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Study finds green tea reduces inflammation, may inhibit prostate cancer tumor growth

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Men with prostate cancer who consumed green tea prior to undergoing prostatectomy had reductions in markers of inflammation, according to data presented at the 11th Annual AACR International Conference on Frontiers in Cancer Prevention Research, held here Oct. 16-19, 2012.

"Our study showed that drinking six cups of green tea affected biomarkers in prostate tissue at the time of surgery," said Susanne M. Henning, Ph.D., R.D., adjunct professor at the David Geffen School of Medicine at the University of California Los Angeles. "This research offers new insights into the mechanisms by which green tea consumption may reduce the risk for prostate cancer by opposing processes such as inflammation, which are associated with prostate cancer growth."

Prior epidemiological data have been inconclusive about the relationship between green tea and prostate cancer. However, one recent intervention study conducted in Italy revealed that men with a precursor to prostate cancer called prostatic intraepithelial neoplasia who consumed a green tea extract reduced their risk for progression to prostate cancer.

Henning and colleagues examined potential mechanisms by which green tea may have beneficial effects among 67 men with prostate cancer scheduled to undergo prostatectomy. The researchers randomly assigned the men to either six cups of brewed green tea or water daily for three to eight weeks, depending on the timing of their surgery. They collected blood and urine samples before and after the green tea or water consumption and collected prostate tissue following the pathology exam.

The data showed that serum prostate-specific antigen (PSA) concentrations were significantly lower at the end of the study compared with baseline levels in men consuming green tea. In addition, prostate tissue PSA protein expression was lower in men assigned to green tea consumption compared with the control group at the end of the study.

Further, immunostaining analysis revealed that nuclear factor kappa B, a marker of inflammation, was significantly reduced in those men assigned to green tea compared with those in the control group. A urinary marker of oxidative DNA damage was significantly decreased in urine from men consuming green tea compared with controls.

The researchers found no differences in markers of tumor cell proliferation between the two treatment groups.

Henning and her colleagues are further evaluating the association between green tea and prostate cancer by trying to enhance its activity. Currently, they are exploring the possibility of combining green tea with other natural products in mouse studies.

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