

Soybean Isoflavones and the Breast: - Paradigm-Altering Research

Recent research offers hope that soybean isoflavones are protective against breast cancer

Commentary from Dr. Mark Messina

It is rare when any single nutrition study markedly affects thinking about a topic that has been rigorously investigated for many years. But recent research by Dr. Johanna Lampe from the Fred Hutchinson Cancer Research Center in Seattle and her colleagues from different international institutions does just that.

Lampe investigated the relationship between *blood* (technically plasma) levels of soybean isoflavone and risk of both fibrocystic breast conditions and breast cancer among women in Shanghai. Fibrocystic breasts are characterized by lumpiness and usually discomfort in one or both breasts. Of course, tens of studies have examined the relationship between the *intake* of soyfoods and isoflavones and breast cancer risk among Asian women. However, these studies, by and large, have produced inconsistent results. Some studies show soy/isoflavone intake is protective against breast cancer while essentially an equal number show there is no relationship. The study by Lampe is the first to examine blood isoflavone levels.

There are at least two reasons why focusing on blood levels, rather than intake, is so important. First, it is very difficult to accurately measure the intake of any food or food component. This inaccuracy makes it more likely that the results from studies will be inconsistent. Second, there is a huge variation in the metabolism of isoflavones among individuals, so blood levels are a much better reflection of the biologically relevant amount of isoflavones to which each woman (and her tissues) is actually exposed.

For years, scientists researching the health effects of soy have recognized the importance of correlating health outcomes with blood levels rather than isoflavone intake, but it is very difficult to obtain blood from large numbers of individuals, so, for the most part, this has not been done in epidemiologic studies.

In their study, Lampe and colleagues found that as blood isoflavone levels increased, the likelihood of women having fibrocystic breast conditions and breast cancer dramatically decreased. In fact, when comparing the highest blood levels with the lowest levels, risk was reduced from between 60 to 80%.

This research also suggested that isoflavones were acting at an early stage in the disease process. *These results in and of themselves are actually quite remarkable because rarely does one see such a degree of protection associated with any one single dietary component.*

The importance of the results doesn't end there. Previous research by Lampe and colleagues found that isoflavone *intake* was *not* associated with protection against breast cancer in this group of women. Thus their collective research convincingly

demonstrates the point that scientists have recognized - that intake is not the best way to assess the biological activity of isoflavones. This means that past studies that have focused on intake have really not been a fair test of the ability of isoflavones to prevent breast cancer.

The work by Lampe and colleagues represents a major contribution to the scientific literature and offers hope that soybean isoflavones are protective against both fibrocystic breast disease and breast cancer.

References

Lampe JW, Nishino Y, Ray RM, et al. Plasma isoflavones and fibrocystic breast conditions and breast cancer among women in shanghai, china. *Cancer Epidemiol Biomarkers Prev* 2007;16:2579-86.

Shannon J, Ray R, Wu C, et al. Food and botanical groupings and risk of breast cancer: a case-control study in shanghai, china. *Cancer Epidemiol Biomarkers Prev* 2005;14:81-90.