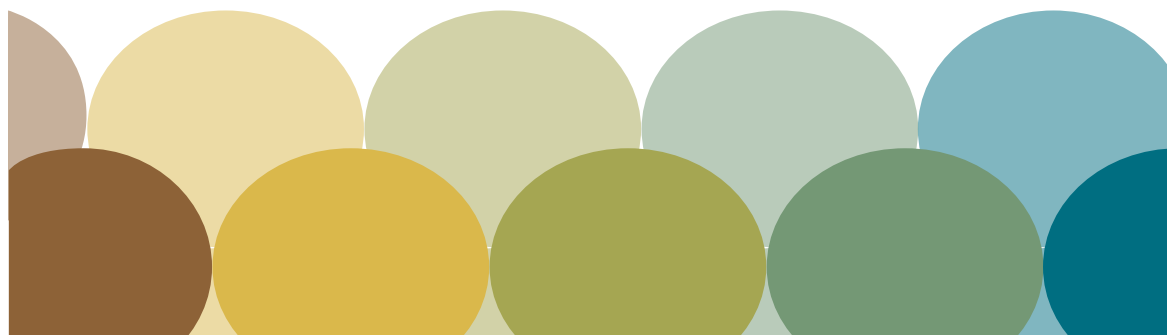
Soybeans were first domesticated in Northern China around the 11th century B.C., and within 1500 years had been introduced throughout much of Southeast Asia. Today, a wide variety of soyfoods are important in the cuisines of Japan and many parts of China. Japanese adults consuming traditional diets obtain about 10 percent of their protein from soyfoods which translates to about 1 ½ servings of soyfoods per day. However, for many people in Japan, intake is much higher than this.

Soybeans arrived in Europe and North America sometime in the 1700s. Today, more than 70 million acres of U.S. farmland are planted with soybeans. While the vast majority of soybeans produced in the United States are used for animal feed, soyfoods are growing in popularity as more people learn about their nutritional and health attributes. Historically, soyfoods have been valued for their nutrient content, but today there is increasing interest in their role in disease prevention.

## Soyfoods are Good Nutrition

A serving of soyfoods provides approximately 7 to 15 grams of high-quality protein or as much as 12 to 25 percent of daily protein requirements for the average adult. Like all plant proteins, soybeans provide all of the essential amino acids. However, the amino acid pattern in soy protein comes closer to meeting human requirements than other plant proteins, and in fact, the quality of soy protein is comparable to animal proteins. Unlike many commonly-consumed protein-rich foods, however, soyfoods are low in saturated fat.

Soyfoods are also a good source of minerals such as potassium, vitamins such as folate, and, depending on processing, they can provide significant amounts of fiber and calcium. In addition, some commercial soy products such as soymilk are fortified with calcium, vitamin D, and vitamin B12.



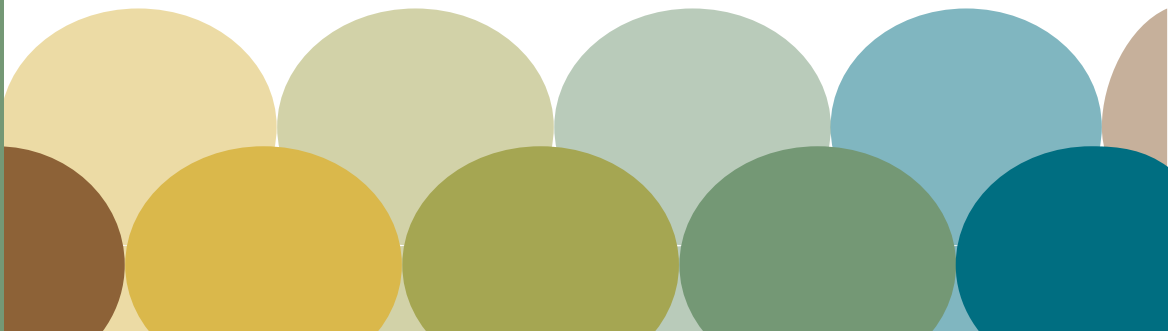
## Soyfoods Provide Isoflavones

Plant foods are rich in bio-active compounds called phytochemicals. These plant chemicals are not nutrients since they are not required in diets. However, they are thought to have important health benefits, especially in relation to providing protection against chronic diseases such as cancer and heart disease.

