

Environmental Cancer: Breast



Each year, 40,000 women in the US die from breast cancer. Approximately 200,000 new cases are diagnosed every year.

Over 90% of American women have at least one characteristic, or risk factor, that increases their chance for getting breast cancer. However, less than 13% will ever develop the disease.



There are no known causes for breast cancer. Scientific studies show that women's genetics and environmental exposures interact to increase the risk for developing breast cancer. This fact sheet describes **what research shows about genetic and environmental risk factors** for developing breast cancer and **protective actions you can take**.

PERSONAL

What role does estrogen play?

Breast cancer risk is most often linked to lifetime exposure to estrogen, a naturally occurring hormone that women need for sexual development and child bearing. Continuing exposure to estrogen over a woman's lifetime increases the risk for breast cancer.

Here are some factors that are linked with higher levels of lifetime estrogen exposure:

- Menstruating before age 12
- Menopause after age 55
- Hormone replacement therapy use for more than 5 years
- Never giving birth

Breastfeeding for at least 12 months (total for all children) has been shown to decrease risk for breast cancer.

What are some other personal risk factors?

- First pregnancy after age 30
- Being over 55
- A previous diagnosis of breast cancer
- Strong family history of breast cancer, which means two first-degree relatives (i.e., mother, sisters, daughters) with breast cancer, one of whom was diagnosed at 50 or younger
- Certain breast diseases, including atypical hyperplasia or lobular carcinoma in situ
- Dense breast tissue

GENETICS

What if I have a family history?

Women with a family history of breast cancer are at increased risk for breast cancer, but that does not mean your family carries the known breast cancer genes. This risk may be due to shared genetic makeup, shared lifestyle choices, or exposure to similar environmental risks.

Will my genes cause breast cancer?

Only 5–10% of all cases of breast cancer are caused by inherited genetic mutations (or changes in DNA). Mutations in two genes, called BRCA1 and BRCA2, can cause breast and ovarian cancer. Mutations in these two genes account for only half of hereditary breast cancers (or 2.5-5% of all breast cancer cases).



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ENVIRONMENT•LIFESTYLE

Are there risk factors I can control?

Yes! Daily diets and physical activity affect breast cancer risk. The following lifestyle choices increase a woman's risk:

- Drinking one or more glasses of alcohol each day
- Lack of regular exercise
- Being overweight (which is defined as having a Body Mass Index of 25 or higher), especially after menopause. Visit <http://www.nhlbisupport.com/bmi/> to calculate your BMI.

What about exposure to pollution and chemicals?

Scientists agree that exposure to high doses of radiation before 30 years of age increases a woman's risk for breast cancer, but there is ongoing debate about the role of other environmental pollutants. Here are possible, *but controversial*, environmental risks for breast cancer:

- Passive smoking (second-hand smoke)
- By-products of burning coal, oil, gas, wood, garbage or other organic substances (like tobacco and grilled meat) called PAHs or polycyclic aromatic hydrocarbons. Exposure to PAHs can involve contaminated air, water, soil, or food.

Currently, scientists have not found a link between breast cancer risk and exposure to the following pollutants:

- Electromagnetic fields
- Polychlorinated biphenyls (PCBs), chemicals once used to make consumer and industrial electronics
- DDT/DDE, a now-banned but once widely used pesticide.

ADDITIONAL RESOURCES

UNC Center for Environmental Health and Susceptibility:
<http://cehs.sph.unc.edu/outreach/Outreach.html>

UNC Lineberger Comprehensive Cancer Center:
<http://unclineberger.org/research/breast-cancer>



What actions are linked with lowering breast cancer risk?

- Eat a well-balanced, **healthy diet**, with at least five servings of fruits and vegetables daily.
- **Exercise** at least 30 minutes most days.
- Maintain a **healthy weight**, with a Body Mass Index between 18.5 and 24.9.
- **Avoid exposure to PAHs**, passive smoking and other chemical pollutants.
- Find out about your **family history** of breast cancer and discuss it with your health care provider. Become aware of any strong family history of breast cancer.
- Get **regular health care** and discuss any concerns with your health care provider.

For information about our outreach, including the workshop *Breast Cancer: Understanding Risk and How to Reduce It*, contact Neasha Graves at (919) 966-3746 or at neasha_graves@unc.edu.

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