

Soya is a wonder food or it can make boys grow breasts and turn them infertile - depending on whom you read. Strange that such an innocuous looking little white bean could have commandeered the headlines successfully enough to make Max Clifford green with envy. These unremarkable, unpretentious legumes have a history that disappears back into the mists of time. They have a parentage that puts them in the same family as kidney beans, butter beans and chickpeas as well as lentils, peanuts (not actually a nut) and peas and they all share the family trait of being rich in protein.

They were for centuries a staple of the East while the West spurned them, making little use of their extraordinarily healthy profile. All legumes are excellent sources of protein, starchy carbohydrates, soluble fibre, omega-3 and omega-6 essential fats, vitamins, minerals, including disease-busting anti-oxidants, and valuable phytochemicals. But soya beans are loners amongst their relations as only they are rich in phytoestrogens (isoflavones) - chemicals which are thought to boost good health (1).

Nearly 40 per cent of calories in soya come from protein, which puts it on a par with meat and cow's milk. Unique in the plant world, the building blocks of protein (amino acids) that soya provides are the same as those in animal products and the body digests them in the same way, too (2, 3). But unlike animal products, soya contains no cholesterol and very little unhealthy, unnecessary, saturated fat. It is free of the sugar (lactose) and protein (casein) found in cow's milk and therefore makes the perfect alternative to dairy products for those who can't tolerate them.

Hearty and Healthy

Raised cholesterol levels are a risk factor for heart disease - one of the West's biggest killers - and the humble little soya bean has the power to reduce them. It even has the backing of the big and mighty in the form of the American Heart Association (AHA): "It is prudent to recommend including soya protein foods in a diet low in saturated fat and cholesterol to promote heart health" (4). Soya has the effect of reducing low density lipoproteins (LDL or 'bad' cholesterol) by about 13 per cent, lowering triglyceride (fat) levels by about 10 per cent and increasing high density lipoproteins (HDL or 'good' cholesterol) by about two per cent (5).

So strong is the evidence that soya is good for hearts that both the US and UK allow manufacturers of soya foods to stick health claims on their packaging: '25g of soya protein each day, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease'.(4). Claims such as this are rare and are only allowed after intense scrutiny.

Anything you can do ...

Soya also contains plant hormones called phytoestrogens (isoflavones) which are thought to benefit conditions in which human hormones are at play - some cancers, menopausal symptoms and osteoporosis. Now here it gets complicated! Its two types of isoflavones - genistein and daidzein - can affect the body in a similar way to oestrogen or they

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The media and a plethora of websites continue to stir the soya pot. The media has her finger on the pulse and looks at the science behind the h

can have the opposite effect. They do this, it is thought, by regulating the body's hormone levels. At a time of high oestrogen production they bring levels down while at times of low oestrogen production, such as after the menopause, they increase levels. How they do it is complicated and still only a theory but the fact is that they appear to react to the body's demands and provide it with what it needs. It is this ability which is thought to offer protection against disease(6).

Protect and survive

Levels of some cancers, such as prostate and breast, vary from one country to another. Asian countries, for instance, have lower rates of both than the West. Soya foods are commonly eaten in Japan and China and it's thought that this might be the reason for better health (7).



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In test tube studies, the main isoflavone in soya - genistein - limits the growth of prostate cancer cells. It's long been known that the body's own oestrogen can influence cancer risk. Particular events throughout a person's life can, depending upon when they happen, extend their lifetime production of oestrogen and this can increase their cancer risk. These events include early puberty, late menopause, late first-time pregnancy and not having children at all. Isoflavones can affect oestrogen metabolism and this may play a part in breast cancer prevention (8, 9). Whilst it's too early to be certain (10, 11), it seems likely that the longer someone eats soya, the better the benefits are likely to be (12).

Natures Knows Best

Phytoestrogens are thought to act as a kind of natural, weak hormone replacement therapy (HRT) by replacing the oestrogen hormones that reduce significantly after the menopause (13). This may help to lessen unpleasant menopausal symptoms such as hot flushes (14, 15). It's becoming clear that there are serious health concerns for women taking HRT, with increased risks for breast cancer, stroke and heart disease and so a safer alternative is the natural HRT gained by eating phytoestrogen-rich soya foods.

Boney M

Bone density, or mass, decreases with age, leaving it more fragile and at risk of fractures. Whilst both men and women are at risk of osteoporosis, it is particularly associated with the menopause when the oestrogen which protects bones declines. The gentle effect of soya isoflavones, acting in a similar way to oestrogen, may offer protection against bone loss. As yet, there are too few studies to be certain (1). There are myriad reasons for osteoporosis, not least lack of exercise, vitamin D and calcium loss. Salt, alcohol, phosphorus from cola drinks and animal proteins all cause calcium loss and are best avoided or reduced (16, 17). Plant proteins don't have the same negative effects as animal proteins.

Fear of Formula

The media has had a field day with highlighting possible health problems from soya but as is so often the case, the stories tend to reflect reporters' individual prejudices than the science. Infant formulas and the claim that they damage fertility and reproduction is a case in point (18, 19). The experiments which led to these claims largely involved feeding or injecting animals with large concentrations of isolated soya components such as isoflavones. The two problems with this work is that applying animal data to humans is often invalid - what happens to animals may or may not happen to humans. Secondly, all foods contain an array of chemical components, some of which the body may

deactivate or convert to something else and none of these can be reproduced in artificial experiments. But the main argument against such fears is that thousands, probably millions, of children have been fed soya formulas and foods and no such problems have ever been observed (20, 21).

The second area for scare stories is brain health. One study reported an association between men who ate tofu in midlife and dementia later in life. The media seized on this and ignored the fact that it was just an 'association' with no cause and effect. They also ignored the authors, who pointed out that the men who had eaten the most tofu had also had a childhood of greater poverty and this was the most likely cause of brain ageing (10, 22).

Another scare is that soya suppresses the thyroid gland, which governs the body's metabolic rate. However, human studies show little or no effect of soya on the thyroid. What is sensible is to include iodine in the diet as this is essential for thyroid function (23) and good sources include sea vegetables such as kelp.

Asian countries have a long history of eating soya, have good health statistics and show no evidence that it affects fertility, thyroid or brain function.

How much?

Daily intakes of soya in Asian countries are about 10 grams with 25 grams necessary to lower cholesterol and so any intake between the two figures can be considered safe and healthy. Asians tend to eat the whole bean as tofu, soya milk, tempeh and miso and these are preferable to highly-processed imitation soya-meats. Thirty grams of soyabeans provide about 5 grams of protein, 250ml of soya milk about 8 grams and 100g tofu around 10 grams (24). The average adult intake of soya protein in the UK is a mere two grams but vegetarians eat about 12 grams and vegans 18 grams (25).

Wunderbean

Soya is a wonder bean. It can lower cholesterol and probably cut the risk of heart disease. It seems likely that it can also reduce the chances of developing hormone-related diseases. The few studies that have raised doubts about it are far outnumbered by those showing it to be a valuable part of the diet. The healthiest diets are based on plant foods not foods derived from animals and soya is an extremely valuable plant food indeed.

Full list of references is available on request.



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