



Soy is a health food, right? JOANNA McMILLAN-PRICE investigates

Soy's beneficial effects have been reported in relation to heart disease, breast cancer, prostate cancer, menopause, thyroid function, bone health and even cognitive function. Yet media reports and numerous websites claim exactly the opposite.

Frightening headlines touting "The Truth About Soy" allege the stuff is toxic, causing detrimental health outcomes, including reproductive problems, an increased risk of breast and prostate cancers, decreased immune function, gut problems and, in children, early menarche and feminisation of boys. It's enough to turn you off your soy latte. But who do we believe?

Soy is a legume unique in the plant kingdom in that it provides all of the essential amino acids (the building blocks of protein) humans need. Almost all other plant foods lack or are low in one or more of these amino acids, so to get enough protein vegetarians must eat a variety of plant foods.

For this reason soy beans, tofu, tempeh, soy drinks and other soy foods have long been mainstays of vegetarian and vegan diets. But soy hasn't played a major role in western diets although it's consumed by Asians at all stages of life, from weaning to old age. This difference in levels of consumption is what got the ball rolling in soy research.

Scientists found that levels of heart disease and many cancers, including breast cancer, were far lower in these soy-eating Asian countries compared with levels in the West. Studies followed to try to identify what it was about soy that might be protective.

Research has centred on two aspects of soy: soy protein and compounds found in soy called isoflavones. Isoflavones are phytoestrogens (meaning "like oestrogen") similar in structure to the hormone oestrogen, and they can act in two ways.

Firstly, they can act like oestrogen. This may be beneficial during menopause, when natural oestrogen levels drop. Theoretically, consuming sufficient phytoestrogens-rich soy at this time can reduce menopausal symptoms. Secondly, they can block the action of oestrogen — a potential benefit for breast tissue, for example, as oestrogen

So soy me

stimulates the growth of both normal and cancerous cells. At least one of the isoflavones in soy, called genistein, has been shown in animal studies to inhibit the development of breast cancer.

Additionally, isoflavones have been shown to be powerful antioxidants and may in this way contribute to protection against diseases including cancer and heart disease.

SOY AND HEART DISEASE

A 1995 report in the *New England Journal of Medicine* concluded on the basis of 38 controlled clinical trials that soy protein significantly reduced cholesterol levels, particularly “bad” LDL-cholesterol and triglycerides (another blood fat linked to an increased risk of heart disease).

On the back of this report, the US Food and Drug Administration now allows food manufacturers to claim on the labels of low-fat foods containing at least 6.25g of soy protein that soy can help reduce the risk of heart disease. Many countries, including the UK, have followed suit but as yet Food Standards Australia and New Zealand hasn't approved such a claim.

A more recent review of the evidence, published in the journal *Circulation* earlier this year, suggests this claim is premature. It concludes that soy protein has only a very small effect on LDL-cholesterol, reducing it by a meagre 3 per cent or so, while having no effect on triglycerides or “good” cholesterol. Furthermore, the studies showing a beneficial reduction in cholesterol used large quantities of soy: 50g a day. This equates to drinking about seven cups of soy drink or close to 600g of tofu every day.

Nevertheless, the authors did recognise that consuming soy foods in place of animal foods should benefit heart and overall health as soy foods are low in saturated fat, a source of healthy unsaturated fats, and rich in fibre and other nutrients.

All this research is really telling us that having soy drink instead of milk and the

odd tofu burger isn't enough to bring down your cholesterol levels. But, choose the tofu burger over a regular burger and replace the fattier cuts of meat in your diet with tofu or tempeh, and your heart will be thankful.

SOY AND CANCER

If soy isoflavones have the ability to block the action of oestrogen, they can potentially reduce the risk of hormone-dependent cancers such as breast and prostate. Some of the early studies comparing cancer rates across countries showed benefits in soy consumption, and many soy and health food companies leapt on the results.

But the picture is far from clear and worrying reports suggest concentrated soy supplements in fact stimulate cancer growth in subjects with existing breast cancer.

Of course, this so often happens in nutrition research. Once scientists think they've isolated the important component of a food they try giving it as a supplement and, lo and behold, the effects aren't the same. Try as we might, a good diet just can't be packaged in a pill. There are several large-scale studies under way to further investigate the role of soy in cancer and, until the results are in, we really can't say.

SOY AND THE MENOPAUSE

Many women have sworn that eating more soy foods during the menopausal years has helped to reduce symptoms such as hot flashes and mood swings. However, most studies have failed to confirm these anecdotal findings.

It's interesting to note that the reported incidence of hot flashes differs across countries with varying soy intakes. While 70-80 per cent of European women report hot flashes, only 18 and 14 per cent do so in China and Singapore respectively. These differences are perhaps due to the way in which soy is consumed — not as supplements but as key foods in an overall healthy diet.

SOY AND REPRODUCTIVE HEALTH

Girls starting menarche at an increasingly young age and the feminisation of our boys and men are among the more horrific claims made against soy. The basis for this is legitimate enough: if infants are fed soy formula and young children consume soy in an increasing number of foods, they're exposed to the effect of an oestrogen-like substance for a far longer period of time.

Certainly, infants in Asia are rarely given soy formula but are fed many soy foods from the age of weaning. These children have no ill effects on their reproductive systems and there seems little concern from soy foods.

With respect to soy infant formula, a major study published in 2001 in the *Journal of the American Medical Association* followed more than 800 men and women fed soy formula as infants, into adult life. They found no significant differences between this group and those fed a cow's milk formula.

Yet breast feeding infants has indisputable advantages to bottle feeding (modified cow's milk formulas are a safe and effective alternative). Soy-based formulas were developed for infants allergic or intolerant to cow's milk: use them only if advised to do so by your doctor or health professional.

THE SOY BOTTOM LINE

While there seems little evidence to support the alarmist claims of the anti-soy network, neither is there compelling evidence that soy is the health food it's cracked up to be.

The traditional soy-rich Asian diet has been shown to be a healthy one that undoubtedly plays a role in Asians' low rates of several chronic diseases, including heart disease, obesity and certain cancers. But what Asians don't do is take concentrated soy or isoflavone supplements; nor do they eat processed food, marketed as healthy because it's made from soy, on top of a typical western diet high in saturated fat and so on.

Traditional soy foods such as tofu, soy drinks made from whole soybeans, tempeh and whole soy beans are healthy additions to your diet, particularly if they replace processed and fatty meats. But there appears to be nothing to be gained — and potentially much to lose — from trying to take the easy route and package soy in a pill. ■

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