Breaking Health news

Soy

Your health is in the *balance*.

Soy has been hailed as a miracle food in the popular press and by many scientists for nearly a decade now. Of particular interest for women are the **phytoestrogens** contained in soy protein. These substances – chemically, **isoflavones**, with names like **genistein, daidzen**, and **glycitin** – are not the same as the estrogens made by a woman's body, but they're very similar. And it's this "close, but not quite" status that gives phytoestrogens their unique properties. Because the "fit" of a phytoestrogen into the cellular estrogen receptor is close to that of estrogen itself , soy isoflavones act like *weak estrogens*, reducing the stimulatory powers of the potent estrogens made by the body.

The net result: in women exposed to higher levels of phytoestrogens, the cells in a woman's breast get fewer, weaker messages to proliferate than they would if they were exposed to the body's own estrogens. Over the course of a lifetime, this slight letup in the bombardment of estrogen-driven "*Grow!*" commands is thought to result in less cellular proliferation – and thus, reduced odds of women's reproductive cancers.

And on the other hand, women whose estrogen levels are *low* – as in women who are going through menopause – may find that adding these weak "estrogens" to their lower internal supply provides just enough extra estrogenic stimulation to keep menopausal symptoms at bay. This allows many women a natural way out of synthetic estrogen replacement therapy.

So what's not to like?

This is Your Brain on Tofu?

The idea that soy was a food which could do nothing but good for one's health was given a blow recently, with the discovery that **excessive soyfood intake may be associated with higher risk of dementia.** As part of the ongoing **Honolulu-Asia Aging Study (HAAS)**, researchers have been following over 8 000 Asian-American men in Hawaii since the 1960s. The population includes both men eating a more traditional Japanese diet, and men who had adapted more Westernized eating habits. Using two dietary surveys collected in the mid-60s and the early 70s, the researchers found that **eating a more traditional Japanese diet actually increased by 85% these men's odds of late-life cognitive impairment**[6]. The finding was so surprising that the *other* major finding of the report – that the men **taking vitamin E supplements slashed their odds of vascular dementia by two thirds** – was lost in the flurry.

What was it about the Japanese-style diet of the cultural conservatives which made them more susceptible to vascular dementia? Consumption of miso soup, rice, green and black tea, milk, meat, and coffee were all found to be unrelated to risk. On the other hand, Japanese cultural conservatives also had a higher fish intake – which tended to be moderately *protective* against dementia. Of course, that just *deepened* the mystery of the traditionalists' higher incidence of cognitive decline.

But there was one dietary factor which *was* powerfully associated with greater risk of cognitive decline. After adjusting for all other predictive factors, **the men eating the most tofu also had the highest incidence of dementia**. As a group, the hard-core soy stuffers were 62% more likely to suffer major cognitive impairment than men eating the least tofu. In fact, the researchers estimated that **between one-fifth and one quarter of *all* dementia cases in the study population were caused by high tofu intake**.

While they didn't have as much data to directly assess these men's wives' odds of late-life dementia, the HAAS scientists reported that the *spouses* of men eating a high amount of tofu were *also* at greater risk of dementia. Since husbands and wives tend to eat similar diets, it looks as if the tofu-dementia connection holds for women, too.

The HAAS researchers think that the blame for the increased risk of dementia may very well be placed squarely on the shoulders of soy's phytoestrogens. Estrogen is thought to be required for normal brain function – even in men. The implication: **excessive phytoestrogen intake may block the brain-supporting powers of estrogen**, increasing one's odds of dementia.

Phytoestrogens: For Mother ... Not Child?

Although it hasn't drawn as much attention as the connection with cognitive decline, there are also some concerns being raised about excessive phytoestrogen exposure in fetuses of women eating a high-soy diet, or babies fed soy-based infant formulas. In these formative years,children's development can be profoundly susceptible to hormonal -- and pseudohormonal – influence.

And clearly, infants fed soy formulas receive a significant dose of phytoestrogens. **Babies fed a soy formula have phytoestrogen levels which are *208 times* the levels of breast-fed babies**. And a moderate soyfood intake – just 10 g of soy nuts – increases the level of phytoestrogens in a woman's breast milk by nearly a factor of ten[8]. To put this in perspective: this means that the level of phytoestrogens circulating in the blood of a soy-formula fed baby is about ten times greater that found in adults on a high-soy diet. Weight for weight, intake of phytoestrogens in such an infant is **five times more than that required to cause disruptions in an adult woman's menstrual cycle**[10].

This alone might make one cautious about exposing fetuses and infants to phytoestrogens, either in the womb or in the diet. But there's more solid evidence than a good analogy. Human male fetuses exposed to the synthetic estrogen-mimic **diethylstilbesterol (DES)** have smaller testes than those not so exposed[11]; similar effects might be expected from high phytoestrogen intake, based on animal experiments[12]. Likewise, a case-control study in Puerto Rico, where incidence of

premature puberty *tripled* between 1978 and 1981, found that **the single greatest predictor of breast development before the age of two** [no, that is not a misprint – Editor] **was consumption of soy infant formula**[13].

Breast Cancer Protection for All?

The idea that phytoestrogens protect against breast cancer probably gets more attention than any other health benefit associated with soy. And yet it's really one of the most difficult to prove. Phytoestrogens don't have a simple interaction with breast cancer cells in a test tube: sometimes cancer cells are inhibited by genistein – but other times they've stimulated by it. Some researchers have found that phytoestrogens prevent breast cancer in lab rodents administered carcinogens – and some have found no effect. The biggest controversy is over the effect on breast cancer risk to be expected in postmenopausal women. These women have little estrogen of their own which might promote breast cancer. Might the little "added push" of using soy isoflavones as a "natural ERT" be enough to increase risk of women's reproductive cancers, as ERT itself is known to do? We simply don't have conclusive answers to these questions yet, and probably won't for many years[15].

The Bottom Line

What does all this mean? Is soy a nutritional "wolf in sheep's clothing"? Has a generation of health-conscious women, while trying to make the best choices for themselves and their families, instead unwittingly damaged themselves and their children?

Probably not. Soy is a nutritious food with a lot going for it. But nothing in life – not even a tall glass of water[16] – is totally without risk. Soy – and especially concentrated isoflavone pills – may need to be treated with caution by women past menopause, and should probably be avoided by pregnant or lactating women. But in young women who are not nursing or bearing children in their wombs, the best evidence to date is that soy is healthy – in moderation. Soy has a clear place in a healthy diet, especially in younger women. On the other hand, if you're eating tofu stir frys three nights a week, popping isoflavone pills, and starting every day with a soy protein shake, you're probably getting too much of a good thing.

References

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New research suggests that chronic fatigue syndrome may be caused by a breakdown in the body's ability to repress a virus called HHV-6, which is found in nearly everybody, but is kept repressed by a healthy immune system. The special fatty acids in Monolaurin have been shown to inhibit related viruses in vitro.