



[cancer.org](https://www.cancer.org) | 1.800.227.2345

Breast Cancer in Men Causes, Risk Factors, and Prevention

Risk Factors

A risk factor is anything that affects your chance of getting a disease such as cancer. Learn more about the risk factors for male breast cancer.

- [Risk Factors for Breast Cancer in Men](#)
- [What Causes Breast Cancer in Men?](#)

Prevention

There is no way to completely prevent cancer. But there are things you can do that might lower your risk. Learn more.

- [Can Breast Cancer in Men Be Prevented?](#)

Risk Factors for Breast Cancer in Men

A risk factor is anything that affects your chance of getting a disease, such as breast cancer.

But having a risk factor, or even many, does not mean that you are sure to get the disease. Some men with one or more breast cancer risk factors never develop the

disease, while most men with breast cancer have no apparent risk factors.

We don't yet completely understand the causes of breast cancer in men, but researchers have found several factors that may increase the risk of getting it. As with female breast cancer, many of these factors are related to your body's sex hormone levels.

Aging

Aging is an important risk factor for the development of breast cancer in men. The risk of breast cancer goes up as a man ages. On average, men with breast cancer are about 72 years old when they are diagnosed.

Family history of breast cancer

Breast cancer risk is increased if other members of the family (blood relatives) have had breast cancer. About 1 out of 5 men with breast cancer have a close relative, male or female, with the disease.

Inherited gene mutations

Men with a mutation (defect) in the *BRCA2* gene have an increased risk of breast cancer, with a lifetime risk of about 6 in 100. *BRCA1* mutations can also cause breast cancer in men, but the risk is lower, about 1 in 100.

Although mutations in these genes most often are found in members of families with many cases of breast and/or [ovarian cancer](#)¹, they have also been found in men with breast cancer who did not have a strong family history.

Mutations in *CHEK2*, *PTEN* and *PALB2* genes might also be responsible for some breast cancers in men.

Klinefelter syndrome

Klinefelter syndrome is a congenital (present at birth) condition that affects about 1 in 1,000 men. Normally the cells in men's bodies have a single X chromosome along with a Y chromosome, while women's cells have two X chromosomes. Men with Klinefelter syndrome have cells with a Y chromosome plus at least two X chromosomes (but sometimes more).

Men with Klinefelter syndrome also have small testicles and often are infertile because they are unable to produce functioning sperm cells. Compared with other men, they have lower levels of androgens (male hormones) and more estrogens (female hormones). For this reason, they often develop [gynecomastia](#)² (benign male breast growth).

Men with Klinefelter syndrome are more likely to get breast cancer than other men. Having this condition can increase the risk anywhere between 20 - 60 times the risk of a man in the general population.

Radiation exposure

A man whose chest area has been treated with [radiation](#)³ (such as for the treatment of a cancer in the chest, like [lymphoma](#)⁴) has an increased risk of developing breast cancer.

Alcohol

[Heavy drinking](#)⁵ (of alcoholic beverages) increases the risk of breast cancer in men. This may be because of its effects on the liver (see next paragraph).

Liver disease

The liver plays an important role in balancing the levels of sex hormones. In cases of severe liver disease, such as cirrhosis, the liver is not working well and the hormone levels are uneven, causing lower levels of androgens and higher levels of estrogen. Men with liver disease can also have a higher chance of developing benign male breast growth (gynecomastia) and also have an higher risk of developing breast cancer.

Estrogen treatment

Estrogen-related drugs were once used in hormonal therapy for men with [prostate cancer](#)⁶. This treatment may slightly increase breast cancer risk.

There is concern that transgender/transsexual individuals who take high doses of estrogens as part of sex reassignment could also have a higher breast cancer risk. Still, there haven't been any studies of breast cancer risk in transgendered individuals, so it isn't clear what their breast cancer risk is.

Obesity

Studies have shown that women's breast cancer risk is increased by [obesity](#)⁷ (being extremely overweight) after menopause. Obesity is also a risk factor for male breast cancer as well. The reason is that fat cells in the body convert male hormones (androgens) into female hormones (estrogens). This means that obese men have higher levels of estrogens in their body.