Many of the phytochemicals are classified as phytoalexins, which are compounds produced by plants for their own defense. But as researchers now understand, these chemicals also protect the humans who eat them. Soybeans are essentially the only commonly-consumed food to contain meaningful amounts of one group of phytochemicals called isoflavones. Isoflavones have been intensely investigated for 20 years since the US National Cancer Institute first began studying them for their role in preventing cancer. Since then, isoflavones have been studied for a wide range of health benefits including those related to bone health, heart disease, and menopausal hot flashes.

Isoflavones are commonly referred to as phytoestrogens (plant estrogens) because they have a chemical structure that is similar to —although not exactly the same as— the hormone estrogen. But isoflavones are different from estrogen in many important ways, and are considered to be natural SERMs, which are compounds with “selective” estrogen-like effects. SERMs act like estrogen in some parts of the body, but have effects that are opposite to those of estrogen in other parts. And some tissues that are affected by estrogen are not affected one way or the other by SERMs such as isoflavones. Because of their selective effects, isoflavones may have some of the same benefits of estrogen without the harmful effects.

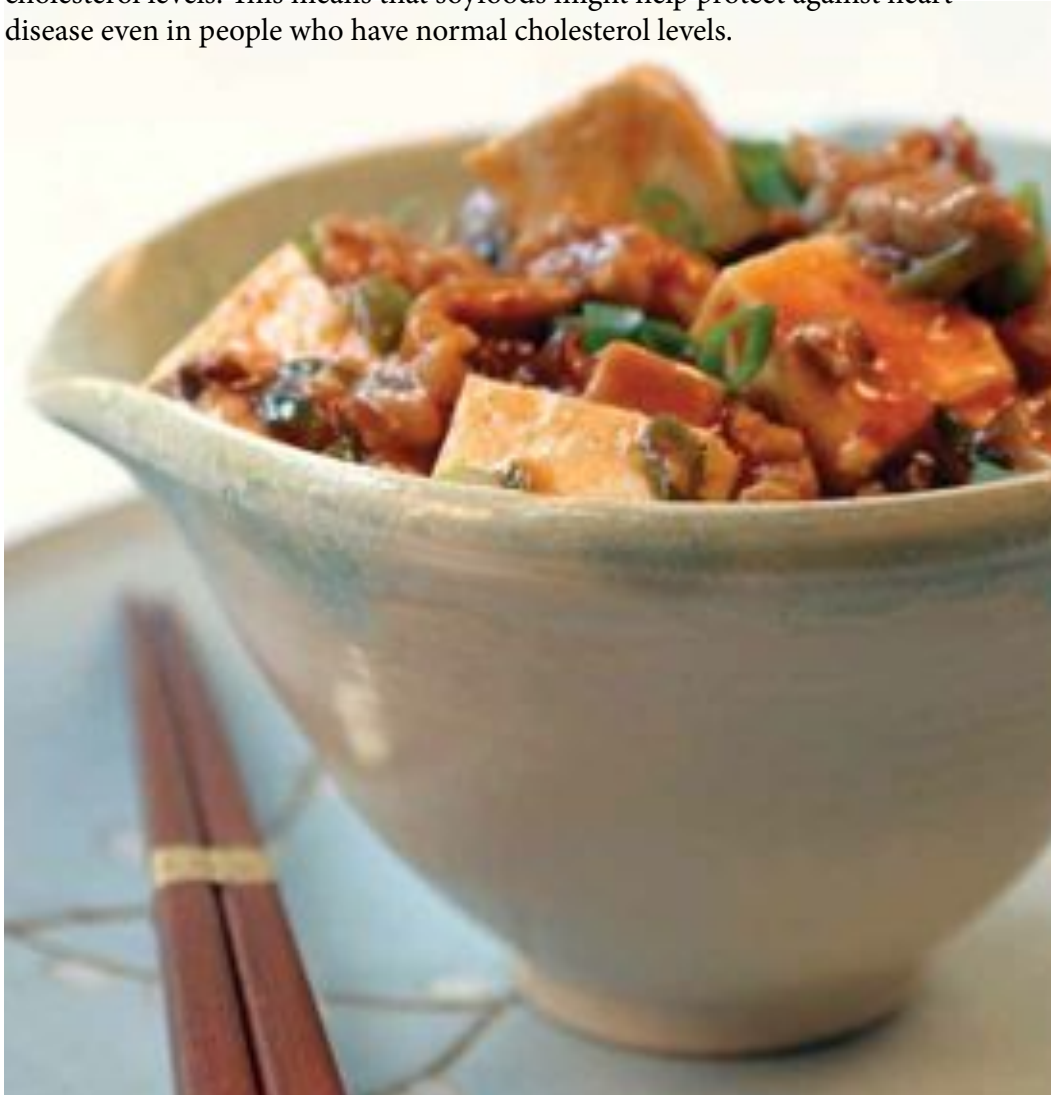
The concept of SERMS is a common and important one in medicine. Some of the most important drugs used to treat both breast cancer and osteoporosis are SERMS, and the pharmaceutical industry continues to develop new SERMS for the treatment of disease.



