

Breast Cancer Toolkit

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Understanding Breast Cancer

(Adapted from the American Cancer Society and Breast Cancer.org)

GENERAL:

What is Cancer?

The body is made up of living cells. Normal body cells grow, divide, and die in an orderly fashion.

Cancer begins when cells in a part of the body start to grow out of control. Cancer cell growth is different from normal cell growth. Instead of dying, cancer cells continue to grow and form new, abnormal cells. Cancer cells can also invade (grow into) other tissues, something that normal cells cannot do. Growing out of control and invading other tissues are what makes a cell a cancer cell.

Cells become cancer cells because of damage to DNA. DNA is in every cell and directs all its actions. In a normal cell, when DNA gets damaged the cell either repairs the damage or the cell dies. In cancer cells, the damaged DNA is not repaired, but the cell doesn't die like it should. Instead, this cell goes on making new cells that the body does not need. These new cells will all have the same damaged DNA as the first cell does.

People can inherit damaged DNA, but most DNA damage is caused by mistakes that happen while the normal cell is reproducing or by something in our environment. But often no clear cause is found.

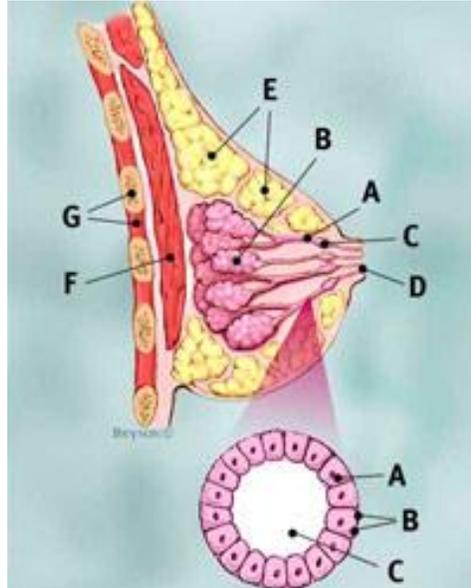
In most cases the cancer cells form a tumor. A tumor can be benign (not dangerous to health) or malignant (has the potential to be dangerous). Benign tumors are not considered cancerous: their cells are close to normal in appearance, they grow slowly, and they do not invade nearby tissues or spread to other parts of the body. Malignant tumors are cancerous. Left unchecked, malignant cells eventually can spread beyond the original tumor to other parts of the body.

What Is Breast Cancer?

The term “breast cancer” refers to a malignant tumor that has developed from cells in the breast. Usually breast cancer either begins in the cells of the lobules, which are the milk-producing glands, or the ducts, the passages that drain milk from the lobules to the nipple. Less commonly, breast cancer can begin in the stromal tissues, which include the fatty and fibrous connective tissues of the breast.

Breast Anatomy

- A Ducts
- B Lobules
- C Dilated section of duct to hold milk
- D Nipple
- E Fat
- F Pectoralis major muscle
- G Chest wall/rib cage



Enlargement

- A Normal duct cells
- B Basement membrane
- C Lumen (center of duct)

Over time, cancer cells can invade nearby healthy breast tissue and make their way into the underarm lymph nodes, small organs that filter out foreign substances in the body. If cancer cells get into the lymph nodes, they then have a pathway into other parts of the body. The breast cancer’s stage refers to how far the cancer cells have spread beyond the original tumor.

Breast cancer is always caused by a genetic abnormality (a “mistake” in the genetic material). However, only 5-10% of cancers are due to an abnormality inherited from your mother or father. About 90% of breast cancers are due to genetic abnormalities that happen as a result of the aging process and the “wear and tear” of life in general.

While there are steps every person can take to help the body stay as healthy as possible (such as eating a balanced diet, not smoking, limiting alcohol, and exercising regularly), breast cancer is never anyone’s fault. Feeling guilty, or telling yourself that breast cancer happened because of something you or anyone else did, is not productive.

