Soy supplementation adversely effects expression of breast cancer-related genes

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Soy supplementation alters expression of genes associated with breast cancer, raising concerns that soy could have adverse effects in breast cancer, according to a new study published September 4 in the *JNCI: Journal of the National Cancer Institute*.

The impact of soy consumption on breast cancer prevention and treatment is not clear although many women believe soy supplementation is beneficial based primarily on results from epidemiological studies. Moshe Shike, M.D., from the Department of Medicine at Memorial Sloan-Kettering Cancer Center and Weill Cornell Medical College in New York, NY, and colleagues conducted a randomized placebo-controlled study of the effects of soy supplementation on gene expression and markers of breast cancer risk among women diagnosed with invasive breast cancer. The study, run between 2003 and 2007 at Memorial Sloan-Kettering, enrolled a total of 140 patients who were randomized to either soy supplementation (soy protein) or placebo (milk protein), which lasted from the initial surgical consultation to the day before surgery (range=7-30 days). Tumor tissues from the diagnostic biopsy (pre-treatment) and at the time of resection (post-treatment) were then analyzed. They observed changes in several genes that promote cell cycle progression and cell proliferation among women in the soy group.

The authors conclude, "These data raise concern that soy may exert a stimulating effect on breast cancer in a subset of women."

In an accompanying editorial, V. Craig Jordan, O.B.E., D.Sc., Ph.D., FMedSci, from the Department of Oncology at the Georgetown University Lombardi Comprehensive Cancer Center, Washington, DC, discusses how timing of soy supplementation is critical and reviews the evidence in the literature on phytoestrogens, which are contained in soy, and their known action in breast cancer. He writes, the study by Shike et al. "…illustrates the dangers of phytoestrogen consumption too soon, around menopause, but the biology of estrogen in estrogen-deprived conditions suggests that phytoestrogen could have benefit a decade after menopause." He cautions that appropriate doses of soy and timing of consumption are critical considerations.

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