



THE

SISTER STUDY

BREAST CANCER RESEARCH

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

FEBRUARY 2023

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 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.

Thank you for helping our researchers continue to advance breast cancer research!

Use of Straighteners and Other Hair Products and Incident Uterine Cancer

Women who used chemical hair straightening products were at higher risk for uterine cancer compared to women who did not report using these products, according to a new study from the National Institutes of Health. The researchers found no associations with uterine cancer for other hair products that the women reported using, including hair dyes, bleach, highlights, or perms. The data comes from the Sister Study; a study led by the National Institute of Environmental Health Sciences (NIEHS), that seeks to identify risk factors for breast cancer and other health conditions. The women have been followed for almost 11 years and during that time **378 uterine cancer cases were diagnosed**.

Sister Study researchers found that **women who reported frequent use of hair straightening products, defined as more than four times in the previous year, were more than twice as likely to go on to develop uterine cancer compared to those who did not use the products.** "We estimated that 1.64% of women who never used hair straighteners would go on to develop uterine cancer by the age of 70; but for frequent users, that risk goes up to 4.05%," said Alexandra White, Ph.D., head of the NIEHS Environment & Cancer Epidemiology group and lead author on the new study. "This **doubling rate is concerning**. However, it is important to put this information into context - uterine cancer is a relatively rare type of cancer."

Uterine cancer accounts for about 3% of all new cancer cases but is the most common cancer of the female reproductive system, with 65,950 estimated new cases in 2022. Studies show that incidence rates of uterine cancer have been rising in the United States, particularly among Black women. Approximately 60% of the participants who reported using straighteners in the previous year were self-identified Black women, according to the study published in the Journal of the National Cancer Institute. Although, the study did not find that the relationship between straightener use and uterine cancer incidence was different by race, the **adverse health effects may be greater for Black women due to higher prevalence of use.**



Please remember to complete your new 2022-2023 Health Update!

Thank you if you have already completed your update! If not, please check your emails and/or mailbox.

“Because Black women use hair straightening or relaxer products more frequently and tend to initiate use at earlier ages than other races and ethnicities, these findings may be even more relevant for them,” said Che-Jung Chang, Ph.D., an author on the new study and a research fellow in the NIEHS Epidemiology Branch. The findings are consistent with prior studies showing **straighteners can increase the risk of hormone-related cancers in women.**

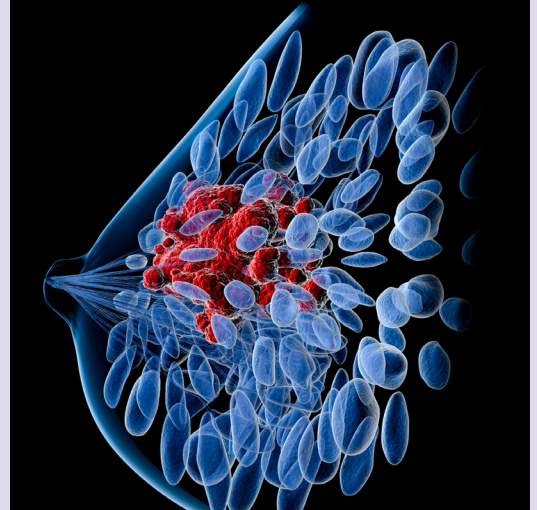
The researchers did not collect information on brands or ingredients in the hair products the women used. However, in the paper they note that several chemicals that have been found in straighteners (such as parabens, bisphenol A, metals, and formaldehyde) could be contributing to the **increased uterine cancer risk** observed. Chemical exposure from hair product use, especially straighteners, could be more concerning than other personal care products due to increased absorption through the scalp which may be exacerbated by burns and lesions caused by straighteners. “To our knowledge this is the first epidemiologic study that examined the relationship between straightener use and uterine cancer,” said White. “More research is needed to confirm these findings in different populations, to determine if hair products contribute to health disparities in uterine cancer, and to identify the specific chemicals that may be increasing the risk of cancers in women.”

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

Pathogenic variants and invasive lobular carcinoma

Most of what we know about the role of genes that confer high risk of breast cancer (*BRCA1*, *BRCA2*, *CDH1*, *CHEK2*, *ATM*, and *PALB2*) is based on their association with invasive ductal carcinoma, the most common form of breast cancer. Less is known about their role in invasive lobular carcinoma (ILC), which makes up about 10% of all breast cancers. In a recent collaborative study that includes some Sister Study participants, investigators showed that 5-6% of women with ILC have at least one mutation, or “pathogenic variant” in one of these known breast cancer risk genes. More specifically, pathogenic variants in *CDH1*, *BRCA2*, *CHEK2*, *ATM*, and *PALB2* were associated with increased risk of ILC, but variants in *BRCA1* were not. These results show that multigene panel testing is appropriate for women with ILC and to identify women at risk of ILC.

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



Early-life trauma and breast cancer

Experience of traumatic events—including sexual, physical, or emotional abuse, and financial hardships—is thought to influence breast cancer risk, but such events rarely occur in isolation, and little is known about how co-occurring traumas, particularly during early life, may impact breast cancer risk. Sister Study participants reported whether they experienced certain traumatic experiences during childhood and adolescence. Using that data, we identified six distinct patterns of early-life trauma in the cohort. About half of all Sister Study participants disclosed at least one traumatic experience before age 18.



We reported that experiencing either sexual trauma and household dysfunction or medium levels of early-life trauma was suggestively associated with greater risk of developing breast cancer compared to experiencing low levels of early-life trauma. Furthermore, breast cancer risk due to early-life trauma appeared lower among participants who reported constant childhood social support. This research suggests that different types of early-life traumatic experiences may contribute to various levels of risk of breast cancer.

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



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 if you have updates or questions.