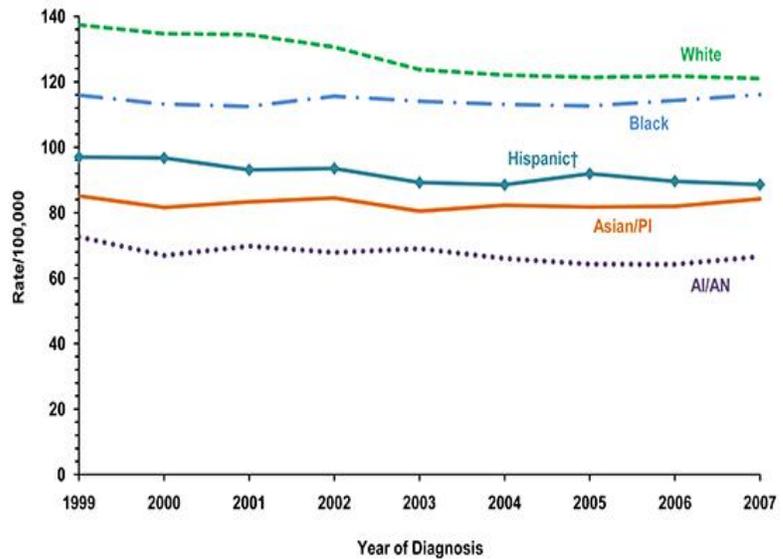
Statistics

(Adapted from the America Cancer Society and CDC)

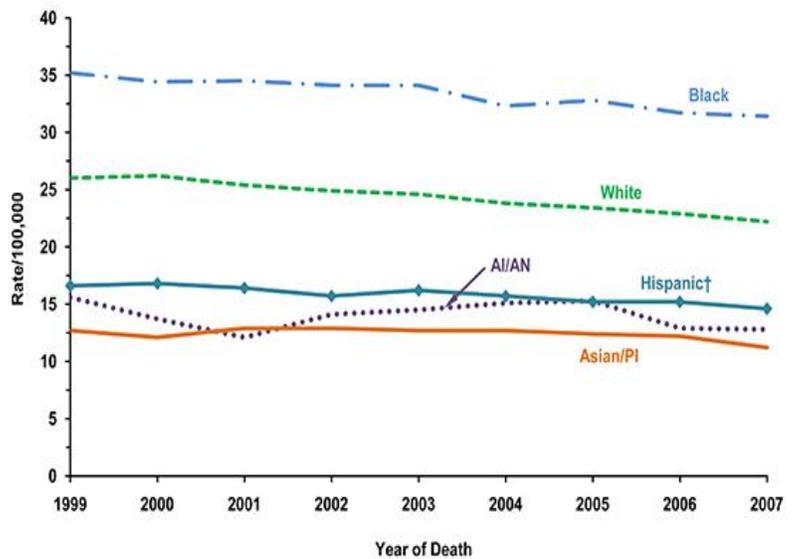
Breast cancer is the most common cancer among American women, except for skin cancers. The chance of developing invasive breast cancer at some time in a woman’s life is a little less than 1 in 8 (12%).

- About 230,480 new cases of invasive breast cancer will be diagnosed in women.
- About 57,650 new cases of carcinoma in situ (CIS) will be diagnosed (CIS is non-invasive and is the earliest form of breast cancer).
- About 39,520 women will die from breast cancer
- Compared to African American women, white women are slightly more likely to develop breast cancer, but less likely to die of it. One possible reason is that African American women tend to have more aggressive tumors, although why this is the case is not known. Women of other ethnic backgrounds — Asian, Hispanic, and Native American — have a lower risk of developing and dying from breast cancer than white women and African American women.
- About 2,140 new cases of invasive breast cancer will be diagnosed among men

Female Breast Cancer Incidence Rates* by Race and Ethnicity, U.S., 1999–2007



Female Breast Cancer Death Rates* by Race and Ethnicity, U.S., 1999–2007



Risk Factors

A “risk factor” is anything that increases your risk of developing breast cancer. Many of the most important risk factors for breast cancer are beyond your control. However, there are some risk factors you can control.

