Soyfoods and the impact on prostate cancer: current thinking

Key propositions

- Prostate cancer is the second most common male cancer in the world.
- Western men have higher rates of prostate cancer than men living in East Asian countries such as Japan and China.
- As well as genetics, diet and lifestyle factors may play a role in the development of prostate cancer.
- Plant-based foods have an important role in reducing the risk of cancer and eating soya foods may help to offer protection against prostate cancer.
- Men should consider eating soya foods daily as part of a healthy, balanced diet.

Introduction

The prostate is a small gland, about the size of a walnut, situated just below the bladder. It is part of the male reproductive system and is responsible for making prostatic fluids that help nourish and protect the sperm.

Learning from the global imbalance

Prostate cancer is a disease that may stay undiagnosed in some men because it never causes problems or symptoms. However for some, the cancer can grow quickly and spread to other parts of the body. It is not entirely clear why some men develop prostate cancer and others don't, however what is known is that genetic and environmental factors play a role. Although some of these can't be changed, such as getting older and a family history of prostate cancer, others can be altered. Adopting a healthy lifestyle and making positive dietary choices can all help towards protecting against prostate cancer.

Geographical Differences

Prostate cancer is the second most common male cancer in the world and in the UK it is the most common cancer in men, accounting for nearly a quarter (24%) of all new male cancer diagnoses.[i] However, men living in East Asian countries, such as Japan and China, have lower rates of prostate cancer compared to men living in Western countries.[ii] Although genetics may account for some of these differences, researchers believe that the traditional Asian diet and lifestyle may also have a role to play.

This view is supported by the increasing rates in Asia as more people adopt a Western type diet and lifestyle.[iii] Furthermore, prostate cancer rates have increased in men who have migrated from Japan to the USA. This demonstrates that genetics are not the only reason for the large worldwide variations.

Despite the geographical differences in prostate cancer rates, interestingly, the incidence of small prostate tumors is similar in Asian and Western men.[iv] Scientists believe that some elements in the traditional Asian lifestyle may help to slow down the growth of prostate tumors, preventing them from becoming clinically relevant. This may be particularly important as prostate cancer typically occurs in men over 50 years. By delaying this growth it is possible that men will never experience problems and will die with, and not of, their cancer.

Role of Diet

The World Cancer Research Fund (WCRF) report on diet and cancers has emphasised the import role that plant foods have in reducing the risk of cancer.[v] The report recommends a minimum of five portions (400 grams) of different coloured fruits and vegetables a day. Unprocessed whole grain foods and legumes (such as beans, peas and lentils) should also be included at every meal. In practice this means that ideally two thirds of each meal should consist of plant foods.

The WCRF report also highlights certain foods in relation to prostate cancer. A diet that is high in cereals, soya foods, fruit and vegetables has been associated with a decreased risk. These plant foods contain a variety of compounds that may work together to prevent the development of prostate cancer and its progression.

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Effect of soya on prostate cancer risk

It has been suggested that the low rates of prostate cancer in Asian men may be due to the inclusion of soya in their traditional diet. In fact, studies investigating this have found that men eating more soya foods have a 30% lower risk of prostate cancer compared to men eating the least.[vi] Another study investigated the role of soya foods on Prostate Specific Antigen (PSA), a protein that is produced by the prostate gland and is used as an indicator for prostate cancer.[vii] All men have a small amount of PSA in their blood however high levels can indicate prostate cancer. In this study men who had prostate cancer were compared to a similar group of men with normal PSA levels. Eating soya foods more than twice a week appeared to offer protection against prostate cancer. Even greater protection was seen when soya foods were eaten more frequently.

Although the exact mechanisms of action are not known, scientists believe that the isoflavones, naturally occurring compounds in soya, may have a role. Asian men who traditionally include soya in their diet have higher levels of isoflavones in their prostatic fluid than men from Western countries.[viii] Furthermore these isoflavones tend to be more concentrated in the prostatic fluid than in the blood.[ix] For this reason scientists think that isoflavones may be biologically active in the prostate. Various animal and test-tube studies have found that these isoflavones have anti-cancer properties by reducing prostate cancer cells, preventing tumor growth and stopping the cancer from spreading to other parts of the body.[iv, x, xi, xii] On the other hand soya does not appear to have an effect on testosterone, the male hormone, levels. Studies investigating this have found that neither soya nor isoflavones affects reproductive hormones in men.[xiii, xiv]

Soya foods and prostate cancer patients

As well as reducing the risk for prostate cancer, soya may be beneficial in men who actually have this disease. Studies have found that soya isoflavones have favourable results on PSA levels in prostate cancer patients.[xv] What's more, very recent data suggests that isoflavones may also help to protect against some of the side effects of radiotherapy in men being treated for prostate cancer.[xvi]

Conclusions

- Diet and other lifestyle factors play a role in the development of prostate cancer.
- Studies in East Asian populations suggest that men who eat more soya in their diet are at a lower risk of prostate cancer than men who eat relatively little.
- Animal and test-tube studies have found that soya slows down the development of prostate cancer and stops it from spreading to other parts of the body.
- Soya and soya isoflavones may also be beneficial in men with prostate cancer. Soya may help to slow the progression of early stage prostate cancer to a more advanced stage.
- Although the current evidence supporting the role of soya in reducing the risk of prostate cancer is encouraging, additional research is required before any firm conclusions can be made.
- In the mean time, men should consider including soya into their diet as part of an overall healthy lifestyle.

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