## Soyfoods Provide 3-Way Protection Against Heart Disease

Soyfoods may lower heart disease risk in three important ways. First, they are low in saturated fat and high in polyunsaturated fat and provide essential omega-3 fatty acids. Because of this healthy fatty acid profile, soyfoods can reduce blood cholesterol by as much as 4 percent when they replace more traditional protein sources in American diets. In addition, soy protein has a direct cholesterol-lowering effect, lowering blood cholesterol about 4 percent. For this reason, the US Food and Drug Administration approved a health claim for soyfoods and coronary heart disease. Since each 1 percent reduction in cholesterol lowers heart disease risk about 2 percent, incorporating soyfoods into the diet can in theory lower heart disease risk about 15 percent. There is also evidence that soy protein can make LDL-cholesterol (the bad cholesterol) less harmful.

The third way in which soyfoods affect heart disease has nothing to do with blood cholesterol levels. Soybean isoflavones may directly improve the health of the arteries which reduces heart disease risk independently of cholesterol levels. This means that soyfoods might help protect against heart disease even in people who have normal cholesterol levels.



## Soyfoods and Bone Health

The calcium in soyfoods such as fortified soymilk and certain types of tofu, is as well-absorbed as the calcium is from cow's milk. Also, like cow's milk, nearly all soymilk is fortified with vitamin D. The high quality protein in soyfoods may also be important for bone health.

In addition, like the hormone estrogen, isoflavones may provide direct skeletal benefits. Two large studies in Asia found that women who consumed the most amount of soy—the equivalent of about two servings per day—were approximately one-third less likely to suffer fractures. However, clinical studies in which the effects of isoflavones have been compared to a placebo, have produced mixed results. The effect of isoflavones on bone health is an area of research that requires much more study. Nevertheless, soyfoods that provide calcium and protein can be considered an important part of a balanced diet aimed at protecting bones.



## Soyfoods Reduce Menopausal Symptoms

Hot flashes associated with menopause are less common in Japanese women than in Western women and soy consumption may be one reason for this difference. Evidence indicates the isoflavones in soyfoods alleviate menopausal symptoms associated with declining estrogen production but without the harmful side effects of estrogen therapy. Many women seek natural alternatives because of the well-known side effects of conventional hormone therapy.

The most recent comprehensive analysis of the scientific literature found that soy extracts with an isoflavone content similar to what is found in whole soybeans, were effective in reducing hot flashes. When these extracts were consumed by postmenopausal women, the frequency and severity of their hot flashes dropped by more than 50 percent. The amount of isoflavones that is effective is provided by about two servings of soyfoods.

## Soyfoods and Diabetes

Diabetes is a relatively new term used to describe a syndrome of diabetes and obesity that is on the rise in the United States. Because higher protein diets may aid in weight loss, healthful protein sources like soyfoods can play an important role in fighting diabetes. Also, compared to animal protein, soy protein places less stress on the kidneys, too. This is important because kidney disease is one of the main complications of diabetes. The heart-healthy aspects of soyfoods also provide benefits for people with diabetes, since they are at much higher risk for heart disease. Finally, soyfoods may improve some aspects of the metabolic syndrome—a diabetes related condition affecting 50 million Americans that includes obesity, high triglycerides, low HDL-cholesterol (the good cholesterol), hypertension, and insulin resistance. One study found when soyfoods replaced red meat in a healthy diet, cholesterol and inflammation were reduced and insulin sensitivity (the ability to use insulin) increased.



