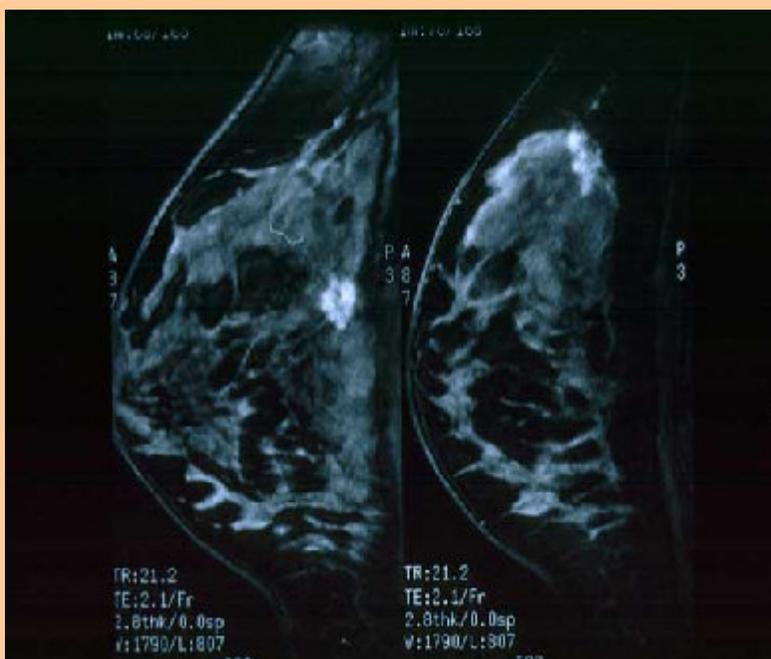


## Breast Cancer

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**Editor**

## BREAST CANCER

According to World Health Organization, Global cancer rates could increase by 50% to 15 million by 2020. World Cancer Report provides clear evidence that action on smoking, diet and infections can prevent one third of cancers, another third can be cured.

**Symptoms and Diagnosis** The earlier breast cancer is found and diagnosed, the better are the chances of beating it. Breast self-exam should be part of the monthly health care routine. If you're over 40 or at a high risk for the disease, especially when there is a family history of cancer, you should also have an annual mammogram and physical exam by a doctor. The actual process of diagnosis can take weeks and involve many different kinds of tests. Waiting for results can feel like a lifetime.

**How Breast Cancer Happens ?** Like all parts of our body, the cells in the breasts usually grow and then rest in cycles. The periods of growth and rest in each cell are controlled by genes in the cell's nucleus. The nucleus is like the control room of each cell. When the genes are in good working order, they keep cell growth under control. But when our genes develop an abnormality, they sometimes lose their ability to control the cycle of cell growth and rest.

Cancer has the potential to break through normal breast tissue barriers and spread to other parts of the body. While cancer is always caused by a genetic "abnormality" (a "mistake" in the genetic material), only 5–10% of cancers are inherited from our mother or father. Instead, 90% of breast cancers are due to genetic abnormalities that happen as a result of the aging process and life in general.

Breast cancer is the most common cancer to affect women. According to a BBC report, as per the data from the Office for National Statistics showed that from 1971 to 2004 the number of cases of the disease rose by 81% to 36,939 cases in England.

### Who Gets Breast Cancer? Major risk factors

**Age.** Your chances of developing breast cancer increase as you get older. The disease rarely affects women younger than 25 years of age, whereas close to 80 percent of breast cancers occur in women older than age 50. At age 40, you have a one in 252 chance of developing breast cancer. By age 85, your chance is one in eight.

**A personal history of breast cancer.** If you've had breast cancer in one breast, you have an increased risk of developing cancer in the other breast.

**Family history.** If you have a mother, sister or daughter with breast or ovarian cancer or both, or even a male relative with breast cancer, you have a greater chance of also developing breast cancer. In general, the more relatives you have with breast cancer who were pre-menopausal at the time of diagnosis, the higher your own risk. If you have one close relative with the disease, your risk is doubled. If you have two or more relatives, your risk increases even more. Just because you have a family history of breast cancer doesn't mean it's hereditary, though. Most people with a family history of breast cancer (familial breast cancer risk) haven't inherited a defective gene, such as BRCA1 or BRCA2. Rather, cancer becomes so common in women who live into their 80s and beyond that random, non-inherited breast tumors may appear in more than one member of a single family.

**Genetic predisposition.** Between 5 percent and 10 percent of breast cancers are inherited. Defects in one of several genes, especially BRCA1 or BRCA2, put you at greater risk of developing breast, ovarian and colon cancers. Usually these genes help prevent cancer by making proteins that keep cells from growing abnormally. But if they have a mutation, the genes aren't as effective at protecting you from cancer.

