

Study in Puerto Rico finds lower risk of breast cancer with more sun exposure

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The sun is almost always shining during the day in San Juan, Puerto Rico, and that makes the findings of a new study on breast cancer and sun exposure particularly noteworthy.

In a new study by researchers from the University at Buffalo and the University of Puerto Rico, there was a lower risk of [breast cancer](#) associated with greater [sun exposure](#). The paper was published Dec. 22 online ahead of print in the journal *Cancer Epidemiology, Biomarkers & Prevention*.

Researchers used a chromameter to compare skin pigmentation in unexposed and exposed skin in 307 cases and 328 controls. The difference in [skin pigmentation](#) provided an estimate of usual sun [exposure](#).

"This study was unique in that it was of Puerto Rican women, which allowed for us to look at this association in a population with a wide range of skin color and with year-round high sun exposure," said study senior author Jo L. Freudenheim, a SUNY Distinguished Professor in the Department of Epidemiology and Environmental Health in UB's School of Public Health and Health Professions.

There is some, albeit inconsistent, evidence that sun exposure is associated with lower risk of breast cancer. There are a number of reasons that may explain this finding, says Freudenheim.

"One step in the internal production of vitamin D occurs when skin is exposed to sun," she said. "Sun exposure also affects the body in a number of other helpful ways, with effects on inflammation, obesity and circadian rhythms. While recent recommendations have been to limit sun exposure to prevent skin cancer, there may also be a benefit to some sun exposure, especially exposure without sunburn."

The previous studies on sun exposure and breast cancer have been conducted in places that experience [seasonal variation](#) in ultraviolet radiation, including periods of low to no exposure. In Puerto Rico, however, there is no significant seasonal fluctuation, with the potential

for continuous exposure to high UV radiation for those who spend time outdoors.

"The study provided consistent results across different parameters," said paper first author Cruz Nazario, Ph.D., an epidemiology professor at the University of Puerto Rico. "Breast [cancer](#) risk was lower for women with the highest accumulated sun exposure. Similarly, the risk was lower independent of estrogen receptor status, and it was even lower among participants with darker skin color."

The study was conducted as part of a long-standing collaboration UB has had with the University of Puerto Rico.

More information: Cruz M. Nazario et al, Sun Exposure Is Associated with Reduced Breast Cancer Risk among Women Living in the Caribbean: The Atabey Study in Puerto Rico, *Cancer Epidemiology Biomarkers & Prevention* (2021). [DOI: 10.1158/1055-9965.EPI-21-0932](https://doi.org/10.1158/1055-9965.EPI-21-0932)

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