## Soy and Breast Cancer

While health behavior throughout the lifespan can impact breast cancer risk, diet and lifestyle habits during the first 20 years of life appear to be especially impactful. Research strongly suggests that girls who consume soyfoods during childhood and/or adolescence may have a markedly lower risk of developing breast cancer later in life. In fact, studies suggest that consuming just one to two servings daily may reduce risk by as much as 50 percent. Current thinking is that the consumption of soyfoods, likely because they contain isoflavones, causes changes in the developing breast cells that make them permanently less likely to develop cancer.

## Soy and Prostate Cancer

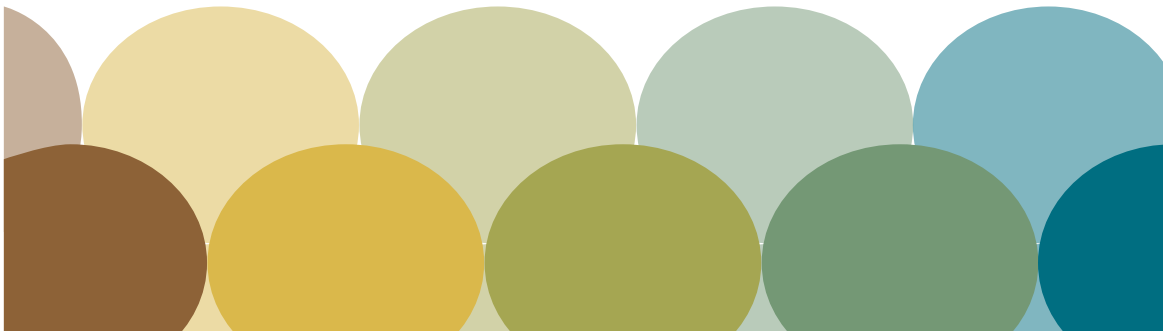
Asian men who regularly consume soyfoods are between 30 and 50 percent less likely to have prostate cancer than Asian men who consume little soy. Also, in animals, adding isoflavones to the diet inhibits the development of prostate tumors. In addition, there is evidence in both animals and humans that isoflavones work in ways to stop prostate cancer from spreading to other tissues. And, preliminary evidence indicates that isoflavones can lessen the side effects of radiation treatment for prostate cancer. Since prostate cancer is usually diagnosed late in life and these tumors grow slowly, anything that even modestly inhibits their growth or delays their onset could significantly reduce deaths from this disease.



## Soyfoods Are for Everyone

Soyfoods have been consumed for centuries by people in Asia at all stages of life, and for decades by Western vegetarians without any apparent ill effects. The evidence indicates that only those who are allergic to soy protein, which is rare among adults, need to avoid soy. For all healthy people, soyfoods are nutritious additions to the diet. A good goal is two servings per day, however.

There are some health aspects of soy that need more research. For example, there is a controversy about whether women with breast cancer can safely consume soyfoods. According to the American Cancer Society, soyfoods can be safely consumed after a diagnosis of breast cancer. In addition, new research suggests that soyfood consumption improves the prognosis of breast cancer survivors. As with any dietary change, women who have breast cancer should consult their physician before adding soyfoods to their diet. Ironically there is concern that soy might impair fertility in men despite the large populations of soyfood consuming countries. There is no clinical evidence to support this concern. Extensive research shows that soy doesn't impact sperm quality or lower testosterone levels. Finally, soyfoods don't affect thyroid function in healthy people although it is prudent for those with thyroid disease to monitor their thyroid function when first adding soyfoods to their diet.



## Making Soy a Part of the Diet

Introducing soyfoods into your diet is easy and delicious.

