

Soy Products - Beware

My mother was (and still is) a fabulous cook and only served the best of meat and fresh fruit and vegetables as I was growing up, but when I was 13, I went on school camp and was served each night for dinner, greasy sausages and chops. From that camp on ward until I was 27, I never ate another piece of meat.

My reasons were part humanitarian and part health, but what I didn't realise at such a naïve age was what the ramifications of not eating meat were to do to my health, it is only now in hindsight that I can see clearly.

While I was a vegetarian, I had weight problems, I had to get glasses at the age of 19 and had menses from 19 to 21. Every year I would get colds during the winter season and generally my health was not as good as it could have been.

At the age of 27 I had an unbelievable urge to eat meat and so changed from a vegetarian to a ravenous omnivore and have never looked back.

My mother was very adamant that I needed to substitute my vegetarian diet with a protein and at the time there were very few alternatives on the market. I believe a canned TVP meat substitute (something I tried just once) was the only thing I could find along with the many legumes such as lentils, soy bean and chickpeas, which my mother tried valiantly to include in the family meal. So for the most part, being a vegetarian became a matter of having the same as everybody else in the family less the meat component.

These days it is easy to become a vegetarian, people are more knowledgeable and the soy industry have created many foods in order for vegetarians to get their daily protein compliment. For the vegetarian, there is soy flour, tempeh, tofu, soy milk, miso, soy cheese, soy burgers and the like.

Now at first this seems like a good thing but for the last 2-3 years there has been a ground swell of negative publicity re soy and while for me the jury is still out on this topic I believe with this proliferation in research and discoveries it is worth looking at.

I must express here that it seems soy, like every other food I talk about, has become a victim of when science and technology tries to improve the food and get the most out of a food financially, we seem to have problems. While I believe soy inherently is a good food when eaten in moderation and cooked correctly and without genetic modification, it is what we have done to the humble soy that has created the problems we are now seeing.

The History of Soy

Soy was traditionally used by Asian countries, but not in generous amounts. It was often used by the less affluent in times of scarcity of food and then only eaten

after painstaking process (lengthy fermentation) to destroy the soy toxins. Probably the best survey of the consumption of soy amongst Asians identified that the soy products consumed were tofu (plain, fried, deep-fried, or dried), miso, fermented soybeans, soymilk, and boiled soybeans. The estimated amount of soy protein consumed from these sources was 8.00 g/day for men and 6.88 g/day for women (Nagata C et al; J Nutr 1998, 128:209-13). Asians generally only use small portions of soy to complement their meal. It should also be noted that soy is not the main source of dietary protein amongst Asians.

On the other hand many vegetarians in Australia would think nothing of consuming 8 ounces (about 220 grams) of tofu and a couple of glasses of soy milk per day, two or three times a week. But this is well in excess of what Asians typically consume.

Soy was once a minor crop which was not termed a food but rather an industrial product. It now has become a major food crop that in the last 20 years the proliferation of soy and soy by products now dominates and is contained in a whopping 60% - 80% of foods on grocery shelves in the guise of soy flour, textured vegetable protein, partially hydrogenated soy bean oil, soy protein isolate, and vegetable oil. These are found in such common foods as cake mixes, chips, crackers, cookies, margarine, infant formulas, meat substitutes, bread and many more. Soy now plays a major role in our diet.

The chief concern is that we take the risk of mega dosing on soy isoflavones such as genistein and diadzen and once again overdosing on a food that could eventually cause more food sensitivities as we have seen with wheat and dairy.(Fukutake M, et al; Food Chem Toxicol 1996, 34:457-61).By no means do I mean to scare people but rather make them aware that this food that was not in the diet 20 years ago is now creeping slowly into many processed foods. And with this knowledge it is possible to make educated choices about the food consumed rather than being bullied into a food by it being a substitute to other foods once used.

The Dark Side of the Soy Bean

Soy contains potent enzyme inhibitors that block the action of trypsin and other enzymes needed for protein digestion. They can produce serious gastric distress, reduced protein digestion and chronic deficiencies in amino acid uptake. In test animals diets high in trypsin inhibitors cause enlargement and pathological conditions of the pancreas including cancer. Soy beans also contain haemagglutinin, a clot promoting substance that causes red blood cells to clump together. Together trypsin and haemagglutinin cause growth retardation.

