Four cups of coffee a day may keep prostate cancer recurrence and progression away

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Coffee consumption is associated with a lower risk of prostate cancer recurrence and progression, according to a new study by Fred Hutchinson Cancer Research Center scientists that is online ahead of print in *Cancer Causes & Control*.

Corresponding author Janet L. Stanford, Ph.D., co-director of the Program in Prostate Cancer Research in the Fred Hutch Public Health Sciences Division, conducted the study to determine whether the bioactive compounds in coffee and tea may prevent prostate cancer recurrence and delay progression of the disease.

Stanford and colleagues found that men who drank four or more cups of

coffee per day experienced a 59 percent reduced risk of prostate cancer recurrence and/or progression as compared to those who drank only one or fewer cups per week.

They did not, however, find an association between coffee drinking and reduced mortality from prostate cancer, although the study included too few men who died of prostate cancer to address that issue separately.

First study to assess the link between tea and prostate cancer outcomes

Regarding tea consumption, the researchers did not find an associated reduction of prostate cancer recurrence and/or progression. The study also did not draw any conclusions regarding the impact of tea drinking on prostate-specific death.

"To our knowledge, our study is the first to investigate the potential association between tea consumption and prostate cancer outcomes," the authors wrote. "It is important to note, however, that few patients in our cohort were regular tea drinkers and the highest category of tea consumption was one or more cups per day. The association should be investigated in future studies that have access to larger populations with higher levels of tea consumption."

The population-based study involved 1,001 prostate cancer survivors, aged 35-74 years old at the time of diagnosis between 2002-2005, who were residents of King County, Wash. Participants answered questions regarding their diet and beverage consumption two years prior to prostate cancer diagnosis using a validated food frequency questionnaire, and were interviewed about demographic and lifestyle information, family history of cancer, medication use and prostate cancer screening history.

The researchers followed up with patients more than five years after diagnosis to ascertain whether the prostate cancer had recurred and/or progressed. Those who were still living, willing to be contacted and had been diagnosed with non-metastatic cancer were included in the follow-up effort.

Of the original 1,001 patients in the cohort, 630 answered questions regarding coffee intake, fit the follow-up criteria and were included in the final analysis. Of those, 61 percent of the men consumed at least one cup of coffee per day and 12 percent consumed the highest amount: four or more cups per day.

The study also evaluated daily coffee consumption in relation to prostate cancer-specific death in 894 patients using data from the initial food frequency questionnaire. After the median follow-up period of eight-and-a-half years, 125 of the men had died, including 38 specifically from prostate cancer. Daily coffee consumption was not associated with prostate cancer-specific mortality or other-cause mortality, but with few deaths these analyses were limited.

"Our study differs from previous ones because we used a composite definition of prostate cancer recurrence/progression," said first author Milan Geybels, a doctoral student at Maastricht University in the Netherlands who was a graduate student in Stanford's Prostate Studies group at Fred Hutch when the study was conducted. "We used detailed information on follow-up prostate-specific antigen levels, use of secondary treatment for prostate cancer and data from scans and biopsies to assess occurrence of metastases and cause-specific mortality during follow up. Using these detailed data, we could determine whether a patient had evidence of prostate cancer recurrence or progression."

The results are consistent with findings from Harvard's Health Professionals Follow-up Study, which found that men who drank six or

more cups of coffee per day had a 60 percent decreased risk of metastatic/lethal prostate cancer as compared to coffee abstainers.

Phytochemicals in coffee have anti-inflammatory and antioxidant effects

Further research is required to understand the mechanisms underlying the results of the study, but biological activities associated with consumption of phytochemical compounds found in coffee include anti-inflammatory and antioxidant effects and modulation of glucose metabolism. These naturally occurring compounds include:

- Caffeine, which has properties that inhibit cell growth and encourage apoptosis, or programmed cell death. Previous studies have found that caffeine consumption may reduce the risk of several cancer types, including basal-cell carcinoma, glioma (a cancer of the brain and central nervous system) and ovarian cancer.
- Diterpenes cafestol and kahweol, which may inhibit cancer growth.
- Chlorogenic acid, which, along with caffeic acid, can inhibit DNA methylation, a biochemical process involved in the development and progression of many cancer types.

Additional studies needed to confirm whether coffee can prevent cancer recurrence

The researchers emphasize that coffee or specific coffee components cannot be recommended for secondary prevention of prostate cancer before the preventive effect has been demonstrated in a randomized clinical trial. Further, there's ongoing debate about which components in coffee are anti-carcinogenic, and additional large, prospective studies are

needed to confirm whether coffee intake is beneficial for secondary prevention.

Coffee drinking may even be problematic for some men, Geybels said.

"Although coffee is a commonly consumed beverage, we have to point out that increasing one's coffee intake may be harmful for some men. For instance, men with hypertension may be vulnerable to the adverse effects of caffeine in coffee. Or, specific components in coffee may raise serum cholesterol levels, posing a possible threat to coronary health. Patients who have questions or concerns about their coffee intake should discuss them with their general practitioner," he said.

The investigators also noted limits to their study, which included a lack of data on how coffee consumption might have changed following diagnosis, whether the coffee that participants consumed was caffeinated or decaffeinated, and how the coffee was prepared (espresso, boiled or filtered), a factor that may affect the bioactive properties of the brew.

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