



SOY

SOY HAS TAKEN THE WORLD BY STORM. IT'S SUPPOSED TO BE GOOD FOR OUR HEALTH WE'RE TOLD IT WILL EVEN PROTECT US FROM SERIOUS DISEASE. BUT ACCORDING TO RECENT RESEARCH, SOY MAY NOT BE THE MIRACLE FOOD WE'VE BEEN LED TO BELIEVE...

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Jenny Smith, a secretary and receptionist, could not explain what was happening to her. She began to make mistakes in her work and suffer from memory lapses. She would type a word backwards without even realising it and proofread right over her mistakes. Her speech was slurring and when she answered the phone... she didn't know what to say. One day she found herself walking across a busy intersection against the lights and didn't know how she got there.

Laura Brown went to pick up her mother at the airport and got lost coming home. Although she had lived in the area for years, she became completely disoriented. It took her two hours to find her way back to her house. She was also suffering from cognitive problems, her words would jumble when she tried to speak coherent sentences, and she forgot how to spell.

Laura had been eating soy foods, lots of them, for three years. When she went off soy, her problems cleared up, her mind returned to normal. But Jenny Smith did not think she was eating soy. Her problems cleared up only when she went on a diet and stopped eating bread. She discovered that she could eat homemade bread without any problem. But supermarket bread gave her brain fog.

Jenny had a thyroid problem and had been taking thyroxine for years. When her office connected with the Internet, she went online to a thyroid site. There she learned that soy was a potent thyroid depressant and should not be consumed by anyone with thyroid troubles. On her next trip to the grocery store, she began to read labels and discovered that every loaf of bread in the supermarket contained soy flour.

Although scientists have known for many years that soy is linked to thyroid dysfunction, they only recently established that the thyroid-depressing substances found plentifully in the soybean are isoflavones. Isoflavones are a class of phytoestrogens, which are plant compounds that mimic the female hormone, estrogen. In normal women consuming sufficient iodine, just 30mg of roasted soybeans daily, containing about 38mg isoflavones, were found to depress thyroid function - less than the amount in two glasses of soy milk or two servings of tofu, or a handful of roasted soy nuts. In sensitive individuals, such as Jenny Smith, even small amounts of soy were able to provoke the mental confusion indicative of disrupted thyroid function.

The discovery that it was the isoflavones that caused thyroid problems came as a shock to the soy industry, which has heavily promoted Isoflavones as beneficial. It is isoflavones in soy that are supposed to protect us from heart disease, cancer, osteoporosis and the discomforts of menopause. The advertised health benefits of soy have accounted for increasing sales of various forms of the product worldwide.

Soy milk has posted the biggest gains. In the USA, for example, sales soared from \$2 million in 1980 to \$300 million in the US by 2000. The grey, thin, bitter, beany-tasting Asian beverage has been transformed into a product that Western consumers will accept - one that tastes like a milkshake, but without the guilt. Soy protein isolate (SPI) and textured vegetable protein (TVP) are used in school lunch programmes, commercial baked goods, diet beverages and fast food products. Flavourings, preservatives, sweeteners, numerous artificial flavourings, particularly MSG, emulsifiers and synthetic nutrients have turned SPI, the food processors' ugly duckling, into a New Age Cinderella.

SPI is not something you can make in your own kitchen. Production takes place in industrial factories where a slurry of soy beans 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 aluminum tanks leaches high levels of aluminum into the final product. The resultant curds are spray-dried at high temperatures to produce a high-protein powder. A final indignity to the original soybean is high-temperature, high-pressure extrusion processing of soy protein isolate to TVP.

Unfortunately, the high-temperature processing that precipitated products like tofu and bean curd undergo, does not remove large quantities of natural toxins contained in soybeans. These have been found to disrupt protein digestion, inhibit growth and cause mineral deficiencies.