Testicular conditions

Certain conditions, such as having an undescended testicle, having mumps as an adult, or having one or both testicles surgically removed (orchiectomy) may increase male breast cancer risk.

Hyperlinks

1. www.cancer.org/cancer/ovarian-cancer.html
2. www.cancer.org/cancer/breast-cancer-in-men/about/what-is-breast-cancer-in-men.html
3. www.cancer.org/cancer/cancer-causes/radiation-exposure/x-rays-gamma-rays.html
4. www.cancer.org/cancer/lymphoma.html
5. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
6. www.cancer.org/cancer/prostate-cancer.html
7. www.cancer.org/cancer/cancer-causes/diet-physical-activity/body-weight-and-cancer-risk.html

References

Brinton LA, Cook MB, McCormack V, et al. Anthropometric and hormonal risk factors for male breast cancer: male breast cancer pooling project results. *J Natl Cancer Inst* 2014;106: djt465.

Burstein HJ, Harris JR, Morrow M. Ch. 79 - Malignant tumors of the breast. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

Jain S and Gradishar WJ. Chapter 61: Male Breast Cancer. In: Harris JR, Lippman ME,

Morrow M, Osborne CK, eds. *Diseases of the Breast*. 5th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2014.

Liede A, Karlan BY, Narod SA. Cancer risks for male carriers of germline mutations in BRCA1 or BRCA2: a review of the literature. *J Clin Oncol*. 2004;22: 735–742.

Orr N, Cooke R, Jones M, Fletcher O, Dudbridge F, et al. Genetic Variants at Chromosomes 2q35, 5p12, 6q25.1, 10q26.13, and 16q12.1 Influence the Risk of Breast Cancer in Men. *PLoS Genet*. 2011. 7(9): e1002290.

PDQ Adult Treatment Editorial Board. Male Breast Cancer Treatment (PDQ®): Health Professional Version. 2017 Dec 15. In: PDQ Cancer Information Summaries [Internet]. Bethesda (MD): National Cancer Institute (US); 2002-. Available from: <https://www.ncbi.nlm.nih.gov.ezproxyhost.library.tmc.edu/books/NBK65792/> Accessed January 10, 2018.

Swerdlow AJ, Schoemaker MJ, Higgins CD, Wright AF, Jacobs PA; UK Clinical Cytogenetics Group. Cancer incidence and mortality in men with Klinefelter syndrome: a cohort study. *J Natl Cancer Inst*. 2005 Aug 17;97(16):1204-1210.

Tai YC, Domchek S, Parmigiani G, Chen S. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J Natl Cancer Inst*. 2007;99: 1811-1814.

Weiss JR, Moysich KB, Swede H. Epidemiology of breast cancer in men. *Cancer Epidemiol Biomarkers Prev*. 2005;14: 2026.

Last Medical Review: April 27, 2018 Last Revised: April 27, 2018

What Causes Breast Cancer in Men?

Although [certain risk factors](#) may increase a man's chances of developing breast cancer, the cause of most breast cancers in men is unknown.

Hormone levels

Breast cells normally grow and divide in response to female hormones such as estrogen. The more cells divide, the more chances there are for mistakes to be made when they are copying their DNA. These DNA changes can eventually lead to cancer

(see below).

Factors that unbalance the levels of female and male hormones in the body can therefore have an effect on breast cancer risk. Many of these were described in [Risk Factors for Breast Cancer in Men](#).

Gene changes (mutations)

Researchers are making great progress in understanding how certain changes in DNA can cause normal cells to become cancerous. DNA is the chemical in our cells that makes up our *genes*, the instructions for how our cells function. We usually look like our parents because they are the source of our DNA. However, DNA affects more than how we look.

Some [genes](#)¹ contain instructions for controlling when our cells grow, divide, and die. Certain genes that speed up cell division are called *oncogenes*. Others that slow down cell division or cause cells to die at the appropriate time are called *tumor suppressor genes*. Cancers can be caused by DNA mutations (defects) that turn on oncogenes or turn off tumor suppressor genes.

