

## Surgery for Breast Cancer Prevention

Surgery for breast cancer prevention is the removal of healthy breasts to reduce risk of breast cancer.

**Preventive mastectomy (risk-reducing mastectomy, prophylactic mastectomy)** is the surgical removal of healthy breasts in order to lower the chance of developing breast cancer. Women with a high risk of breast cancer may consider these operations to possibly avoid getting the disease. However, women who undergo these operations still have a small risk of developing breast cancer because it is impossible to completely remove all breast tissue.

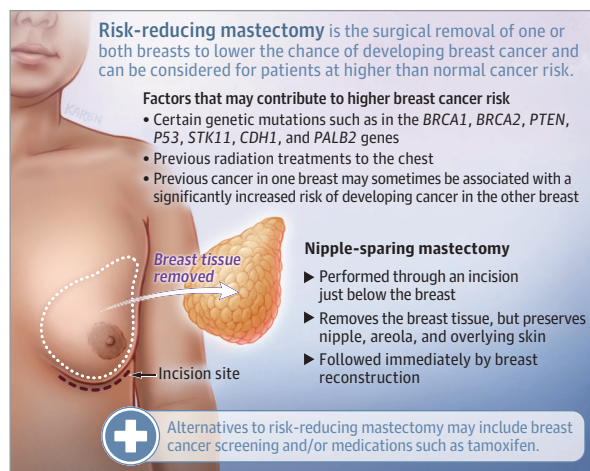
### Considering Preventive Mastectomy and Alternatives

The average woman in the US has about a 12% chance of developing breast cancer during her lifetime. However, some women have genetic mutations that are associated with a more than 50% lifetime chance of developing breast cancer, including those in the *BRCA1*, *BRCA2*, *PTEN*, *P53*, *STK11*, *CDH1*, and *PALB2* genes. Some women who received radiation treatments before age 30 years to the front of their chests to treat other cancers may have a similarly high risk of developing breast cancer. Women who have a greater than 50% lifetime chance of developing breast cancer should talk with their clinician about the possibility of surgically removing both healthy breasts. Women who have already had cancer in one breast may consider removal of the other healthy breast to lower their chance of developing another cancer.

Some women have mutations (such as in the *ATM* and *CHEK2* genes) associated with a moderately increased (25%-50%) lifetime risk of developing breast cancer. Surgical removal of both healthy breasts is usually not necessary for these women. Instead, depending on family history, their doctors may suggest considering screening and medications to lower their risk of breast cancer. If a cancer has already developed in one breast, then removal of the other healthy breast is usually not necessary for these women.

### Operations for Removal of Healthy Breasts

Three operations are used to remove healthy breasts for women with a high risk of developing breast cancer. **Simple (total) mastectomy** refers to removal of the nipple-areolar complex, breast tissue, and most of the overlying skin. **Skin-sparing mastectomy** refers to removal of the nipple-areolar area and breast tissue while preserving most of the overlying skin. **Nipple-sparing (subcutaneous) mastectomy** refers to removal of only the breast tissue, sparing both the nipple-areolar area complex and skin over the breast.



### Alternatives to Breast Removal

Women who have a high risk of developing breast cancer and do not want to have their breasts surgically removed can have annual breast cancer screening with magnetic resonance imaging (MRI), generally initiated by age 25 years, and annual screening mammography (sometimes along with tomosynthesis) initiated by age 30 years, with MRI and mammography staggered every 6 months thereafter. High-risk patients may also want to consider medications, such as tamoxifen, that may lower their risk of developing breast cancer.

### Risks of Surgery for Breast Cancer Prevention

The risks of these operations include wound problems, infections, bleeding, and occasional need for additional surgery to treat unexpected complications. Also, some women may develop emotional difficulties, abnormal sensations on their chest wall, or problems with body image and sexual relationships after these operations. Women who are at high risk of developing breast cancer should discuss all options with their doctor before making the decision to have their breasts surgically removed.

#### FOR MORE INFORMATION

- US National Library of Medicine  
[medlineplus.gov/ency/article/002919.htm](https://medlineplus.gov/ency/article/002919.htm)

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