The first among these toxins are potent enzyme inhibitors that interfere with our proper digestion of protein. These inhibitors are not completely deactivated during ordinary cooking and can produce serious gastric distress and chronic deficiencies in amino acid uptake. Soybeans also contain haemagglutinin (a clot-promoting substance that causes red blood cells to clump together) that like the enzyme inhibitors is a growth inhibitor. Weanling rats fed soy containing these toxins fail to develop normally.

Phytic acid, another toxin, is present in the bran or hulls of all seeds. It's a substance that can block the uptake of essential minerals - calcium, magnesium, copper, iron and especially zinc - in the intestinal tract. Although not a household word, phytic acid has been extensively studied; scientists are in general agreement that grain- and legume-based diets high in phytic acid contribute to widespread mineral deficiencies in third world countries. The soybean has one of the highest phytic acid levels of any grain or legume that has been studied and phytic acid in soy is highly resistant to normal phytic acid-reducing techniques, such as long, slow cooking.

The mineral-blocking effects of phytic acid are reduced when precipitated soy products like tofu are consumed with meat. But it is only over a long period of fermentation that the phytic acid content of soybeans will be significantly lowered. Growth-depressant compounds, on the other hand, are deactivated during the process of fermentation. Traditional fermented soy products, such as soy sauce and miso, have been part of the Asian diet for centuries.

Just how much soy do Asians eat? Not as much as we have been led to believe. Soy proponents claim that soy is a staple in Asia, but a 1998 survey found that the average daily amount of soy protein consumed in Japan was about eight grams for men and seven for women - less than two teaspoons. Soy has never been a staple in the ordinary Chinese diet: a survey conducted in the 1930s, found that soy foods accounted for only 1.5 per cent of calories (compared

to 65 per cent of calories from pork). Except in times of famine, Asians consume soy products only in small amounts - as condiments, and not as a replacement for animal foods - with one exception. Celibate monks living in monasteries and leading a vegetarian lifestyle find soy foods quite helpful because they dampen libido.

The acceptability of soy in the Western world, however, has less to do with its consumption in Asia, and far more to do with its promotion as a miracle food that

can prevent heart disease and cancer, whisk away menopausal hot flushes, build strong bones and keep us forever young. But just how well-founded are these claims?

We are told that soy helps the heart because it lowers cholesterol. But no study has ever offered direct proof that soy can prevent heart disease and in most of the major studies in which cholesterol levels were lowered through either diet or drugs, a greater number of deaths (from stroke, cancer, intestinal disorders, accidents and suicide) occurred in the treatment groups than in the controls.

According to advocates of soy, the food has anti-aging effects on the mind, but confirmation of the contrary comes from a recent study of Japanese Americans living in Hawaii. Professor Lon White found a significant statistical relationship between two or more servings of tofu per week and "accelerated brain aging."

Those participants who consumed tofu in mid-life had lower cognitive function in late life and a greater incidence of Alzheimer's and dementia. The claim that soy prevents osteoporosis is extraordinary, given that soy foods block calcium absorption and cause vitamin D deficiency. If Asians have lower rates of osteoporosis than Westerners, it is because their diet provides plenty of vitamin D from shrimp, lard and seafood, and plenty of calcium from bone broths, The reason Westerners have such high rates of osteoporosis is because they have substituted soy oil for butter, which is a traditional source of vitamin D and other fat-soluble activators needed for calcium absorption.

Thousands of women are now consuming soy in the belief that it protects them against breast cancer. Yet, researchers in 1996 found that women consuming SPI had an increased incidence of epithelial hyperplasia, a condition that precedes the growth of cancerous tumours. A year later, a dietary isoflavone (genistein) was linked to causing pre-cancerous cells in breast tissue - a discovery that suggests that women should not consume soy products to prevent breast cancer.

