SOY & CANCER

Studies show that there is a lower incidence of certain cancers, such as breast and prostate cancer, in populations that consume soy as a regular part of the diet[1, 2]. The risk of developing breast cancer in Japanese women is four to five times lower than in Western women[1], and the incidence of prostate cancer is four to ten times lower in men from certain Asian countries compared to Western men[3].

Population studies in Asia suggest a correlation between soy consumption and a lower incidence of breast, prostate, colon, lung, stomach and endometrial cancer[4-13.]

SOY COMPONENTS AND CANCER PROTECTION

Foods containing soy protein are a particularly rich source of isoflavones, which are natural compounds found in some plant foods that researchers believe may offer potential health benefits.

Animal and test tube studies have shown that foods that contain soy or soy isoflavones can protect against the development of cancers[2]. Isoflavones inhibit the action of key enzymes and growth factors required for cancer cell growth[2,15,16]. Soy isoflavones appear to behave like the breast cancer treatment drugs Tamoxifen and Raloxifene, and may protect against cancer in many other non-hormone-like ways.

Although isoflavones have been the primary focus, researchers have identified further components of soy that could also act as anti-carcinogens. These include phytic acid, trypsin inhibitors and saponins[17]. These natural phytochemicals are also found widely in other plant foods such as wholegrains or nuts, although legumes tend to contain higher levels.

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SOY AND BREAST CANCER

Research suggests a link may exist between consumption of soy and a reduction in the risk of breast cancer.

An epidemiological – or population – study of Asian-American women (high soy consumers) shows a lower risk of breast cancer compared with those who were low soy consumers. A number of test-tube and animal studies found that a diet rich in soy protein or isoflavones inhibits cancerous tumour development. Other studies indicate consuming soy during adolescence may reduce the incidence of breast cancer later in life.

Research is ongoing to further determine the specific effects of soy protein and isoflavones as it relates to breast cancer.

Questions & Answers – Soy and Breast Cancer

What are the risk factors for developing breast cancer?

What evidence is there that consuming soy protein reduces the risk of breast cancer?

What can I do to reduce my risk of breast cancer?

What is it in soy protein that may reduce the possibility of developing breast cancer?

How much soy do I need to consume to reduce my risk of breast cancer?

What about research claiming soy protein actually causes breast cancer?

Can I just take a soy pill?

In addition to reducing the risk of breast cancer, what are the other benefits of soy protein?

Are there any negative effects of consuming large amounts of soy protein?

Does eating a diet rich in soy protein positively affect other types of cancer?

What are the risk factors for developing breast cancer? Back to menu

We do not yet know the exact causes of breast cancer. The most common risk factors for breast cancer are being a woman and aging. However, research is augmenting our knowledge daily and some specific factors have been identified as potential risk factors. These include:

- More than one first-degree relative (mother, sister) has had breast cancer
- Mutations of the BRCA1 and BRCA2 genes
- Past history of breast cancer or previous breast biopsy
- Early menstruation (before age 12)
- Women who have had no children or their first child after age 30
- Alcohol consumption
- While the impact of diet and weight is still being investigated, evidence suggests a high intake of dietary fat (especially saturated fat) may be related to an increased incidence of breast cancer

There are many myths and misconceptions about potential risks and causes of breast cancer. You are advised to discuss these concerns with your oncologist or health care professional. Genetic testing is now available in many hospitals across Canada. (http://www.cbcf.org/what/questions_answers.html#4: June 1, 2005)

What evidence is there that consuming soy protein reduces the risk of breast cancer? Back to menu

A large body of epidemiological evidence (population studies) demonstrates that consumption of soy foods may be associated with a lower risk of certain cancers – including breast cancer – in Asian countries. The death rates for breast cancer are more than two and a half times higher in American women than in Japanese women. In searching for an explanation for this difference, scientists found that Asian diets tend to be low in animal protein and high in protein from soybeans and other plant sources. In fact, Asians consume 20 to 50 times more soy-based foods than North Americans.

Studies also have found that an increase in soy consumption during adolescence results in a significant reduction in the risk of breast cancer later in life, in both pre-menopausal and post-menopausal women.

Researchers continue to examine soy protein components, including isoflavones, to determine how they may relate to cancer risk. Clinical studies currently are underway.

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What can I do to reduce my risk of breast cancer? Back to menu

Increasing the amount of fibre from fruits and vegetables in your diet and limiting fat and alcohol may offer some protection from cancer. Studies have shown that staying

physically active and maintaining a healthy weight can be linked to a decrease in breast cancer risk as well. (http://www.5to10aday.com/eng/media_stats.htm: June 1, 2005)

There is interesting research involving soy protein and breast cancer. A number of laboratory studies found that feeding animals a diet rich in soy protein inhibits cancerous tumour development. And recent studies conducted in China and in the United States show that groups of adolescents who regularly consumed soy protein may have a lower incidence of breast cancer in adulthood.

