

Breast Cancer and Soy Isoflavones: Media Strives for Headlines, Not Education



By Chuck Dinerstein — March 7, 2017



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Here are the headlines:

From [UPI](#) [1]: Study links soy consumption to breast cancer survival.

From [Reuters](#) [2]: Soy tied to longer life after breast cancer

From [NPR](#) [3]: New Study Reveals Benefits Of Soy For Breast Cancer Survivors

From [NBC](#) [4]: Soy Doesn't Worsen Breast Cancer and May Prevent It, Study Finds

And from [Fox](#) [5]: Does eating soy increase breast cancer risk? Study casts doubt on link

But the study itself was addressed at

...whether women diagnosed with breast cancer should be advised to eat more or less soy foods, especially for those who receive hormone therapies as part of cancer treatment.

Here is a set of points taken from the original [study](#) [6]:

- *High isoflavone intake was significantly associated with a reduction in all-cause mortality only among women with ER-negative/PR-negative tumors.*

- *Our study did not indicate a negative impact of isoflavone on all-cause mortality in women who received hormone therapy. Among those who did not receive hormone therapy as part of their cancer treatment, high isoflavone intake was associated with reduced all-cause mortality. These results, taken together, may indicate that dietary isoflavone is unlikely to have a negative impact on the survival of women who receive hormone therapy; however, the potential benefit may be limited to women who have negative tumor hormone receptors (ER-negative/PR-negative) or those who do not receive hormone therapy.*

Now what I am reading is that dietary isoflavones are unlikely to have an adverse impact and their potential benefit may be for a limited group. Keywords are unlikely and potential. They also recognized study limitations. They begin with what we already know; dietary surveys are “subject of to measurement error.” And include four more constraints:

- *Higher dietary intake of isoflavone was associated with socioeconomic and lifestyle factors, such as education, BMI, recreational physical activity, cigarette smoking, and alcohol consumption. To minimize the chance of residual confounding, we carefully adjusted for all of these factors in the multivariable models.*
- *Information on treatment was based on women’s self-reports ... preventing a more in-depth analysis of potential different effects in women who received different types and lengths of hormone therapy.*
- *Tumor hormone receptor status was not available for approximately 28% of the women*
- *Finally, our study outcome was limited to all-cause mortality, which prevented us from evaluating breast cancer specific mortality, recurrence, and other prognostic endpoints. ... We also lacked information on comorbidities, which could influence all-cause mortality.*

I am reading that the study’s conclusions may be limited because of other factors linked with high isoflavone intake and that the stratification based on hormone receptors is imperfect. Most importantly, they reported all-cause mortality because they had no way to look at breast cancer-specific mortality. And after all, isn’t that the controversy they wanted to put “to rest”?

There are two problems we can identify. First, rather than reporting that soy isoflavones do not cause increased problems for women with breast cancer, a negative result, they report a more positive result, isoflavones may benefit patients. Perhaps they take my mother’s admonition to heart: “If you do not have something positive to say, say nothing at all.” Second, the media just

offers content and misleading content at that; they offer little education and insight. To call it fake news is inappropriate, it is simply more of the media 'phoning in' the story rather than reporting.

OK, I can't help it. There is one last bit of 'science' to pull from this study. In a Trumpterian way the meaning of words, specifically high and low and lowest and highest quartile, is unclear. At least the study gives these words numerical values; the isoflavone intake ranged from 0.342 mg/d in the lowest quartile to 1.494 mg/day in the highest. Those are at least numbers but how should this information affect a woman's diet? According to the [US Soybean Export Council](#) [7], a clearly vested interest:

In the United States as well as many other countries, intake recommendations exist for a variety of food groups ... No such recommendation exists for soyfoods. The Chinese government recommends consuming at least 50 g of soyfoods daily as one step toward meeting nutrient needs. ... When one considers the importance of consuming a varied diet, Chinese and Japanese soy intake, and the amounts of soy associated with benefits in epidemiologic and clinical studies, a reasonable intake goal for adults is 15 g soy protein and about 50 mg total isoflavones per day. These amounts are provided by approximately two servings of traditional soyfoods.

Well, that's a start. Let's consider a less tainted source, [Oregon State's Linus Pauling Institute](#) [8], which provided the typical isoflavones in a number of foods. I have added two columns to indicate how many ounces of food are necessary to go from the lowest quartile to the highest in this study.

			Lowest 0.4mg
	Food	Serving Size	Total (mg)
	Soy protein concentrate, aqueous washed	3.5 oz	94.6
	Miso	½ cup	57
	Soybeans, mature seeds, boiled	½ cup	56
	Tempeh	3 ounces	51.5
	Soybeans, dry roasted	1 ounce	41.6
	Tempeh, cooked	3 ounces	30.3
	Tofu yogurt	½ cup	21.3
	Tofu, soft	3 ounces	19.2
	Soybeans, green, boiled (Edamame)	½ cup	16.1
	Soy protein concentrate, alcohol washed	3.5 oz	11.5
	Meatless (soy) sausage	3 links (4 oz)	10.8

Soy milk, 1 cup low-fat	6.2	0.52	1.94
Meatless (soy) burger, unprepared		1 patty (2.5 oz)	4.5
Soy cheese, cheddar		1 oz	1.9

OK, I recognize this is not particularly helpful IF you want to know what to eat, [not milligrams per day]. So I looked at the list and thought tofu yogurt was a reasonable choice: to get the benefit ascribed in the study you need to have two teaspoons a day (hell, live a little, have a whole tablespoon) or for those interested in meat substitutes, maybe a half a soy sausage link or a third of a soy patty. Your choice.

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Links

- [1] http://www.upi.com/Health_News/2017/03/06/Study-links-soy-consumption-to-breast-cancer-survival/4391488809723/
- [2] <http://www.reuters.com/article/us-health-breastcancer-soy-idUSKBN16D205>
- [3] <http://www.npr.org/2017/03/06/518858364/new-study-reveals-benefits-of-soy-for-breast-cancer-survivors>
- [4] <http://www.nbcnews.com/health/health-news/soy-doesn-t-worsen-breast-cancer-may-prevent-it-study-n729681>
- [5] <http://www.foxnews.com/health/2017/03/06/does-eating-soy-increase-breast-cancer-risk-study-casts-doubt-on-link.html>
- [6] <http://onlinelibrary.wiley.com/doi/10.1002/cncr.30615/abstract>
- [7] http://ussec.org/wp-content/uploads/2015/10/SOY13_9_Recommended-Soy-Intakes.pdf
- [8] <http://lpi.oregonstate.edu/mic/dietary-factors/phytochemicals/soy-isoflavones>