

International Experts Confirm Soy's Health Benefits

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Soy continues to attract a great deal of attention due to the huge amount of research published every year. The 9th International Soy Symposium on the Role of Soy in Health and Disease, recently held in Washington, USA, was a central meeting point for scientists to discuss new research in the field of soy. This article aims to give an overview of these new studies which provide further evidence of soy's positive role in health, as well as reassurance of its safety.

Soy and Heart Disease

The benefits of soy in heart health have been well documented over the years. As a result of its beneficial action in lowering LDL cholesterol (the 'bad' cholesterol), a number of countries have allowed a cholesterol lowering health claim for soy protein. Recently, however, the degree to which soy protein reduces cholesterol has been questioned. For this reason *Dr James Anderson from the University of Kentucky* analysed the results of 42 studies published since 1995 when his first meta-analysis showing the beneficial effect of soy protein on cholesterol levels was published. He also took into account the quality of the study design. When all the results were pooled together he found that soy protein reduced LDL cholesterol by approximately 5% with higher quality studies resulting in even greater reductions. Furthermore, soy protein also increased HDL cholesterol (the 'good' cholesterol) by 3.2% and reduced Triglycerides (another fat in the blood) by 9.8%. As a result, Dr Anderson estimated that approximately 15 to 25g of soy protein could reduce the risk of Cardiovascular Disease by up to 24%.

As well as this direct effect of soy protein on LDL cholesterol, it's been suggested that including soy foods into the diet, at the expense of animal proteins, can have an additional benefit on LDL cholesterol. This indirect effect would be due to the reduction of saturated (bad) fats in the diet and an increase in polyunsaturated (good) fats. To quantify this, *Dr Berryman from Pennsylvania State University* presented results from a study where animal protein in a typical American's diet was substituted for soy protein. Substituting foods containing 13 to 57.8g of soy protein (e.g. from soy milk) for similar foods containing animal protein (e.g. cow's milk) resulted in a decrease in saturated fat (12.1g), cholesterol (113mg), and monounsaturated fat (3.0g) and an increase in polyunsaturated fat (4.9g). These changes are predicted to further reduce LDL cholesterol by between 3 to 6%.

Dr Jenkins from the University of Toronto explained that as soy should be considered within the context of a diet, it's important to consider both the direct and indirect effect of soy protein on cholesterol. In this way Dr Jenkins concluded that soy protein could reduce LDL cholesterol by approximately 10%, a reduction that is clinically significant.

Soy and the Menopause – Hot Flashes

Soy naturally contains compounds called isoflavones which show structural similarities to estrogen. As such it's thought they may help to relieve symptoms of the menopause including hot flashes. To date, results from studies examining this have been inconsistent. However *Professor Kurzer from the University of Minnesota* now has conclusive data to show that soy isoflavones significantly reduce both the number of hot flashes and the severity. She analysed data from 16 trials using between 30 to 100mg of isoflavones a day. Hot flush frequency was reduced by around one fifth and severity was reduced by

nearly one third compared to groups who took a 'dummy' tablet (placebo). However, when the placebo effect was also taken into account (i.e. women believe they are getting a benefit despite not taking any active ingredient - very common in studies examining menopausal symptoms), both the number of hot flushes and the severity was reduced by about a half (50%).

Soy and Breast Cancer

There has been some controversy over soy and breast cancer. On the one hand, there is evidence from human studies to suggest that eating soy early in life can protect girls from breast cancer later in life. On the other, it has been questioned whether soy is safe to eat in women at risk of breast cancer and among breast cancer patients. *Dr Messina, Associate Professor at Loma Linda University* explained that the controversy is largely based on animal studies and that these animals couldn't be used to determine what 'might' happen in humans. This was confirmed by *Professor Setchell, from the Children's Hospital at Cincinnati* who presented results showing that animals metabolise isoflavones very differently to humans. He demonstrated that compared to animals, humans are very efficient at metabolising the more potent isoflavones to a less biologically active form. The higher levels of biologically active isoflavones in animals may explain the differences seen between animal and human studies.

The safety of soy foods in breast cancer patients was also confirmed by two large studies. In the first, *Professor Shu from the Vanderbilt Epidemiology Center, Vanderbilt University, USA* presented data from the Shanghai Breast Cancer Survival Study (SBCSS). This study included over 5000 breast cancer patients. Five years after cancer diagnosis soy food intake was associated with a more favourable outcome; women eating more soy (15.31g a day) had a 33% lower risk for all deaths and a 34% lower risk for breast cancer recurrence compared to the women who ate the least amount (5.31g a day). Five year mortality rates were 13.1% for women who ate the least amount of soy versus 9.2% who ate the most. Five year recurrence rates were 13% in the lowest soy eating group compared to 8.9% in the highest. This benefit was seen both in users and non-users of tamoxifen (a widely used treatment for breast cancer).

In the second study, *Dr Kang from the Cancer Hospital of Harbin Medical University in China* examined the associations between dietary soy isoflavones and breast cancer recurrence and survival among post-operative breast cancer patients who were receiving adjuvant drug treatment. After an average follow-up period of 5.1 years, postmenopausal women consuming more dietary soy isoflavones had a significantly reduced risk of recurrence of breast cancer compared to those eating the least. Soy isoflavones had no effect on mortality rates.

Conclusions

The information presented at the 9th International Soy Symposium clearly emphasized soy's health benefits as well as its safety. Eating a healthy diet is the cornerstone to good health. Soy is a nutritious food, and as such can be enjoyed as part of a healthy, balanced diet. However consumption data from the US shows the intake of soyfoods is still very low and so should be encouraged.

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Key Points and Dietary Recommendations

- Studies continue to demonstrate that soy protein can reduce LDL cholesterol at intakes of approximately 15 to 25g a day.
- The beneficial effect of soy on all the blood fats is predicted to reduce the risk of Cardiovascular Disease by up to 24%.
- Swapping animal protein for soy protein could further reduce LDL cholesterol because of a reduced saturated fat and cholesterol intake.
- 30 to 100mg of soy isoflavones a day can reduce hot flush frequency and severity by approximately 50%. **Approximately 50mg of isoflavones can be found in 3 to 4 servings of soy food.**
- Data shows that soy foods are safe for breast cancer patients at intakes of around 15g a day. **Fifteen grams of soy protein can be found in approximately 2 servings of soy foods.**
- Soy foods can easily be integrated into the daily diet during breakfast (e.g. using a soy drink on cereal) or as a snack (e.g. soy desserts or soy yoghurt) or at lunch (by replacing meat with delicious soy meat alternatives).