



THE

# SISTER STUDY

BREAST CANCER RESEARCH

WOMAN BY WOMAN, SISTER BY SISTER, WE CAN MAKE A DIFFERENCE!

SPRING 2024

## Dear Sisters —

To help you keep up with the latest Sister Study news, we plan to send you periodic flyers with our latest updates. You will also find the latest news on our Sister Study website [sisterstudy.niehs.nih.gov/English/new.htm](https://sisterstudy.niehs.nih.gov/English/new.htm) and on our Sister Study Facebook group page. To join our Facebook group, search for “NIEHS Sister Study” on Facebook, scroll to the right of the top bar, click “Groups”, and ask to join our private group. You may also follow this direct link [www.facebook.com/groups/niehsisterstudy](https://www.facebook.com/groups/niehsisterstudy). Thank you for helping our researchers continue to advance breast cancer research!

## Pre-diagnosis physical activity and chemotherapy treatment response in breast cancer survivors

Collaborators at the Pennsylvania State University College of Medicine used clinical information shared by Sister Study participants who had been diagnosed with stage I, II or III breast cancer to determine **how exercise affects response to breast cancer treatments**. Of the 180 women who were prescribed neoadjuvant (i.e., pre-surgical) chemotherapy, 45 (25%) achieved a pathological complete response, meaning **no residual cancer remained after treatment**. In an assessment of how pre-diagnosis physical activity levels affected treatment and response, the researchers did not see any association between physical activity levels and participants’ response to treatment or their ability to complete their prescribed course of treatment. More research is needed to better understand what factors influence participants’ tolerance and response to chemotherapy. Read More: <https://tinyurl.com/PhysChemo>



*Thank you if you have already completed your 2023-2024 Health Update!*

In October 2023 we began contacting all Sisters about completing their health updates for this year. Thanks to our sisters who have already completed their updates! We have now reached **67.8%**!

## BMI and breast cancer risk around age at menopause

A high body mass index (BMI) is known to be associated with **decreased risk of breast cancer before menopause, but increased risk after menopause**. In a collaborative project that included the Sister Study and 15 other cohorts with information on women younger than 55, researchers tried to better understand when this reversal occurred. The results indicated that BMI was consistently **inversely associated** with breast cancer throughout the ages of interest, implying that BMI is not associated with increased breast cancer risk until some time after age 55. Read More: <https://tinyurl.com/BMIRiskMeno>

## Circulating Leukocyte Subsets Before and After a Breast Cancer Diagnosis and Therapy

Women with a history of breast cancer are known to have an increased risk for developing heart disease and other chronic diseases later in life, but the reasons for this are not always well understood. A newly published Sister Study investigation evaluated whether changes in blood composition, as measured by the relative frequency of certain cell types, might offer some clues. Using blood samples collected from 410 women enrolled in the Sister Study, including 185 breast cancer survivors, investigators found that breast cancer survivors had **lower relative percentages** of specific types of white blood cells, including eosinophils, total CD4+ helper T cells, and memory B cells, than women without breast cancer, and higher relative percentages of circulating naive B white blood cells. There was some evidence that these changes were **related to specific breast cancer treatments**, as having had radiotherapy was associated with decreased total CD4+ T cell levels, while chemotherapy was associated with **increases in** naive B cell levels. These findings help elucidate some of the long-term health consequences of breast cancer and its treatment and some day could help identify women who might benefit from more frequent or focused health follow-up after treatment.

Read More: <https://tinyurl.com/LeukBC>

## Personal Care Product Use during Puberty and Incident Breast Cancer among Black, Hispanic/Latina, and White Women in a Prospective US-Wide Cohort

Many everyday personal care products contain chemicals that have the potential to disrupt hormone pathways or have been associated with health risks. Use of these products often starts during adolescence, when rapidly developing breast tissue may be **more susceptible** to the effects of harmful environmental chemicals. In a newly published Sister Study paper, researchers examined whether using common products during this **critical period** may affect women's breast cancer risk. Overall, there were no consistent patterns in the types of products that were associated with breast cancer. The types and frequency of products used varied by race and ethnicity. Among Black and Hispanic women, frequent nail polish-related products and perfume use were **possibly associated** with increased likelihood of developing breast cancer. Frequent use of lipstick, nail products, pomade, perfume, makeup remover, and acne/blemish products during adolescence were also potentially associated with breast cancer risk in at least one racial/ethnic group. More research is needed to confirm these novel findings.

Read More: <https://tinyurl.com/PCPandBC>



### A Big Thanks to Our Generous Sister Study Sisters!

Since we began analyzing the data provided by our generous Sisters, **our researchers have published over 300 scientific papers!** These findings contribute to improvements in our understanding of the environmental and genetic causes of breast cancer and other important issues in women's health. We are proud of what we have accomplished together with our study sisters! Thank you for sticking with us!

To view our study findings, please visit our Sister Study website: <https://sisterstudy.niehs.nih.gov/English/articles.htm>



As always, please contact us at the Sister Study helpdesk toll-free at 877-4SISTER (877-474-7837) or email us at [update@sisterstudy.org](mailto:update@sisterstudy.org) if you have updates or questions.