

Breast Cancer Risk Assessment and Risk Reduction

What Are Risk Factors?

Risk factors are physical, lifestyle, or historical factors that increase the likelihood of developing cancer.

Who Are Your Patient's Breast Cancer Risk Factors?

Most women who get breast cancer have no known risk factors, aside from being of the female sex. However, a significant number of women who do develop breast cancer have one of the following risk factors listed from generally highest to lowest relative risk (RR):

Genetic Risk:

Possessing a genetic mutation (RR=15-200)

High Risk Breast Pathology:

Having atypical hyperplasia and positive family history (RR=18.1)

Having lobular carcinoma in situ (RR=16.4)

Having atypical hyperplasia without family history (RR=4-5.3)

Family History:

Having two 1st degree relatives with breast cancer (RR=3.6)

Having a 1st degree relative with premenopausal breast cancer (RR=3.3)

Having a 1st degree relative breast cancer age ≥ 50 or postmenopausal (RR=1.8)

Having only a 2nd degree relative with breast cancer (RR=1.5)

Breast Density:

Having mammographically extremely dense breasts (RR=5.3)

Having mammographically heterogeneously dense breasts (RR=3.4)

Other Factors:

Age ≥ 65 (RR=5.8)

Receiving chest irradiation between ages 10-30 (RR=5.2)

Never experiencing a full-term pregnancy before age 30 (RR=1.7-1.9)

Being overweight (RR=1.1-1.5)

Beginning menstrual cycle before age 12 (RR=1.3)

Drinking ≥ 2 alcohol drinks per day (RR=1.2)

Using combination hormone replacement therapy (RR=1.2)

Smoking (RR=1.2)

Use the information above and one of the following Breast Cancer Risk Calculators to calculate your patient's lifetime risk of breast cancer:

1. Gail Model. Use only if there is no 2nd or 3rd degree family history of breast cancer, no family history of male breast cancer, and no family history of ovarian cancer. This calculator does not account for breast density.
2. Breast Cancer Surveillance Consortium Risk Calculator. Use only if there is no 2nd or 3rd degree family history of breast cancer, no family history of male breast cancer, and no family history of ovarian cancer. However, this calculator does account for breast density.
3. Tyrer-Cuzick of IBIS Model. This is the most comprehensive breast cancer risk calculator, and includes 2nd and 3rd degree family history, male breast cancer, family history of ovarian cancer, and breast density.

How Can Your Patient Reduce Her Lifetime Risk of Breast Cancer?

Some breast cancer risk factors are unchangeable, such as gender, family history, breast density, or a biopsy showing high risk pathology. Other risk factors, like age, become more important as a woman grows older.

Fortunately, some risk factors are modifiable or changeable, meaning that there are things that can be done to reduce breast cancer risk. These include weight, Body-Mass Index, physical activity, tobacco use, and use of combination hormone replacement therapy.

Modifying the following lifestyle factors has been shown to reduce the risk of developing breast cancer:

Exercise More -- Women who exercise weekly have significantly fewer breast cancers compared to sedentary women. Moderate exercise of 150 minutes per week reduces breast cancer risk by 20%. That's only 30 minutes of exercise per day 5 days a week. Exercise for more than 4 hours a week can reduce breast cancer risk by 40%! Appropriate exercises include walking briskly, running, or other aerobic activities. Strength training at least twice a week is also recommended. Aside from the benefits to breast cancer risk reduction, exercising also reduces the risk of heart disease (the #1 killer of all Americans), improves

energy levels, and enhances self-esteem. Furthermore, exercise reduces the risk of breast cancer recurrence in breast cancer survivors by 30%.

Maintain Normal or Lean Body Weight -- Lean women have significantly fewer breast cancers than obese women. The reason for this is that body fat produces estrogen, which increases the risk of developing breast cancer, especially in post-menopausal women. In addition, lean and moderately overweight women who exercised more than 75 minutes a week have a 30% reduction in their risk of breast cancer. For a 200-pound woman, losing as little as 5-10% (10-20 pounds) of her body weight can significantly reduce her breast cancer risk.