**Radiation exposure.** If you received radiation treatments to your chest as a child or young adult, you're more likely to develop breast cancer later in life. The younger you were when you received the treatments, the greater your risk.

**Excess weight.** The relationship between excess weight and breast cancer is complex. In general, weighing more than is healthy for your age and height increases your risk if you've gained the weight as an adult and especially after menopause. The risk is even greater if you have more body fat in the upper part of your body. Although women usually have more fat in their thighs and buttocks, they tend to gain weight in their abdomens starting in their 30s, which can increase their risks.

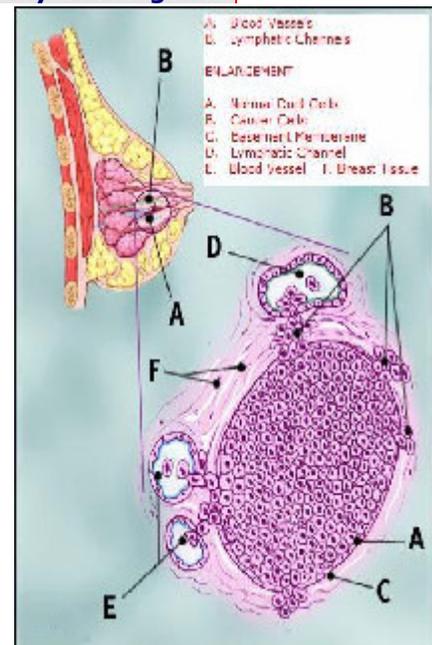
**Exposure to estrogen.** The longer you're exposed to estrogen, the greater your breast cancer risk. In general, if you have a late menopause (after age 55) or you began menstruating before age 12, you have a slightly higher risk of developing breast cancer. The same is true for women who never had children, or whose first pregnancy occurred when they were age 35 or older.

**Race.** Caucasian women are more likely to develop breast cancer than black or Hispanic women are, but black women are more likely to die of the disease because their cancers are found at a more advanced stage. Although some studies show that black women may have more aggressive tumors, it's also likely that the disparity is at least partially due to socioeconomic factors. Women of all races with incomes below the poverty level are more often diagnosed with late-stage breast cancer and more likely to die of the disease than are women with higher incomes. Low-income women often don't receive the routine medical care that would allow breast cancer to be discovered earlier.

**Hormone therapy.** In July 2002, a study sponsored by the National Institutes of Health (NIH) was halted as researchers reported that hormone therapy, once considered standard treatment for menopausal symptoms, actually posed more health risks than benefits. Among these was a slightly higher risk of breast cancer for women taking the particular combination of hormone therapy — estrogen plus progesterin — used in the study. In addition, combination hormone therapy can make malignant tumors harder to detect on mammograms, leading to cancers that are diagnosed at more advanced stages when they're harder to treat. Because combination hormone therapy can result in serious side effects and health risks, work with your doctor to evaluate the options and decide what's best for you.

**Birth control pills.** The hormone therapy studies have raised questions about the relationship between birth control pills and breast cancer. Unfortunately, there are no clear answers. A large study of women between the ages of 35 and 64 published in June 2002 in the "New England Journal of Medicine" concluded that current or former use of oral contraceptives didn't increase the risk of breast cancer. For the latest information on the pill and breast cancer, talk to your doctor.

**Smoking.** A Mayo Clinic study published in April 2001 found that smoking significantly increases the risk of breast cancer in women with a family history of breast and ovarian cancers. And a 2005 study published in the "International



"Journal of Cancer" found that exposure to secondhand smoke also increases the risk of breast cancer in pre-menopausal women. Researchers think that higher estrogen levels combined with cancer-causing agents in tobacco spark the development of breast tumors.

**Exposure to certain carcinogens.** Polycyclic aromatic hydrocarbons are chemicals found mainly in cigarette smoke and charred red meat. Studies have shown that exposure to these chemicals can significantly increase your chances of developing breast cancer. Exposure to certain pesticides also may increase your risk, but more research needs to be done to establish a clear link.

**Excessive use of alcohol.** Women who consume more than one alcoholic drink a day have about a 20 percent greater risk of breast cancer than do women who don't drink. The National Cancer Institute recommends limiting alcohol intake to no more than one drink daily.

**Precancerous breast changes (atypical hyperplasia, carcinoma in situ).** These changes are often discovered only after you have a breast biopsy for another reason, but they can double your risk of developing breast cancer. If you have carcinoma in situ, discuss treatment and monitoring options with your doctor.