Phytic Acid – preventing mineral absorption and use

Soy beans are also high in phytic acid, present in the bran or hulls of all grains. It's a substance that can block the uptake of essential minerals such as calcium,

magnesium, copper, iron, and especially zinc. The phytates in soy beans are highly resistant to normal phytate-reducing techniques such as long, slow cooking. Zinc malabsorption is a major concern as this is needed for brain and nerve function.

Phytoestrogens – hormone and thyroid disrupters

The one ingredient within the soy bean, which is of particular concern, is the endocrine-disrupting isoflavones, genistein and diadzen, also known collectively as phytoestrogens. In 1991 a team of Japanese scientists found that 30gms of soy beans (two tablespoons) per day for one month resulted in a significant increase in thyroid stimulating hormone. Goitre and hypothyroidism appeared in some of the subjects and many complained of constipation, fatigue and lethargy. Some studies have gone as far as to say that soy may increase the chances of oestrogen-dependent breast cancer.

Soy based infant formulas

The most serious problem with soy may be its use in infant formulas. “The amount of phytoestrogens that are in a day’s worth of soy infant formula equals 5 birth control pills”, say Mary G Enig, Ph.D., president of the Maryland Nutritionists Association. She and other nutrition experts believe that infant exposure to high amounts of phytoestrogens associated with early puberty in girls and retarded physical maturation in boys.

A study reported in the British medical journal Lancet found that the “daily exposure of infants to isoflavones in soy infant formulas is 6-11 fold higher on a bodyweight basis than the dose that has hormonal effects in adults consuming soy foods.” (A dose, equivalent to two glasses of soy milk per day, that was enough to change menstrual patterns in women). In the blood of infants tested, concentrations of isoflavones were 13,000- 22,000 times higher than natural oestrogen concentrations in early life.

Genetic Modification

Soy was also the first crop to be genetically modified, therefore a large amount of the soy products used in Australian foods have this factor to consider as well. There is not only a health issue to consider with genetically modified foods but a moral and ethical dilemma. Green peace puts out a booklet which lists the manufacturers in Australia who do not use genetically modified soy products or other genetically modified foods. It is well worth getting.

Beware Soy Protein Isolate

While soy producers try their best to get rid of the antinutrients I have mentioned above, by doing this they also destroy many of the good nutrients. Miso, tofu, tempeh and other fermented soy products are by far the most superior of soy

foods. On the other hand, Soy Protein Isolate (SPI) is not something you can make in your own kitchen but is found as the key ingredient in many soy foods that imitate meat and dairy products, including baby formulas and some brands of soy milk.

Production of SPI is prepared in an industrial factory where a slurry of soybeans is first mixed with an alkaline solution to remove fibre, then precipitated and separated using an acid wash and finally neutralised in an alkaline solution. Acid washing in aluminium tanks leaches high levels of aluminium into the final product. The resultant curds are spray-dried at high temperatures to produce a high protein powder. Finally high temperatures, high pressure extrusion processing of the SPI produces the textured vegetable protein TVP.

Nitrites which are potent carcinogens, are formed during spray drying and a toxin called lysinoalanine is formed during alkaline processing. Numerous artificial flavourings particularly MSG, are added to SPI and TVP products to mask their natural taste. In some experiments the use of SPI increased requirements for vitamins E, K, D and B12 and created deficiencies in calcium, magnesium, manganese, molybdenum, copper, iron and zinc.

Is it safe or only Edible?

We naively believe that the foods on our shelves are safe but it may only be edible. I strongly urge any one eating soy products or drinking soy milk to find out what they can about it. That just about means everybody who buys food in a supermarket. The soy industry is very powerful and there is much misinformation out there. Always make sure you check who funded any research you refer to, as well as the affiliations of any author writing about soy. Needless to say I have no affiliations.

A task to do after reading this article is to go into your pantry and read the ingredients on your food packages and see just how much has now soy or soy by products within them. It may startle you if you have not been aware of it before. While I believe a small amount of soy occasionally can be good for our health I believe that we need to be very wary of how much we are eating especially in light of current research and knowledge.