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.

- What Are the Risk Factors for Breast Cancer in Men?
- Do We Know 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?

What Are the Risk Factors for Breast Cancer in Men?

A risk factor is anything that affects your chance of getting a disease such as cancer. Different cancers have different risk factors. For example, exposing skin to strong sunlight is a risk factor for skin cancer. Smoking is a risk factor for cancers of the lung, mouth, larynx (voice box), bladder, kidney, and several other organs.

But risk factors don't tell us everything. Having a risk factor, or even several, does not mean that you will 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. Even when someone has a risk factor, there is no way to prove that it
actually caused the cancer.

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 68 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, they have also been found in men with breast cancer who did not have a strong family history.

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

**Klinefelter syndrome**

Klinefelter syndrome is a congenital condition (present at birth) 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 2 X chromosomes. Men with this condition have cells with a Y chromosome plus at least 2 X chromosomes (but sometimes more).
Men with Klinefelter syndrome also have small testicles (smaller than usual). Often, they 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 (benign male breast growth).

Some studies have found that men with Klinefelter syndrome are more likely to get breast cancer than other men. One study of men with this syndrome found that the risk of getting breast cancer was about 1% (1 in 100). But this is a hard area to study because these are both uncommon problems, and it is hard to collect enough cases to be sure. The risk seems to be increased, but overall it is still low because this is such an uncommon cancer, even for men with Klinefelter syndrome.

Radiation exposure

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

Alcohol

Heavy drinking (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 sex hormone metabolism by making binding proteins that carry the hormones in the blood. These binding proteins affect the hormones’ activity. Men with severe liver disease such as cirrhosis have relatively low levels of androgens and higher estrogen levels. They have a higher rate of benign male breast growth (gynecomastia) and also have an increased risk of developing breast cancer.

Estrogen treatment

Estrogen-related drugs were once used in hormonal therapy for men with prostate cancer. This treatment may slightly increase breast cancer risk.

There is concern that transgender/transsexual individuals who take high doses of
Estrogens as part of a 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 (being extremely overweight) after menopause. Obesity is probably 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. Some obese men may notice that they don't have to shave as frequently as other men. They might also have trouble fathering children. Regular exercise and maintaining a healthy weight may help reduce the risk of breast cancer, as well as that of many other diseases and cancers.

**Testicular conditions**

Some studies have suggested that 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. Although the risk seems to be increased, overall it is still low.

**Certain occupations**

Some reports have suggested an increased risk in men who work in hot environments such as steel mills. This could be because being exposed to higher temperatures for long periods of time can affect testicles, which in turn would affect hormone levels. Men heavily exposed to gasoline fumes might also have a higher risk. More research is needed to confirm these findings.

- References

See all references for Breast Cancer in Men

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Do We Know 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 change the ratio of female and male hormones in the body can therefore have an effect on breast cancer risk. Many of these were described in the section "What are the 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* 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 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.

- In women, mutations of *BRCA1* and *BRCA2* are responsible for a small fraction of breast cancers. Women with either of these altered genes have a very high risk of breast cancer.
- In men, changes in the *BRCA2* gene seem to be responsible for some breast cancer cases, but different studies have different estimates for how many.
- *BRCA1* seems to play a role in only a small number of male breast cancers, but it may be more common in Jewish men.

**References**

[See all references for Breast Cancer in Men](#)

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Can Breast Cancer in Men Be Prevented?

There are some things a man can do to lower his risk of breast cancer: maintaining an ideal body weight and restricting alcohol consumption are 2 of them. 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 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.

- References

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