## **Diagnosis and Screening**

Screening means looking for some evidence of disease before symptoms appear and is the key to finding breast cancer in its early and treatable stages. Depending on one's age and risk factors, screening may include breast self-examination, examination by a nurse or doctor (clinical breast exam), mammograms (mammography) or other tests.

**Breast self-examination (BSE) :** Breast familiarity refers to knowing how your breasts usually look and feel. You can do this by paying attention to changes to your breasts, such as:

- Development of a lump
- Change in size or shape
- Irregular thickening of breast tissue
- Nipple discharge
- Skin redness or warmth
- Dimpling or skin texture similar to an orange peel
- Retraction of the nipple or area surrounding the nipple (areola)

Performing regular breast self-exams is one way to increase your familiarity with your breasts and help you detect changes in your breast tissue.

**Clinical breast exam :** Unless one has a family history of cancer or other factors which accounts for high risk, it is recommended that having clinical breast exams once every three years until age 40 is very important. After that, it could be a yearly clinical exam.

**Mammogram :** A mammogram, which uses a series of X-rays to show images of the breast tissue, is currently the best imaging technique for detecting tumors before you or your doctor can feel them. For that reason, mammography for all women over 40 is recommended. During a mammogram, the breasts are compressed between plastic plates while a radiology technician takes the X-rays. The whole procedure should take less than 30 minutes. One may find mammography somewhat uncomfortable. If you have too much discomfort, inform the technician.

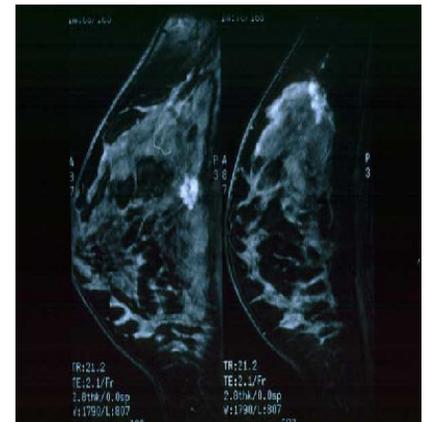
## Other screening tests

**Computer-aided detection (CAD).** In traditional mammography, your X-rays are reviewed by a radiologist, whose skill and experience play a large part in determining the accuracy of the test results. In CAD, a computer scans your mammogram after a radiologist has reviewed it. CAD identifies more suspicious areas on the mammogram, but many of these areas may later prove to be normal. Still, using mammography and CAD together may increase the cancer detection rate.

**Magnetic resonance imaging (MRI).** This technique uses a magnet linked to a computer to take pictures of the interior of your breast. Although not used for routine screening, MRI can reveal tumors that are too small to detect through physical exams or are difficult to see on conventional mammograms. Some centres may use MRI as an additional screening tool for high-risk women who have dense breast tissue on a mammogram. MRI isn't recommended for routine screening because it has a high rate of false-positive results, leading to unnecessary anxiety and biopsies. It's also expensive, not readily available and requires radiology experts who can interpret the images and findings appropriately.

**Ductal lavage.** In this procedure, the doctor inserts a tiny, flexible tube (catheter) into the lining of a duct in the breast – the site where most cancers originate – and withdraws a sample of cells. The cells are then examined for precancerous changes that might eventually lead to disease. These changes show up long before tumors can be detected on a mammogram. But because ductal lavage is a new procedure, many unknowns remain, including the rate of false-negative results & the exact location of abnormal cells.

**Breast ultrasound (ultrasonography).** The doctor may use this technique to evaluate an abnormality seen on a mammogram or found during a clinical exam. Ultrasound uses sound waves to form images of structures deep within the body. Because it doesn't use X-rays, ultrasound is a safe diagnostic tool that can help determine whether an area of concern is a cyst or solid tissue. But breast ultrasound isn't used for routine screening because it has a high rate of false-positive results – finding problems where none exist.



**Molecular breast imaging (MBI).** It is relatively a new technique. This experimental technique tracks the movement of a radioactive isotope that's taken up by breast tissue and especially by tumors. A special camera shows images of the breast and picks up the isotope signals. In preliminary studies, MBI found small tumors that both mammography and ultrasound missed, and because the procedure uses lighter compression, it may be more comfortable than mammography is.

**Diagnostic procedures** If somehow there is a detection of a lump in the breast, one will likely have one or more diagnostic procedures to determine if the lump is cancerous, including:

**Ultrasound :** Often, the doctor will suggest a less invasive procedure, such as ultrasound, before deciding on a biopsy. Ultrasound is a procedure that uses sound waves to create an image of the breast on a computer screen. By analyzing this image, doctor may be able to tell whether a lump is a cyst or a solid mass. Cysts, which are sacs of fluid, usually aren't cancerous, although one may want to have a painful cyst drained with a needle.