Acquired gene mutations

Most DNA mutations related to male breast cancer occur during life rather than having been inherited from a parent before birth. It's not clear what causes most of these mutations. Radiation to the breast area is a factor in a small number of cases. Some acquired mutations of oncogenes and/or tumor suppressor genes may be the result of cancer-causing chemicals in our environment or diet, but so far studies have not identified any chemicals that are responsible for these mutations in male breast cancers.

Inherited gene mutations

Certain inherited DNA changes can cause a high risk of developing certain cancers and are responsible for cancers that run in some families.

Some breast cancers are linked to inherited mutations of the *BRCA1* or *BRCA2* tumor suppressor genes. Normally, these genes make proteins that help cells recognize and/or repair DNA damage and prevent them from growing abnormally. But if a person has inherited a mutated gene from either parent, the chances of developing breast cancer are higher.

Men with mutations in genes such as BRCA1 and BRCA2 have a higher lifetime risk for breast cancer as well as other cancers such as prostate and pancreatic cancer. There are also other hereditary cancer syndromes that can be associated with male breast cancer.

All men who have been diagnosed with breast cancer should consider [genetic testing](#)² because they can be at risk for other cancers such as prostate and pancreas and it might affect their family's chances of getting certain cancers.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer.html
2. www.cancer.org/cancer/cancer-causes/genetics.html

References

³Burstein HJ, Harris JR, Morrow M. Ch. 79 - Malignant tumors of the breast. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

Fentiman IS. Review: The biology of male breast cancer. *The Breast* 38 (2018) 132-135.

Fentiman IS, Fourquet A, Hortobagyi GN. Male breast cancer. *Lancet*. 2006; 367:595–604.

Giordano SH, Buzdar AU, Hortobagyi GN. Breast cancer in men. *Ann Intern Med*. 2002;137: 678–687.

Giordano SH, Cohen DS, Buzdar AU, et al. Breast cancer in men: a population-based study. *Cancer*. 2004;101: 51–57.

Jain S and Gradishar WJ. Chapter 61: Male Breast Cancer. In: Harris JR, Lippman ME, Morrow M, Osborne CK, eds. *Diseases of the Breast*. 5th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2014.

Liede A, Karlan BY, Narod SA. Cancer risks for male carriers of germline mutations in BRCA1 or BRCA2: a review of the literature. *J Clin Oncol*. 2004;22: 735–742.

⁴Tai YC, Domchek S, Parmigiani G, Chen S. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J Natl Cancer Inst.* 2007;99: 1811-1814.

Wolff AC, Domchek SM, Davidson NE et al. Ch 91 - Cancer of the Breast. In: Niederhuber JE, Armitage JO, Doroshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 5th ed. Philadelphia, Pa: Elsevier: 2014.

Last Medical Review: April 27, 2018 Last Revised: April 27, 2018

Can Breast Cancer in Men Be Prevented?

There are some things a man can do to lower his risk of breast cancer:

- Maintain an ideal body weight
- Restricting alcohol consumption.

But since the cause of most breast cancers is not known, there is no known way to prevent them.

For now, the best strategies for reducing the number of deaths caused by this disease are early detection and prompt treatment. [Early detection](#)¹ has been a problem for men, who may not notice breast lumps or see their doctor only when the lumps have gotten large. In general, men are diagnosed with breast cancers at more advanced stages than are women.

Hyperlinks

1. www.cancer.org/cancer/breast-cancer-in-men/detection-diagnosis-staging/detection.html

References

Kushi LH, Byers T, Doyle C, et al. American Cancer Society guidelines on nutrition and

physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. *CA Cancer J Clin.* 2006;56: 254–281.

Last Medical Review: April 27, 2018 Last Revised: April 27, 2018

Written by

The American Cancer Society medical and editorial content team
(www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

American Cancer Society medical information is copyrighted material. For reprint requests, please see our Content Usage Policy (www.cancer.org/about-us/policies/content-usage.html).

cancer.org | 1.800.227.2345