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What is it in soy protein that may reduce the possibility of developing breast cancer?

Back to menu

Soy contains several families of bioactive components such as isoflavones, protease inhibitors, saponins, and phytic acids. In recent years, available evidence suggests that these components may be responsible for helping reduce the risk of certain types of cancer.

Several studies suggest that consumption of the isoflavones found in soy protein may inhibit experimental tumour formation. The inhibitory effect on tumour development also was observed with other soy bioactive components when they were added to animal diets. More studies need to be conducted, but the preliminary results are very promising.

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How much soy do I need to consume to reduce my risk of breast cancer?

Back to menu

Scientists have not yet determined the optimal amount of soy protein or isoflavones needed to reduce breast cancer risk. However, based on traditional soy rich diets, many health care professionals suggest trying to include 1 – 2 servings of soy protein rich foods each day for optimal health. Regular consumption appears to provide more benefits than occasional intake.

Studies show that regular consumption of soy during adolescence may reduce the incidence of breast cancer later in life. One study found that Asian-American women who consumed soy foods on a weekly basis during their teen years and adulthood had about half the risk of developing breast cancer compared to similar women who ate little soy during the same periods.

Source: Wu, A.H., Wan, P., Hankin, J., Tseng, C.C., Yu, M.C. & Pike, M.C. (2002). Adolescent and adult soy intake and risk of breast cancer in Asian-Americans. Carcinogenesis, 23, 1491-1496.

What about research claiming soy protein actually causes breast cancer?

Back to menu

Long-term studies are underway to better understand the association between soy protein and breast cancer. However, epidemiological evidence demonstrates that consumption of soy foods may be associated with a lower risk of certain cancers – including breast cancer – in Asian countries. The death rates for breast cancer are more than two and a half times higher in American women than in Japanese women. In searching for an explanation for this difference, scientists found that Asian diets tend to be low in animal protein and high in protein from soybeans and other plant sources.

Studies also have found that an increase in soy consumption during adolescence results in a significant reduction in the risk of breast cancer later in life, in both pre-menopausal and post-menopausal women.

Research in humans to determine the role that soy protein may play in the prevention and treatment of cancer currently are underway for breast and endometrial cancer, as well as colon cancer. Additionally, several components of soy are being investigated to determine their roles in the prevention of cancer.

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Can I just take a soy pill?

Back to menu

People who eat soy foods get the added benefit of a nutritionally rich, cholesterol-free, complete plant-based protein. When you consume protein-rich soy foods you get the health benefits of isoflavones, but you also take advantage of vitamins, minerals, and other nutritious components. Soy foods are a great addition to a balanced, healthy diet.

In addition to reducing the risk of breast cancer, what are the other benefits of soy protein?

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There are numerous health benefits related to soy consumption. In 1999, the US Food and Drug Administration (FDA) issued a claim that 25 grams of soy protein a day, as part of a diet low in saturated fat and cholesterol, may improve coronary heart health. Additionally, the UK's Joint Health Initiative announced a similar claim in 2002.

Studies conducted on women who were peri- and post-menopausal suggest that consumption of soy protein with higher levels of isoflavones may help maintain and increase bone mineral content and bone mineral density. More studies need to be conducted, but the results to date are very promising.

Epidemiological evidence links the consumption of soy foods to a lower risk of certain cancers in Asian countries. Recent studies conducted on animals also reveal that consuming soy protein may reduce the risk of some types of cancer, such as colon cancer.

Studies also suggest that soy protein may help both professional and casual athletes build and maintain lean muscle mass.

Sources: Based on scientific evidence from more than 50 independent studies. In 1995, results from a meta-analysis of 38 clinical studies were published, reporting on soy protein consumption and blood cholesterol lowering. The meta-analysis concluded that soy protein consumption resulted in a significant reduction in total blood cholesterol and LDL-cholesterol compared to animal protein consumption.

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Are there any negative effects of consuming large amounts of soy protein?

Back to menu

Although we continue to learn about the many positive effects soy can have in helping to prevent diseases, even the soy foods industry notes that soy, like any other food, should not be considered a magic bullet and should be enjoyed as a part of a varied and balanced diet.

Does eating a diet rich in soy protein positively affect other types of cancer?

Back to menu

The existing data from epidemiological studies, along with supportive data from animal studies, strongly support that consumption of soy protein may reduce the risk of certain cancers in humans. Currently, ongoing intervention trials investigating the role of soy protein in reducing the risk of breast, prostate, and colon cancers in humans are in progress.