**Biopsy** : In some cases, doctor may want to remove a small sample of tissue (biopsy) for analysis in the laboratory. Biopsies can provide important information about an unusual breast change and help determine whether surgery is needed and if so, the type of surgery required. To obtain a tissue sample, the doctor may use one of the following procedures:

**Fine-needle aspiration biopsy:** The simplest type of biopsy, this is used for lumps felt. During the procedure, doctor uses a thin, hollow needle to withdraw cells from the lump. These cells are then sent to a lab for analysis. The procedure isn't uncomfortable, takes about 30 minutes and is similar to drawing blood.

**Core needle biopsy:** During this procedure, a radiologist or surgeon uses a hollow needle to remove tissue samples from a breast lump. As many as 15 samples, each about the size of a grain of rice, may be taken, and a pathologist then analyzes them for malignant cells.

**Stereotactic biopsy:** This technique is used to sample and evaluate an area of concern that can be seen on a mammogram but that cannot be felt or seen on an ultrasound. During the procedure, a radiologist takes a core needle biopsy, using one's mammogram as a guide. Stereotactic biopsy usually takes hour and is performed using local anesthesia.

**Wire localization:** The doctor may recommend this technique when a worrisome lump is seen on a mammogram but can't be felt or evaluated with a stereotactic biopsy. Using mammogram as a guide, a thin wire is placed in the breast and the tip guided to the lump. Wire localization is usually performed right before a surgical biopsy and is a way to guide the surgeon to the area to be removed and tested.

**Surgical biopsy:** This remains one of the most accurate methods for determining whether a breast change is cancerous. During this procedure, the surgeon removes all or part of a breast lump. In general, a small lump will be completely removed. If the lump is larger, only a sample will be taken. The biopsy is generally performed on an outpatient basis in a clinic or hospital.

**Estrogen and progesterone receptor tests** : If a biopsy reveals malignant cells, the doctor will recommend additional tests — such as estrogen and progesterone receptor tests — on the malignant cells. These tests help determine whether female hormones affect the way the cancer grows. If the cancer cells have receptors for estrogen or progesterone or both, doctor may recommend treatment with a drug which prevents estrogen from binding to these sites.

**Staging tests:** Staging tests help determine the size and location of cancer and whether it has spread. They also help doctor determine the best treatment to be decided. Cancer is staged using the numbers 0 through IV.

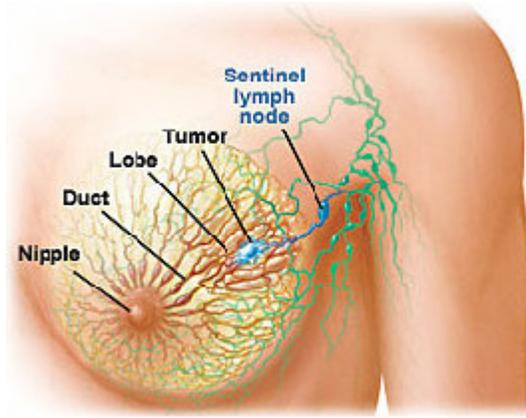
Stage 0 cancers are also called noninvasive, or in situ (in one place) cancers. Although they don't have the ability to spread to other parts of body or invade normal breast tissue, it's important to have them removed because they eventually can become invasive cancers

Stage I to IV cancers are invasive tumors that have the ability to spread.. A stage I cancer is small, well localized & has a successful treatment rate. But the higher the cancer number, the lower the chances of cure. By stage IV, the cancer has spread beyond breast to other organs, such as bones, lungs or liver. Although it may not be possible to eliminate the cancer at this stage, its spread may be controlled with radiation, chemotherapy or both.

**Genetic testing** : The discovery of BRCA1, BRCA2 & other genes that may increase breast cancer risk has raised a number of emotional and legal questions about

genetic testing. A simple blood test can help identify defective BRCA genes, but it's not 100 percent accurate & most experts believe that only women at high risk of hereditary breast or ovarian cancers should be referred for testing.

In general, testing is most beneficial if the results of the test will help one make a decision about how one might best reduce the chance of developing breast cancer.



Options range from lifestyle changes, closer screening & therapy with medications to extreme measures such as preventive bilateral mastectomy and removal of ovaries. These can be wrenching decisions for any woman to make. Be sure to thoroughly discuss all the options with a genetic counselor, who can explain the risks, benefits and limitations of genetic testing.

