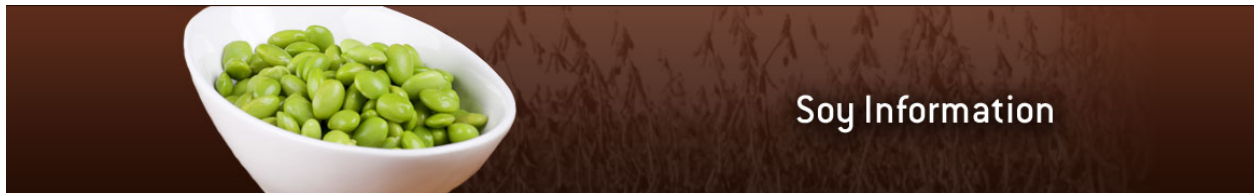




Soyfoods Association of North America



Healthy Truth About Soy

Soyfoods have increased in popularity over the past decade. With increased popularity and awareness, there has been an increase in the number of media articles on soy. As coverage of issues related to soy and health grows, it is important to understand the research behind the relationship between soy and human health benefits.

Soyfoods contain isoflavones, which are safe for human consumption.

Even though isoflavones have a similar structure to human estrogens, they act very differently in the human body, and therefore, should **not** be considered similar to human estrogens. Isoflavones are much weaker than naturally circulating human estrogens, and they do **not** have estrogen-like effects in humans. In addition, soyfoods provide a variety of health benefits and the isoflavones found in soyfoods are thought to contribute to many of the protective health effects associated with a diet rich in soyfoods.(1) Studies that refer to the effect of feeding isolated isoflavones and not isoflavones naturally in food must be viewed with caution. Although the human body breaks down the pure isoflavones differently than the isoflavones bound up with other components in soyfoods(2, 3) , a 2006 Federal scientific panel of toxicologists, pediatricians, epidemiologists, and other experts concluded that “even though there is a paucity of available human data on exposure to purified genistein, the Expert Panel expresses negligible concern for reproductive and developmental effects from exposure of adults in the general population.” (4)

[Click here for more information on soy isoflavones.](#)

[Additional information is also available at here.](#)

Soyfoods are safe for men.

Human studies have found that males who consume soy have not had changes in sperm count, sperm quality or sperm motility.(5) Likewise, the results of a 2009 meta-analysis of 32 studies and 36 treatment

groups, found no effect of soy or isoflavones on circulating levels of testosterone or other reproductive hormones.(6)

[Click here for more information on soy and men's health.](#)

Consuming soyfoods may reduce the risk of breast cancer in women, and soyfoods are safe for women at-risk for developing breast cancer as well as survivors.

A growing body of research shows that eating a healthy diet that includes soyfoods protects against breast cancer.(7, 8) A 2008 study from the University of Southern California found that the more soyfoods a person consumed, the lower the risk of breast cancer.(9) Increasing evidence also confirms that soy consumed during childhood and adolescence protects against breast cancer.(10 – 13)

Women who are at risk for developing breast cancer can safely eat moderate amounts of soyfoods. No evidence exists to suggest that eating soyfoods is unsafe – no human trials have demonstrated a link between eating soyfoods and tumor growth. The only negative data arose from select experiments with mice given unnaturally high levels of soy isoflavones, (14, 15) levels of isoflavones much higher than levels found in traditional soyfoods and human diets.

The National Cancer Institute and the American Cancer Society recommend that breast cancer survivors can safely consume moderate amounts of soyfoods – anywhere from a few servings a week(16) to 3 servings a day.(17) Only a few studies have looked at the effects of soy intake among women diagnosed with breast cancer, and none showed a link between consumption of soy and breast cancer recurrence or tumor growth. A 2009 paper suggests that women diagnosed with breast cancer who regularly consume soy may actually have a reduced risk of recurrence.(18) Furthermore, no evidence exists that soy, or its bioactive compounds, cause changes associated with human breast cancer, such as thickened breast tissue (19 – 22), increased number of breast tissue cells (23), or increased estrogen circulating in the blood. (24)

Some physicians and researchers initially raised concerns that soy may interfere with the effects of tamoxifen in treating breast cancer; however, two human studies from 2007 and 2009 have found no link between intake of soy or serum isoflavones and the effectiveness of tamoxifen.(25) Additional research may be needed to confirm these findings. Women who are taking tamoxifen should always consult their oncologists for individual advice on soy and other matters concerning nutrition.

[Click here for more information on soy and breast cancer.](#)

Consuming soy does not cause thyroid problems.

A review of clinical trials with healthy men and women concluded that consuming soyfoods or isoflavones does not have an effect on normal range of thyroid function. Participants in these trials consumed adequate amounts of iodine common in the American diet.

[Click here for more information on soy and thyroid.](#)

Soy is an allergen but the occurrence is relatively rare in humans.