Risk factors you can control

- **Weight**
- **Diet**
- **Exercise**
- **Alcohol consumption**
- **Smoking**
- **Exposure to estrogen**
- **Contraceptive use**

Risk factors you can't control

- **Gender**
- **Age**
- **Family history of breast cancer**
- **Personal history of breast cancer**
- **Race and Ethnicity**
- **Breast cellular changes**
- **Menstrual periods**
- **Previous Chest Radiation**
- **Pregnancy and breastfeeding**

Risk Factors You Can Control

(Adapted from Breast Cancer.org)

Weight	Being overweight is associated with increased risk of breast cancer, especially for women after menopause. Fat tissue is the body's main source of estrogen after menopause, when the ovaries stop producing the hormone. Having more fat tissue means having higher estrogen levels, which can increase breast cancer risk.
Diet	Diet is a suspected risk factor for many types of cancer, including breast cancer. It's a good idea to restrict sources of red meat and other animal fats (including dairy fat in cheese, milk, and ice cream), because they may contain hormones, other growth factors, antibiotics, and pesticides. Some researchers believe that eating too much cholesterol and other fats are risk factors for cancer, and studies show that eating a lot of red and/or processed meats is associated with a higher risk of breast cancer. A low-fat diet rich in fruits and vegetables is generally recommended.
Exercise	Evidence is growing that exercise can reduce breast cancer risk. The American Cancer Society recommends engaging in 45-60 minutes of physical exercise 5 or more days a week.

<p>Alcohol consumption</p>	<p>Studies have shown that breast cancer risk increases with the amount of alcohol a woman drinks. Alcohol can limit your liver's ability to control blood levels of the hormone estrogen, which in turn can increase risk.</p>
<p>Smoking</p>	<p>Smoking is associated with a small increase in breast cancer risk.</p>
<p>Exposure to estrogen</p>	<p>Because the female hormone estrogen stimulates breast cell growth, exposure to estrogen over long periods of time, without any breaks, can increase the risk of breast cancer. Some of these risk factors are under your control, such as:</p> <ul style="list-style-type: none"> • taking combined hormone replacement therapy (estrogen and progesterone; HRT) for several years or more, or taking estrogen alone for more than 10 years • being overweight • regularly drinking alcohol
<p>Stress and anxiety.</p>	<p>There is no clear proof that stress and anxiety can increase breast cancer risk. However, anything you can do to reduce your stress and to enhance your comfort, joy, and satisfaction can have a major effect on your quality of life. So-called "mindful measures" (such as meditation, yoga, visualization exercises, and prayer) may be valuable additions to your daily or weekly routine. Some research suggests that these practices can strengthen the immune system.</p>

Balanced Diet

Low-fat diet may reduce risk of recurrence and first-time breast cancer.

Sticking to a low-fat diet may help reduce the risk of breast cancer coming back. One study in which women got only about 25% of their daily calories from fat found a lower risk of recurrence, mostly in women with a prior estrogen-receptor-negative breast cancer. Furthermore, other healthy choices are more likely to come with a low-fat diet, such as eating more fruits and vegetables and losing weight. All these changes together may help lower your risk of recurrence.

The large Women's Health Initiative Trial compared the breast cancer risk of post-menopausal women who ate a low-fat diet to those who continued to eat their regular diet. The researchers didn't find any significant differences in breast cancer risk between the two groups. But the study did suggest that a low-fat diet may reduce the risk of first-time breast cancer for women whose diets are very high in fat to begin with. Reducing fat and increasing fruits, vegetables, and whole grains in your diet will ensure your body is getting enough nutrients and contribute to your overall health. Also, a low-fat diet will probably help you lose weight, if you are trying to do that.

No foods or supplements are linked specifically to breast cancer.

There is no strong evidence that any specific foods or supplements will lower the risk of getting breast cancer or reduce the risk of recurrence.

Research has shown that getting the nutrients you need from a variety of foods, especially fruits, vegetables, and whole grains, can make you feel your best and give your body the energy it needs. You can get many of the nutrients you need from the food you eat. If you're considering taking supplements, it's a good idea to have a registered dietitian evaluate your diet. You may need a bit more of a specific nutrient like foliate or vitamin A. That's why women either with or without a prior breast cancer often take a multiple vitamin and mineral supplement. Many women also need calcium supplements to meet their daily calcium requirements.

Breast Cancer Screenings

Breast Cancer Related Tests

Early Detection and Preventative Exams

Breast Cancer Related Tests

(Breast Cancer.Org and Cancer.org)

Whether you've never had breast cancer and want to increase your odds of early detection, you've recently been diagnosed, or you are in the midst of treatment and follow-up, you know that breast cancer and medical tests go hand in hand.

