

Study finds no association between caffeine intake and invasive breast cancer risk

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Researchers from the University at Buffalo conducted a study of nearly 80,000 postmenopausal women in the U.S. to determine whether caffeine consumption from coffee and tea has any association with invasive breast cancer.

The average age when U.S. women reach menopause, 51, also happens to coincide with the age group—50- to 64-year-olds—that has the highest reported caffeine [consumption](#). In addition to that, the average age of [breast](#) cancer diagnosis in the U.S. is 62.

This overlap of age at menopause, age at diagnosis of breast cancer and age with high [caffeine consumption](#) gave greater weight to the importance of clarifying whether caffeine intake impacts breast cancer risk in postmenopausal women.

It does not, according to the UB researchers' findings, published in August in the *International Journal of Cancer*.

"From our literature review, many studies have

found significant associations between coffee and/or tea consumption and reduced breast cancer incidence whereas a few studies have reported elevated risk. Our study, however, found no association," said study first author Christina KH Zheng, who worked on the study while completing her master's in epidemiology at UB. She is now a surgical resident in the MedStar Baltimore general surgery program.

"About 85% of Americans drink at least one caffeinated beverage a day. It is important for the public to know whether consumption of caffeinated beverages has beneficial or harmful effects on breast cancer, the most common type of cancer and second-leading cause of cancer death for U.S. women," said Lina Mu, MD, Ph.D., the study's senior author, who is an associate professor of epidemiology and [environmental health](#) at UB.

"The overlap of age at diagnosis of breast cancer and age with high consumption of caffeine, and the inconsistent findings from previous studies motivated us to study whether this [lifestyle factor](#) could affect breast cancer risk in [postmenopausal women](#)," said Kexin Zhu, a study co-first author and epidemiology Ph.D. student in UB's School of Public Health and Health Professions.

Researchers looked at a sample of 79,871 participants in the Women's Health Initiative Observational Study. Participants have for decades now completed yearly health questionnaires that help researchers learn more about diet and exercise habits, as well as disease, and any possible linkages.

After a median follow-up of 16 years, there were 4,719 cases of [invasive breast cancer](#) identified.

At first glance, women who reported drinking two to three cups of caffeinated coffee per day had a 12% higher risk of invasive breast cancer compared to non-drinkers. But that association was not

statistically significant after adjusting for lifestyle factors, such as smoking and alcohol consumption.

Provided by University at Buffalo

"Seeing null results after adjusting for lifestyle, demographic and reproductive factors informs us of the complexity that is the relationship between caffeine intake and invasive breast cancer risk," Zheng said.

"Some lifestyle factors, like drinking alcohol and [physical activity](#), might be associated with both coffee intake and breast cancer risk," Zhu explained. "Therefore, they might confound the initial positive associations. After we took the lifestyle factors into account, the results suggested that regular coffee drinking might not have an impact on invasive breast cancer risk."

The risk of invasive breast cancer was even higher—22%—for women who reported drinking two to three cups of decaffeinated coffee each day. It was slightly lower when adjusted for lifestyle variables (smoking history, alcohol consumption, physical activity, etc.), and the association was not statistically significant when further accounting for reproductive variables such as family history of breast cancer and number of children

The researchers were unable to determine if the elevated risk is due to the decaffeinated nature of the coffee, the amount consumed, or another factor unique to this population that was not accounted for in the study.

The researchers did not observe a significant association between overall tea consumption and invasive breast cancer. Additional research needs to be done in order to understand whether different types of teas have different effects on breast [cancer](#) risk, Zhu said.

More information: Kan Hong Zheng et al, Caffeine intake from coffee and tea and invasive breast cancer incidence among postmenopausal women in the Women's Health Initiative, *International Journal of Cancer* (2021). [DOI: 10.1002/ijc.33771](https://doi.org/10.1002/ijc.33771)

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