Soy protein is one of the eight major food allergens, along with proteins from milk, eggs, peanuts, tree nuts, fish, shellfish, and wheat; however, only an estimated 0.1% of Americans are allergic to soy.(26) Although an individual could be allergic to any protein in foods, even fruits, vegetables, and meats, the previously listed eight foods account for 90 percent of all food-allergic reactions. Individuals who experience allergies are advised by their physicians or nutritionists to avoid the foods that cause these

reactions. Foods containing these eight allergens must list on the label a warning that an allergen may appear in the food.

[Click here for more information on soy and allergies.](#)

Consuming soy may aid in digestion.

Many soyfoods contain fiber, which is known to promote good digestion. A Japanese study found that a diet that includes high intakes of rice, miso soup, and soy products and low intakes of bread and confectionaries, was the only dietary pattern associated with a significantly lower prevalence of functional constipation.(27)

Consuming soyfoods may improve memory and cognitive function.

Recent data from clinical trials on humans find that soy may actually improve brain function, and does not decrease it. **Recent studies are finding that soy isoflavones may enhance short term memory and executive function in women, but the data remain conflicting.** In a study of 30 cognitively-healthy adults over the age of 60, those who reported eating soyfoods as part of their normal diet performed better on cognitive tests than those who did not.(28) More research in this area is needed.

[Click here fore more information on soy and memory.](#)

The American Heart Association supports soyfoods as part of a heart-healthy diet.

In its 2006 *Diet and Lifestyle Recommendations*, the American Heart Association (AHA) recognized the potential benefits of soy protein replacing meat and dairy protein in lowering LDL cholesterol, especially in people with high cholesterol who are at high risk for coronary vascular disease (CVD). AHA also emphasized eating foods high in fiber and using vegetable-based substitutes, leaner animal products and fish in order to reduce saturated fat, trans fat, and cholesterol in the diet and reduce the risk of heart disease. Soyfoods fit the profile of foods recommended by the AHA, providing fiber, high-quality protein, vitamins and minerals with low saturated fat and no cholesterol.

[Click here for more information on soy and heart disease.](#)

U.S. reports continue to affirm the lack of any safety concerns with soyfoods.

The U.S. National Institute of Environmental Health Sciences (NIEHS) reviewed more recent studies than did the governments of Israel and France, and concluded that consumption of soy at any age does not present risk to developmental or reproductive health.(29) The NIEHS panel recognized that the animal studies have raised concerns about the effects of genistein on sexual maturity, but concluded that animal studies are not an appropriate measure of the safety of soyfoods, for two main reasons. First, injecting or consuming a very concentrated source of one specific isoflavone, such as genistein, is very different from the way isoflavones are digested from food. Additionally, there are important differences in how mice, rats and marmoset monkeys metabolize genistein compared to humans.(30, 31)

[Additional Facts on Soy are Available at **www.soyconnection.com**.](#)

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Reference:

1. Setchell KD. Phytoestrogens: the biochemistry, physiology, and implications for human health of soy isoflavones. *Am J Clin Nutr* 1998;68:1333S-1346S.
2. Wagner JD, Schwenke DC, Greaves KA, Zhang L, Anthony MS, Blair RM, Shadoan MK, Williams JK. Soy protein with isoflavones, but not an isoflavone-rich supplement, improves arterial low-density lipoprotein metabolism and atherogenesis. *Arterioscler Thromb Vasc Biol*. 2003 Dec;23(12):2241-6.