Take Aspirin or Ibuprofen Regularly -- Women who take 2 or more tablets of aspirin or ibuprofen each week for at least 5 years have a 20% lower risk of developing breast cancer. Those who take these medications for more than 10 years lower their risk even further. Regular use of ibuprofen reduces the risk by 50%. The best dose and frequency of use of aspirin or ibuprofen have not been determined. However, based on these initial findings, patients may consider taking a low dose of aspirin (81 mg) or ibuprofen (200 mg) twice a week if they are not already doing so for other reasons, and if there are no contraindications.

Avoid or Reduce Use of Hormone Replacement Therapy -- For many years, hormone replacement therapy (HRT) has been recommended to post-menopausal women to improve heart health, prevent bone loss, and reduce hot flashes, vaginal dryness, or other

symptoms of menopause. Numerous studies have evaluated the risk of breast cancer in women taking HRT. Unfortunately, the results of these studies were mixed, with some studies showing no increase in breast cancer risk and others showing modestly increased risk. Part of the reason for the controversy is that the studies all differed in important ways, such as in the type or dose of estrogen or progesterone, making it difficult to draw clear conclusions. Fortunately, a few helpful lessons did come out of those studies:

Combination HRT containing both progesterone and estrogen increases the risk of breast cancer when used for more than 5 years. Use for less than 5 years does not appear to increase breast cancer risk.

HRT containing estrogen alone has not been shown to increase the risk of breast cancer. Estrogen-only HRT are used in women that have undergone hysterectomy.

HRT increases the density of the breast, making them firmer, lumpier, and harder to evaluate with mammography and physical examination. This can lead to delayed diagnosis or more frequent breast biopsies.

If you feel that combination HRT is necessary to help your patient maintain a sense of normalcy, then consider prescribing the lowest dose for the shortest period of time necessary to control her symptoms. If long term use of combination HRT is needed, then it is even more important for her to take measures to off-set the risk increase associated with the use of combination HRT.

Drink Less Alcohol -- Daily alcohol consumption more than doubles the risk of breast cancer in women who have a mother, sister, or daughter with breast cancer. There is also slightly increased risk in women who have no family history of breast cancer. Therefore, it is recommended that women limit their alcohol consumption to no more than 1 serving per day (e.g., no more than one 12 ounce beer or 5 ounce glass of wine).

Avoid or Stop Smoking -- Smoking increases the risk of breast cancer by playing a role in the initiation and progression of breast cancer. Smoking cessation reduces the risk of breast cancer as well as the risk of lung cancer and cardiovascular disease.

Take Anti-Hormone Therapy -- Anti-estrogen therapy significantly reduces the risk of breast cancer in women who are at increased risk. Tamoxifen (Nolvadex), raloxifene (Evista), and aromatase inhibitors are anti-estrogen drugs in common use today. Any of these medications can be taken daily for 5 years, but the breast cancer reduction benefit lasts even after the drugs have been stopped.

High Risk Women

Although all women are at risk of developing breast cancer, women that carry a pathogenic genetic mutation related to breast cancer are at particularly high risk of developing breast cancer. In addition to practicing the usual risk reduction measures, women at high risk of

breast cancer should consider additional strategies to further reduce their risk of developing breast cancer. The following risk reduction measures should be discussed with your patient:

Prophylactic Mastectomy -- Prophylactic nipple sparing mastectomy or preventive removal of the breasts reduces the lifetime risk of breast cancer to less than 5% in women who have a high risk of breast cancer. This can be accompanied by breast reconstruction using implants or natural body tissues.

Bilateral Salpingo-oophorectomy – Bilateral salpingo-oophorectomy or removal of the fallopian tubes and ovaries in premenopausal women can reduce the risk of developing breast cancer by 50%.

Information is Empowering

By adopting these recommendations, your patients can reduce their chances of developing breast cancer, heart disease, lung cancers, and many other causes of premature death. But remember: early diagnosis is also essential! So, don't forget to have them obtain recommended breast cancer screening studies and annual physical examinations.