Soy is promoted as demonstrating powerful anti-cancer benefits based on the claim that the Japanese, who "eat 30 times as much soy as North Americans", have lower incidence of cancers of the breast, uterus and prostate. But the Japanese, and Asians in general, have much higher rates of other types of cancer, particularly cancer of the esophagus, stomach, pancreas and liver. Asians throughout the world also have high rates of thyroid cancer.

Whereas in Asia, soy is not considered an appropriate food for babies, Western countries such as the USA - where an estimated 750,000 babies per year receive infant formula made from processed soybeans - parents use soy formula in the belief that it is healthier than formula based on cow's milk. In fact, when soy infant formula first became commercially available, manufacturers promised that soy formula was "better than breast milk."

Naomi Baumslag, an American pediatrics professor and an expert on breast feeding, cites many reasons for parents to avoid soy formula. "There is a great deal of scientific evidence that soy formula can be damaging to newborns," she says, citing high levels of phytic acid, enzyme inhibitors,

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lectins, manganese and phytoestrogens. High levels of manganese are toxic to babies because they lack the blood-brain barrier that develops later in childhood. Manganese overdose is associated with brain damage leading to violent behaviour. Furthermore, soy lacks many factors that are essential to normal brain development, including essential fatty acids, DHA-brain growth factor and cholesterol.

RICHARD AND VALERIE JAMES, Whangarei bird breeders, thought they were onto a good thing when in 1991 they purchased a new kind of feed for their birds: one based largely on soy protein. When the soy-based feed was used, the birds 'coloured up' after just a few months, instead of at the normal period of maturity - somewhere between nine and 24 months. One bird-food manufacturer claimed that this early development was an advantage imparted by the feed.

But in the ensuing years, things started to go drastically wrong. There was decreased fertility in the birds, with precocious maturation, deformed, stunted and stillborn babies, and premature deaths, especially among females. The result was a steady decline of the total population in the aviaries. The birds suffered goitre, immune system disorders and pathological, aggressive behaviour. Autopsy revealed digestive organs in a state of disintegration. The list of problems corresponded with many of the problems the James' had encountered in their two children, who had been fed soy infant formula.

Startled, aghast and angry, Richard and Valerie hired New Zealand toxicologist Dr Mike Fitzpatrick to investigate further. His literature review uncovered evidence that soy consumption has been linked to numerous disorders, including infertility, increased cancer and infantile leukemia. He found studies dating back to the 1950s that showed that genistein in soy causes hormone imbalance in animals. He also analysed the bird-feed and found that it included high levels of isoflavones, especially genistein.

When Richard and Valerie discontinued using soy-based feed, the flock gradually returned to normal breeding habits and behaviour. The couple subsequently embarked on a private crusade to warn the public and government about the isoflavones in soy foods.

Parents who have contacted Richard and Valerie, recount other problems associated with

children of both sexes fed soy-based formula.

These include extreme emotional behaviour, asthma, immune system problems, pituitary insufficiency, thyroid disorders and irritable bowel syndrome: the same hormonal and digestive havoc that afflicted the parrots. Under pressure from Richard and Valerie, the New Zealand Government issued a health warning about soy infant formula in 1998.

A recent study found that babies fed soy-based formula had 13,000 to 22,000 times more isoflavones in their blood than babies fed milk-based formula. Dr Mike Fitzpatrick estimates that an infant exclusively fed soy formula receives the estrogenic equivalent of at least five

birth control pills per day. He believes that soy feeding accounts for the alarming levels of premature maturation in girls.

In the USA, one per cent of all girls now show signs of puberty, such as breast development or pubic hair, before the age of three; by age eight, almost 15 per cent of white girls and just under half of African-American girls have one or both of these characteristics according to a recent study reported in the journal, *Pediatrics*. The use of soy formula in the WIC (Women, Infants and Children) programme in the USA, which supplies free formula to low-income mothers, may explain the astronomical rates of early development in African-American girls.

