



Soy Protein and Cancer

Sources:

1. American Cancer Society: *Cancer Facts and Figures 2004*.
2. Shu, X.O., Jin, F., Dai, Q., Wen, W.Q., Potter, J.D., Kushi, L.H., Ruan, Z.R., Gao, Y.T. & Zheng, W. (2001). Soyfood intake during adolescence and subsequent risk of breast cancer among Chinese women. *Cancer Epidemiol Biomarkers Prev*, 10, 483-488.

Wu et al., (2002). Adolescent and adult soy intake and risk of breast cancer in Asian Americans, *Carcinogenesis*, 23(9): 1491-6.

Wu, A.H. Ziegler, R.G., Horn-Ross, P.L., Nomura, A.M., West, D.W., Kolonel, L.N., Rosenthal, J.F., Hoover, R.N. & Pike, M.C. (1996). Tofu and risk of breast cancer in Asian-Americans. *Cancer Epidemiol Biomarkers Prev*, 5, 901-906.

Messina, M. and Barnes, S. (1991). The Role of Soy Protein in Reducing the Risk for Cancer. *J Natl Cancer Inst*. 83:541-546.
3. Barnes S., (1997). The chemopreventive properties of soy isoflavonoids in animal models of breast cancer. *Breast Cancer Research and treatment* 46:169-179.

Cancer Causes Control, (1998) Dec; 9(6): 553-7; *Mammary* (Hakkak et al., 2000; Zaizen et al., 2000), prostate (Bylund et al., 2000; Pollard and Wolter, 2000; Aronson et al., 1999; Zhou et al., 1999), urinary bladder (Zhou et al., 1998), and colon tumors (Wang and Higuchi, 2000), other (Yan et al., 1997).
4. Shu, X.O., Jin, F., Dai, Q., Wen, W.Q., Potter, J.D., Kushi, L.H., Ruan, Z.R., Gao, Y.T. & Zheng, W. (2001). Soyfood intake during adolescence and subse-

Cancer is the second leading cause of death in the United States. According to the American Cancer Society, about 563,700 Americans are expected to die of cancer this year alone. Nutrition may play a roll in cancer prevention. In fact, scientific evidence suggests that about one third of the cancer deaths that occur in the United States each year are due to nutrition and physical activity factors, which includes obesity.¹

Global Data

Epidemiological evidence demonstrates that consumption of soy foods may be associated with lower incidences of breast, prostate and colon cancers in Asian countries. In searching for an explanation for this difference, scientists found that Asian diets tend to be low in animal protein and high in protein from soybeans and other plant sources.²

The Role of Soy Protein

Scientists are investigating potentially beneficial effects of consuming soy protein with isoflavones and other bioactive components. For example, recent evidence suggests that bioactive compounds contained in soybeans, such as isoflavones, may contribute to the cancer protective effect of eating soy foods. These effects have been supported by recent studies conducted on animals.³

Isoflavones

Isoflavones are bioactive components found naturally in plants. There are different types of isoflavones. The isoflavones found in soybeans include genistein, daidzien, and glycitein. Recent clinical research suggests that the naturally occurring bioactive components in soy protein, such as isoflavones, may play a role in the health benefits associated with soy protein.

Breast Cancer and Soy

Breast cancer incidence rates have been on the rise since 1980. The American Cancer Society estimates 40,200 deaths will occur from breast cancer alone this year.

Epidemiological evidence demonstrates that consumption of soy foods may be associated with a lower risk of breast cancer in Asian countries. The death rate for breast cancer is two and a half times higher in American women than in Japanese women. In searching for an explanation for this difference, scientists found that Asian diets tend to be low in animal protein and high in protein from soybeans and other plant sources.

Research also shows that regular consumption of soy during adolescence may reduce the incidence of breast cancer later in life. One study found that Asian-American women who consumed soy foods on a weekly basis during their teen years and in adulthood had nearly half the risk of developing breast cancer compared to similar women who ate little soy during the same periods.

Clinical studies currently underway as researchers continue to examine soy protein as it may relate to breast cancer.⁴

Prostate Cancer and Soy

Prostate cancer incidence rates in men under 65 are on the rise. Soy protein may play a role in the prevention of prostate cancer. Specifically, epidemiological evidence linking soy and reduction in prostate cancer is promising. In Western countries, prostate cancer is the second leading cause of cancer deaths in men (after lung cancer). However, the incidence of prostate cancer is lower in Asian countries. Research suggests that the high soy intake by Asian men may be protective against prostate cancer.

Of particular interest is a cross national analysis correlating prostate cancer mortality with various nutritional and socioeconomic factors using data from 59 countries from United Nation sources. In 42 countries with appropriate data available, soy consumption is associated with a significantly lower mortality rate from prostate cancer.

It also has been demonstrated in animal studies that dietary supplementation of soy isoflavones at concentrations similar to what is provided in a soy foods ofr soy protein diet inhibits experimental tumor formation. Clinical studies currently are underway as researchers continue to examine soy protein as it relates to prostate cancer risk.⁵



www.solae.com

Sources:

quent risk of breast cancer among Chinese women. Cancer Epid Biomarkers Prev, 10, 483-488.
Wu et al., (2002). *Adolescent and adult soy intake and risk of breast cancer in Asian Americans, Carcinogenesis, 23(9): 1491-6.*

Wu, A.H. Ziegler, R.G., Horn-Ross, P.L., Nomura, A.M., West, D.W., Kolonel, L.N., Rosenthal, J.F., Hoover, R.N. & Pike, M.C., (1966). *Tofu and risk of breast cancer in Asian-Americans. Cancer Epidemiol Biomarkers Prev, 5, 901-906.*

5. *American Cancer Society: Cancer Facts and Figures 2000.*

Fritz, W.A., Coward, L., Wang, J. and Lamartiniere, C.A., (1998). *Dietary genistein: perinatal mammary cancer prevention, bioavailability and toxicity testing in the rat. Carcinogenesis. 19: 2151-2158.*

Hebert, J.R., Hurley, T.G., Olendzki, B.C., Teas, J. Ma, Y. and Hampl, J.S., (1998). *Nutritional and socioeconomic factors in relation to prostate cancer mortality: a cross-national study. J Natl Cancer Inst. 90: 1637-1647.*

Kolonel, L.N., Hankin, J.H., Whittemore, A.S., Wu, A.H., Gallagher, R.P., Wilkens, L.R., et al., (2000). *Vegetables, fruits, legumes and prostate cancer: a multiethnic case-control study. Cancer Epidemiol Biomarkers Prev. 9: 795-804.*

Li, D., Yee, J.A., McGuire, M.H., Murphy, P.A. and Yan, L., (1999). *Soybean isoflavones reduce experimental metastasis in mice. J Nutr. 129: 1075-1078.*

Ohta, T., Nakatsugi, S., Watanabe, K., Kawamori, T., Ishikawa, F., Morotomi, M., et al., (2000). *Inhibitory effects of Bifidobacterium-fermented soy milk on 2-amino-1-methyl-6-phenylimidazo[4,5- b]pyridine-induced rat mammary carcinogenesis, with partial contribution of its component isoflavones. Carcinogenesis. 21: 937-941.*