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Soy found protective against localized prostate cancer

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The largest study examining the relationship between the traditional soy-rich Japanese diet and development of prostate cancer in Japanese men has come to a seemingly contradictory conclusion: intake of isoflavone chemicals, derived largely from soy foods, decreased the risk of localized prostate cancer but increased the risk of advanced prostate cancer.

The prospective study of 43,509 men, published in the March issue of Cancer Epidemiology, Biomarkers & Prevention, suggests that the effects of isoflavones on prostate cancer development may differ according to disease stage, say researchers at the National Cancer Center in Japan.

One possible explanation is that isoflavones may delay the progression of latent prostate cancer only; once tumors lose estrogen-receptor beta expression and become aggressive, isoflavones may fail to protect against the development of advanced cancer, and might even increase the risk of progression, possibly by reducing serum testosterone, researchers say. It is also possible that advanced and localized prostate cancer may be different tumor subtypes, which may react differently to isoflavones.

"The present findings provide no clear understanding of when or how localized cancer will develop to aggressive cancer, and of the related effect of isoflavones," said the study's first author, Norie Kurahashi, M.D., of the Epidemiology and Prevention Division of the National

Cancer Center.

"Given that Japanese consume isoflavones regularly throughout life, we do not know the period during which the effects of isoflavones on prostate cancer are preventive, and further research is required to find that out, including well-designed clinical trials," she said.

Until those studies are done, the researchers recommend that Japanese men continue to consume isoflavones through their food and not through supplements.

"Consumption of isoflavones from traditional Japanese food throughout life may protect against the incidence of prostate cancer, but we cannot recommend the use of isoflavones from supplements for people who do not regularly consume these chemicals, because the relationship between isoflavones and the risk of advanced prostate cancer is not yet clear," Kurahashi said.

Isoflavones act as both strong antioxidants and plant-based estrogens. Soybeans are the most common source of isoflavones, especially genistein and daidzein, which have been shown in some animal studies to exert a protective effect against prostate cancer.

Japanese men eat significantly more soy-based foods than do Western men, and the incidence of prostate cancer is much lower in Asian countries than in Western countries. Still, reviews of latent, or clinically insignificant, prostate cancer findings in autopsy reports have revealed no difference between the populations so scientists have theorized that isoflavones stop latent cancers from developing further.

But because smaller epidemiological studies in Japan have reached differing conclusions about the protective effects of soy on prostate cancer development, this research team conducted the most

comprehensive analysis to date. They polled thousands of men age 40-69 about their consumption of 147 foods, the most popular of which were miso soup (primarily made from fermented soybeans), natto (also a product of fermented soybeans) and tofu, made from soy milk. Japanese consume miso soup more frequently, usually daily, than other soy foods, and miso, natto, and tofu account for about 90 percent of the population's consumption of daidzein and genistein, according to Kurahashi.

The researchers then followed participants from 1995 through 2004 and found that 307 men were diagnosed with prostate cancer. In this group, 74 cases were advanced, 218 were confined to the prostate organ, and 15 were of undetermined stage.

They concluded that intake of genistein, daidzein, miso soup and soy food had no overall link to diagnosis of prostate cancer. However, they calculated that the risk of developing localized prostate cancer was 50 percent lower in men who ate the most isoflavones compared to men who ate the least – meaning that men in the top category ate between two and three times as much isoflavone-rich food.

However, in a discovery they cannot explain, they also calculated that the risk of developing advanced prostate cancer was twice as high in men who consumed two or more bowls of miso soup a day than in men who ate less than one bowl of soup.

They also found that the protective effect of isoflavone-rich food was strongest in men who were older than 60: the more isoflavones they ate, the more they reduced their risk of developing localized prostate cancer. "Isoflavone may be protective for localized prostate cancer only in men aged more than 60 years, and may not have a protective effect in the early stage of prostate cancer in younger men," the researchers conclude in their study.

The inconsistencies in the finding – that isoflavones decreased the risk of localized prostate cancer, but not the risk of advanced prostate cancer – could be errors in food measurement, or

could be due to the fact that the number of participants who developed advanced prostate cancer was small, said Kurahashi. Or, as researchers speculate, isoflavones could interact with the estrogen receptor on prostate tissue enough to inhibit production of testosterone, which can fuel prostate cancer. When tumors lose all of their estrogen receptors and stop responding to isoflavone-induced hormonal interference, they grow aggressively.

"A broad body of research is required to clarify the timing and period of isoflavones' preventive effect on prostate cancer development," Kurahashi said.

Source: American Association for Cancer Research