JAPANESE TRADITIONALLY EAT A SMALL AMOUNT OF TOFU OR MISO AS PART OF A MINERAL-RICH FISH BROTH, FOLLOWED BY A SERVING OF MEAT OR FISH. VEGETARIANS WHO CONSUME TOFU AND BEAN CURD AS A SUBSTITUTE FOR MEAT AND DAIRY PRODUCTS RISK SEVERE MINERAL DEFICIENCIES.

THE CLAIM THAT SOY PREVENTS OSTEOPOROSIS IS EXTRAORDINARY, GIVEN THAT SOY FOODS BLOCK CALCIUM ABSORPTION AND CAUSE VITAMIN D DEFICIENCY

The consequences are tragic. Young girls with mature bodies must cope with feelings and urges that most children are not well-equipped to handle. And early maturation in girls is frequently a harbinger for problems with the reproductive system later in life, including failure to menstruate, infertility and breast cancer.

The effects of soy products on the development of boys can't be ignored either. Male children exposed during gestation to an oestrogen compound (DES) that has effects on animals similar to those of isoflavones from soy, had testes smaller than normal on maturation

Why have parents not been alerted to the potential dangers of soy formula? The formula industry is large and powerful, able to influence the outcome of scientific research and wage successful publicity campaigns. A good example is a recent University of Iowa study, funded by the formula industry and published in the Journal of the American Medical Association, comparing the reproductive health of adults who had been fed soy- or milk-based formula as infants. The survey found that the soy group had higher levels of reproductive disorders, asthma and allergies. Females of the soy group were more likely to be sedentary and to have taken weight loss medications. Yet the authors omitted these findings in their abstract and concluded that "...the findings of the current study are reassuring about the safety of soy infant formula." The University of Iowa study was widely reported in the press as a vindication of soy formula.

Concerns about the dangers of soy have prompted consumer groups in New Zealand and Canada to call for a ban on the sale of soy infant formula. The law firm of Johnston Lawrence in New Zealand is collating a list of victims in preparation for a class action lawsuit in New Zealand, with follow-on legal action in the USA

Lurking in the background of the hype for soy as a miracle food is the controversy about whether soy has any health benefits at all, and furthermore, whether it indeed causes harm. The extent to which soy is contained within the foods we eat is frightening given recent findings. It surely pays to be aware of exactly what we're eating, and how much. After all, cutting out soy from their diets, changed the lives of Jenny and Laura for the better.

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SALLY FALLON IS FOUNDING PRESIDENT AND MARY ERIC IS VICE-PRESIDENT OF THE WESTON A. PRICE FOUNDATION, WHICH IS A NON-PROFIT CHARITY ESTABLISHED IN 1999 TO DISSEMINATE THE RESEARCH OF NUTRITION PIONEER DR WESTON PRICE. FOR MORE INFORMATION AND ARTICLE REFERENCES, PLEASE VISIT WWW.WESTONAPRICE.ORG

THE HISTORY OF THE SOYBEAN IN CHINA

DURING THE CHOU DYNASTY (1134-246 BC), the soybean was designated one of the five sacred grains, along with barley, wheat, millet and rice. However, the pictograph for the soybean, which dates from earlier times, indicates that it was not first used as a food; for whereas the pictographs for the other four grains show the seed and stem structure of the plant, the pictograph for the soybean emphasises the root structure

Agricultural literature of the period speaks frequently of the soybean and its use in crop rotation. Apparently, the soy plant was initially used as a method of fertilising the soil

The soybean did not serve as a food until the discovery of fermentation techniques, some time during the Chou Dynasty. The first soy foods were fermented products like tempeh, natto, miso and soy sauce. At a later date, possibly in the 2nd century BC, Chinese scientists discovered that a puree of cooked soybeans could be precipitated with calcium sulphate or magnesium sulphate (plaster of Paris or Epsom salts) to make a smooth, pale curd: tofu or bean curd. The use of fermented and precipitated soy products soon spread to other parts of the Orient, notably Japan and Indonesia, and subsequently to the West.