Fermented vs unfermented soy: friend vs foe

By Catherine Haug, Sept 9, 2014, Originally published on The EssentiaList (4)
(photo, right, from silk.com (3))

The vegetarian, vegan and veggie-juicing communities all promote the consumption of soy and soy products as good for you. Many site that Asians consider soy to be a sacred crop as proof of its goodness. But is this really true? What are the facts and history of soy consumption?

It is true that many Asians consider soy to be a sacred crop, but this is primarily because of the nitrogen-fixing benefit it provides, as a legume, to the soil for growing other crops, not because of any dietary healthfulness. It is also true that many Asians include soy products in their daily diet, but not the same soy products sold in Western countries.

May people site the isoflavones present in soy as being beneficial for health, especially women’s health because of their estrogen-like (phytoestrogen) activity. However, one of soy’s isoflavones – genistein – is believed to have toxicity issues, though more research is needed as various studies report conflicting results (see Fact Sheet: Phytoestrogen Genistein, from Breast Cancer and Environment Research Centers, or BCERC (1). Genistein is present in other foods, including mothers’ milk, but in much lesser quantities than in soy.

What is one to believe? The answer lies in the differences between fermented and non-fermented soy.

Fermented vs unfermented soy products

The following is based on my own research of the literature, and on an article by Nancy T. Angelini in Developing Healthy Habits September 2014 newsletter (2).

Ms. Angelini asserts that when it comes to soy, “the devil or the divine is in the details,” and in this case, the details are in the chemistry of how the food is consumed. Specifically, the differences between “fermented soy, sprouted soy and unfermented soy,” and in whether or not the consumer has a food allergy to soy or its constituents.
Soy’s isoflavones can have an inhibiting effect on reproduction in humans; different results are obtained when fermented soy, such as miso or natto are used, vs unfermented soy, such as soy milk are consumed. (See below for more examples of each type)

- In **unfermented soy products** including the whole bean, the isoflavones are in their inactive glycosidic form which is the most problematic;
- In **sprouted and fermented soy products**, the isoflavones are in the active aglycone form which provide **healthful benefits**.

In other words, if a researcher is feeding his subjects with unfermented soy products, the results are likely to indicate toxicity and/or allergenicity; if a researcher is feeding his subjects with fermented or sprouted soy products, the results are likely to indicate a health benefit.

A cross-sectional study published in the International Journal of Women’s Health in April 2014 found soy may have a significant impact on a woman’s ability to become pregnant with a diet containing more than 40 g of isoflavones from dietary soy IF the soy is not fermented. In other words, Asian women consume 25 – 50 g of fermented soy in their daily diet, and they have high birth rates. In US and other Western countries, where the impact on pregnancy rates is noted, most of the soy that is consumed is not fermented.

**Allergenicity of unfermented soy vs fermented soy**

A study published in the Journal of Nutrition and Science of Vitaminology in 2013 demonstrates that the longer the fermentation time, the lower the levels of allergens in various miso pastes. A second study in 2014 found that 24 hours of fermentation drastically reduced the inactive (allergenic) form by conversion to the active (beneficial) form.

However, inactive isoflavones are not the only potentially allergenic constituent in unfermented soy products. I have a significant allergy to monosodium glutamate (MSG) which is produced when soy’s proteins are hydrolyzed, such as the production of soy protein powder or TVP. My personal reaction to such products is fairly severe intestinal distress and pain, similar to that caused by gluten for those with gluten allergy.

**Other benefits of fermented soy**

Soy has been promoted as preventing bone loss, such as a 2006 study published in the Journal of Nutrition on osteoporosis. This study demonstrated that natto (a fermented soy product) may help prevent bone loss through the
effects of an activated isoflavone called MK7. The study did not use unfermented soy, so no comparison can yet be made.

**Fermented and unfermented soy products**

**Fermented soy** product, which are common in Asian countries and provide health benefits include:

- natto,
- miso,
- tamari (fermented soy sauce),
- tempeh
- fermented or ‘stinky’ tofu.
- Sprouted soy can be included in this group, so if you wish to cook soy beans, sprout them first to minimize toxicity. If you make your own soy milk, sprout the beans first.

**Unfermented soy** products, which are the most common in the US and should be avoided, include:

- soy flour,
- soya sauce,
- soy milk (also soy margarine, soy yogurt, soy ice cream and soy cheese),
- infant formula,
- soy protein powders,
- veggie burgers containing soy,
- textured vegetable protein (TVP),
- tofurkey,
- soybean oil,
- soy in pet foods,
- soy products/additives are also found in many supplements and ‘health foods,’ and most likely come from unfermented soy.

Note that most soy in the US is also a GMO product, unless it is 100% Organic.
References:

2. Soy: Friend or Foe? by N. Angelini, LMT, Clinical Herbalist, from September 2014 issue of DevelopingHealthyHabits.com’s newsletter (see en.calameo.com/read/00216568255b0b93ea5c8?authid=n8ZkA02tMCfW for digital version).
3. Silk vanilla soy milk: silk.com/products/vanilla-soymilk