3. Greaves KA, Parks JS, Williams JK, Wagner JD. Intact dietary soy protein, but not adding an isoflavone-rich soy extract to casein, improves plasma lipids in ovariectomized cynomolgus monkeys. *J Nutr.* 1999 Aug;129(8):1585-92.
4. NTP-CERHR Expert Panel on the Reproductive and Developmental Toxicity of Soy Formula. April 2006 <http://cerhr.niehs.nih.gov/chemicals/genistein-soy/soyformula/Soy-report-final.pdf>.
5. Chavarro JE, Toth TL, Sadio SM, Hauser R. Soy food and isoflavone intake in relation to semen quality parameters among men from an infertility clinic. *Hum Reprod* 2008;23:2584-90.
6. Hamilton-Reeves JM, Vazquez G, Duval SJ, Phipps WR, Kurzer MS, Messina MJ. Studies show no effects of soy protein or isoflavones on reproductive hormones in men: results of a meta-analysis. *Fertility and Sterility*. In press.
7. Trock BJ, Hilakivi-Clarke L, Clarke R. Meta-analysis of soy intake and breast cancer risk. *J Nat Cancer Inst.* 2006;98:459-71.
8. Yan L, Spitznagel E. A meta-analysis of soy foods and risk of breast cancer in women. *Int J Cancer Prevention* 2005;1:281-293.
9. Wu, AH, YU MC, Treng C-C, Pike MC. Epidemiology of soy exposures and breast cancer risk. *Br J Cancer* 2008;98:9-14.
10. Korde L FT, Wu A, et al. Adolescent and childhood soy intake and breast cancer risk in Asian-American women. *Breast Cancer Res Treat* 2005;88:S149.
11. Wu AH, Wan P, Hankin J, Tseng CC, Yu MC, Pike MC. Adolescent and adult soy intake and risk of breast cancer in Asian-Americans. *Carcinogenesis.* 2002;23:1491-1496.
12. Shu XO, Jin F, Dai Q, Wen W, Potter JD, Kushi LH, Ruan , Gao YT, Zheng W. Soyfood intake during adolescence and subsequent risk of breast cancer among Chinese women. *Cancer Epidemiol Biomarkers Prev.* 2001;10:483-488.
13. Korde LA, Wu AH, Fears T, Nomura AMY, West DW, Kolonel LN, Pike MC, Hoover RN, Ziegler RG. Childhood soy intake and breast cancer risk in Asian American women. *Cancer Epidemiol Biomarkers Prev* 2009;18(4):OF1-10.
14. Hsieh CY, Santell RC, Haslam SZ, Helferich WG. Estrogenic effects of genistein on the growth of estrogen receptor-positive human breast cancer (MCF-7) cells in vitro and in vivo. *Cancer Res* 1998 ; 58 : 3833-8.
15. Allred CD, Ju YH, Allred KF, Chang J, Helferich WG. Dietary genistin stimulates growth of estrogen-dependent breast cancer tumors similar to that observed with genistein. *Carcinogenesis* 2001 ; 22 : 1667-73.
16. American Institute of Cancer Research. *New Soy-Breast Cancer Study Finds Small but Significant Protective Effect*. Accessed at http://www.aicr.org/site/News2?abbr=pr_&page=NewsArticle&id=9679 on December 28, 2006.
17. American Cancer Society. *Nutrition and Physical Activity During and After Cancer Treatment: Answers To Common Questions*. Accessed Dec. 28, 2006 at http://www.cancer.org/docroot/mbc/content/MBC_6_2x_FAQ_Nutrition_and_Physical_Activity.asp?sitearea=MH
18. Guha N, Kwan ML, Quesenberry CP Jr, Weltzien EK, Castillo AL, Caan BJ. Soy isoflavones and risk of cancer recurrence in a cohort of breast cancer survivors: the Life After Cancer Epidemiology study. *Breast Cancer Res Treat* 2009; Epub ahead of print.

19. Maskarinec G, Takata Y, Franke AA, Williams AE, Murphy SP. A 2-year soy intervention in premenopausal women does not change mammographic densities. *J Nutr* 2004;134:3089-94.
 20. Maskarinec G, Williams AE, Inouye JS, Stanczyk FZ, Frankie AA. A randomized isoflavone intervention among premenopausal women. *Cancer Epidemiol Biomarkers Prev* 2002;11:195-201.
 21. Maskarinec G, Williams AE, Carlin L. Mammographic densities in a one-year isoflavone intervention. *Eur J Cancer Prev* 2003;12:165-9.
 22. Maskarenic G, Verheus M, Steinberg FM, Amato P, Cramer MK, Lewis RD, Murray MJ, Young RL, Wong WW. Various doses of soy isoflavones do not modify mammographic density in postmenopausal women. *J Nutr* 2009;139:981-986.
 23. Palomares MR, Hopper L, Goldstein L, Lehman CD, Storer BE, Gralow JR. Effect of soy isoflavones on breast proliferation in postmenopausal breast cancer survivors. *Breast Cancer Res Treatment* 2004;88 (Suppl 1):4002.
 24. Kurzer MS. Hormonal effects of soy in premenopausal women and men. *J Nutr* 2002;132:570S-573S.
 25. Wu, AH, Pike MC, Williams LD, Spicer D, Tseng CC, Churchwell MI, Doerg DR. Tamoxifen, soy, and lifestyle factors in Asian American women with breast cancer. *J Clin Oncol* 2007;25:3024-3030.
 26. Eastman EJ. Soy protein allergy. In: Food Intolerance in Infancy: Allergology, Immunology, and Gastroenterology. Carnation Nutrition Education Services, v1, New York: Raven Press, 1989.
 27. Okubo H, Sasaki S, Murakami K, Kim MK, Takahashi Y, Hosoi Y, Itabashi MJ *Nutr Sci Vitaminol*. 2007;53:232-8.
 28. File SE, Hartley DE, Elsabagh S, Duffy R, Wiseman H. Cognitive improvement after 6 weeks of soy supplements in postmenopausal women is limited to frontal lobe function. *Menopause*. 2005 Mar;12(2):193-201.
 29. NTP-CERHR Expert Panel on the Reproductive and Developmental Toxicity of Soy Formula. April 2006 <http://cerhr.niehs.nih.gov/chemicals/genistein-soy/soyformula>.
 30. Setchell KD, Brown NM, Lydeking-Olsen E. The clinical importance of the metabolite equol-a clue to the effectiveness of soy and its isoflavones. *J Nutr* 2002;132:3577-3584.
 31. Rowland I, Faughnan M, Hoey L, Wahala K, Williamson G, Cassidy A. Bioavailability of phyto-oestrogens. *Br J Nutr* 2003;89 Suppl 1:S45-58.
- See more at: <http://www.soyfoods.org/nutrition-health/healthy-truth-about-soy#sthash.2IFQFYm4.dpuf>