Screening tests	Screening tests (such as yearly mammograms) are given routinely to people who appear to be healthy and are not suspected of having breast cancer. Their purpose is to find breast cancer early, before any symptoms can develop and the cancer usually is easier to treat.
Diagnostic tests	Diagnostic tests (such as biopsy) are given to people who are suspected of having breast cancer, either because of symptoms they may be experiencing or a screening test result. These tests are used to determine whether or not breast cancer is present and, if so, whether or not it has traveled outside the breast. Diagnostic tests also are used to gather more information about the cancer to guide decisions about treatment.

Monitoring tests	Once breast cancer is diagnosed, many tests are used during and after treatment to monitor how well therapies are working. Monitoring tests also may be used to check for any signs of recurrence.
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Early Detection and Preventative Exams

- **Breast Self-Exam (BSE)**

Breast self-exam (BSE), or regularly examining your breasts on your own, can be an important way to find a breast cancer early, when it's more likely to be treated successfully. Not every cancer can be found this way, but it is a critical step you can and should take for yourself. While it's true that most lumps are found by women themselves, the abnormality in a breast can be so difficult to feel that only someone with experience would recognize it

- **Clinical Breast Physical Exam**

A clinical breast physical exam is a careful manual examination of the breasts by a doctor or other health professional. This exam can help find lumps that women may miss with their own self-exams.

Lumps, thickening, asymmetry (a difference in appearance between the two breasts) — changes in your breasts that you may not notice or think are “normal” — may be detected by a health professional who examines many breasts regularly. About 20% of the time, breast cancers are found only by physical exam and not seen on a mammogram.

The American Cancer Society recommends that women in their 20s and 30s have a physical breast exam as part of a periodic (regular) health exam by a health professional, preferably every 3 years. After age 40, women should have a breast exam by a health professional every year.

- **Mammograms**

Mammograms are probably the most important tool doctors have not only to screen for breast cancer, but also to diagnose, evaluate, and follow people who've had breast cancer. Safe and reasonably accurate, a mammogram is an x-ray photograph of the breast. The technique has been in use for about 40 years.

Screening mammograms are typically done every year to check the breasts for any early signs of breast cancer. Diagnostic mammograms are different from screening mammograms in that they focus on getting more information about a specific area (or areas) of concern — usually due to a suspicious screening mammogram or a suspicious lump.

- **Ultrasound exam:** Pictures (sonogram) are formed from ultrasound echoes of internal tissues or organs.
- **MRI (magnetic resonance imaging):** Also known as magnetic resonance imaging (NMRI) uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body.
- **Blood chemistry studies:** Blood sample measure the amounts of certain substances released into the blood by organs and tissues in the body. A statistical value is assigned and variations in the measurement are indicators of disease...
- **Biopsy :** The removal of cells or tissues so they can be viewed under a microscope by a pathologist to check for signs of cancer. If a lump in the breast is found, the doctor may need to remove a small piece of the lump.

<http://www.cancer.gov/cancertopics/pdq/treatment/breast/Patient/page1#Keypoint5>

Resource Page

Places to obtain information, materials, and support:

1. **American Cancer Society**
Cancer.org
www.cancer.org
2. **Breast Cancer - National Cancer Institute**
www.cancer.gov/cancertopics/types/breast
3. **The National Comprehensive Cancer Network (NCCN)**
www.nccn.org
4. **National health information center**
<http://healthfinder.gov/NHO/PDFs/OctoberNHOToolkit.pdf>

Reference Page

Understanding Breast Cancer. BreastCancer.org. Accessed 9/23/2014.

<http://www.breastcancer.org/symptoms/diagnosis/>

American Cancer Society. Cancer Basics. Accessed 9/23/2014.

<http://www.cancer.org/Cancer/CancerBasics/index>

<http://www.cancer.gov/cancertopics/pdq/treatment/breast/Patient/page1#Keypoint5>

Choose my plate.gov. Accessed 9/23/2014

<http://www.choosemyplate.gov/tipsresources/printmaterials.ht>