- Use fortified soymilk on cereal for breakfast or to make pancakes, waffles or French toast.
- Edamame in the pod or roasted soynuts can be enjoyed as snacks or in salads.
- Check the freezer section of your grocery store for soy-based veggie burgers and hotdogs—perfect for a healthy barbecue or a quick supper.
- Soft silken tofu pureed with herbs and lemon juice makes a good and healthful topping for baked potatoes or as a sandwich spread.
- Firm tofu sautéed with vegetables and seasoned with soy sauce and ginger is a healthful Asian-style meal.



## How Do Soyfoods Fit into MyPyramid?

MyPyramid was created to guide Americans in following a balanced eating plan. Using MyPyramid as a guide for your own eating plan, you can make sure your body is healthy and full of energy, and your mind is sharp. Look to see how soyfoods can fit into the many food categories within MyPyramid. To learn more about MyPyramid and your own food needs, explore [www.mypyramid.gov](http://www.mypyramid.gov).

### Grains

Soy cereal  
Soy grits  
Soy waffles  
Soy pasta  
Soy bread  
Soy flour

### Vegetables

Sweet soybeans (edamame)  
Canned soybeans  
Soynuts

### Fruits

No soy-based foods

### Oils

Soybean oil  
(also called vegetable oil)

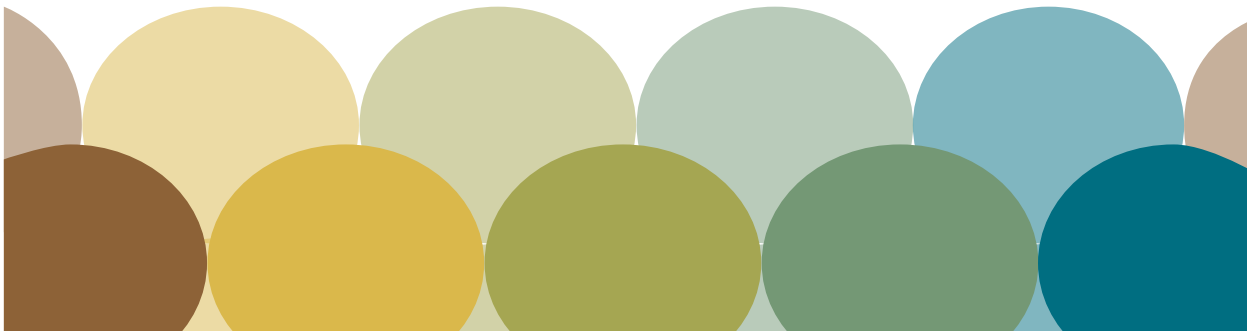
### Milk

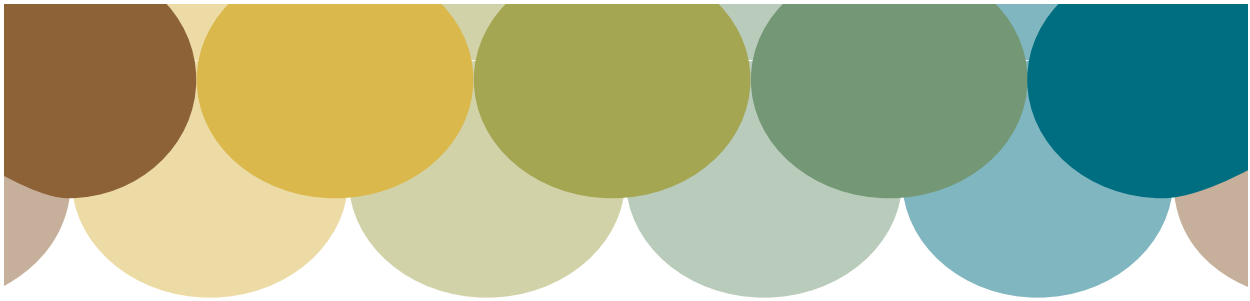
Soy beverage  
Soy cheese  
Soy yogurt  
Soy ice cream

### Meat & Beans

Soy burgers  
Soy hot dogs  
Soy nuggets  
Soy burger-type crumbles  
Tofu  
Soynuts  
Canned soybeans  
Soynut butter  
Sweet soybeans (edamame)

For a complete listing of resources as well as a more in-depth copy of this brochure, please visit [www.the soyfoodscouncil.com](http://www.the soyfoodscouncil.com) and look for it in the Resource tab.





*funded by the soybean checkoff*

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