## TREATMENTS

A diagnosis of breast cancer is one of the most difficult experiences one can face. In addition to coping with a life-threatening illness, one must make complex decisions about treatment. In most cases no one right treatment exists for breast cancer. Instead, one has to find the approach that's best for oneself.

To do that, one needs to consider many different factors, including the type and stage of the cancer, age, risk factors, profession, the size and shape of breasts, and one's feelings about one's body.

Treatments exist for every type and stage of breast cancer. Most women will have surgery and an additional (adjuvant) therapy such as radiation, chemotherapy or hormone therapy. And several experimental treatments are now offered on a limited basis or are being studied in clinical trials.

**Surgery :** At one time, the only type of breast cancer surgery was radical mastectomy, which removed the entire breast, along with chest muscles beneath the breast and all the lymph nodes under the arm. Today, this operation is rarely performed. Instead, the majority of women are candidates for breast-saving operations, such as lumpectomy. Less radical mastectomies and mastectomy with reconstruction are also options.

The breast cancer operations include the following:

**Lumpectomy:** This operation saves as much of the breast as possible by removing only the lump plus a surrounding area of normal tissue. Many women can have lumpectomy — often followed by radiation therapy — instead of mastectomy, and in most cases survival rates for both operations are the same. In addition, many more women are satisfied with their appearance after lumpectomy. But lumpectomy may not be an option if a tumor is deep within the breast, or if one has already had radiation therapy, have two or more areas of cancer in the same breast that are far apart, have a connective tissue disease that makes one sensitive to

radiation, or are pregnant. In general, lumpectomy is almost always followed by radiation therapy to destroy any remaining cancer cells.

**Partial or segmental mastectomy:** Also considered a breast-sparing operation, partial mastectomy involves removing the tumor as well as some of the breast tissue around the tumor and the lining of the chest muscles that lie beneath it. Some lymph nodes under the arm could also be removed. In almost all cases, one will have a course of radiation therapy following the operation.

**Simple mastectomy:** During a simple mastectomy, the surgeon removes all the breast tissue – the lobules, ducts, fatty tissue and a strip of skin with the nipple and areola. Depending on the results of the operation and follow-up tests, one may also need further treatment with radiation to the chest wall, chemotherapy or hormone therapy.

**Modified radical mastectomy:** In this procedure, a surgeon removes the entire breast and some underarm (axillary) lymph nodes, but leaves the chest muscles intact. This makes breast reconstruction less complicated. But serious arm swelling (lymphedema) – a common complication of mastectomy – is more likely to occur in modified radical mastectomy than in simple mastectomy with sentinel node biopsy. The lymph nodes will be tested to see if the cancer has spread. Depending on those results, one may need further treatment.

**Sentinel lymph node biopsy:** Usually the breast cancer first spreads to the lymph nodes under the arm. That's why all women with invasive cancer need to have these nodes examined. If the surgeon doesn't plan to do this, be sure one understands the reason why. Until recently, surgeons would remove as many lymph nodes as possible. But this greatly increased the risk of numbness, recurrent infections and serious swelling of the arm. That's why a procedure has been developed that focuses on finding the sentinel nodes – the first nodes to receive the drainage from breast tumours and therefore the first to develop cancer. If a sentinel node is removed, examined and found to be healthy, the chance of finding cancer in any of the remaining nodes is very small and no other nodes need to be removed. This spares many women the need for a more extensive operation and greatly decreases the risk of complications.

**Reconstructive surgery:** Most women who undergo mastectomy are able to choose whether to have breast reconstruction. This is a very personal decision, and there's no right or wrong choice. One may find, however, that one has feelings one didn't expect about one's breasts. It's important to understand these feelings before making any decision.

If one opts for reconstruction, but is not a candidate for the procedure, one needs to find a way to come to terms with the disappointment. It may be extremely helpful to talk to other women who have experienced the same situation.

If reconstruction is an option, the surgeon will refer the case to a plastic surgeon. He or she can describe the procedures to the patient and show the photos of women who have had different types of reconstruction. The

options include reconstruction with a synthetic breast implant or reconstruction using one's own tissue to rebuild the breast. These operations can be performed at the time of the mastectomy or at a later date.

**Reconstruction with implants:** Using artificial materials to reconstruct the breast involves implanting a silicone shell filled with either silicone gel or salt water (saline). If one does not have enough muscle and skin to cover an implant, the doctor may use a tissue expander. This is an empty implant shell that inflates as fluid is injected. It's placed under the skin and muscle, and the doctor gradually fills it with fluid — usually over a period of time. When the muscle and skin have stretched enough, the expander is removed and replaced with a permanent implant. Recovery may take several weeks. In general, an implant makes the breast firmer than a normal breast. Implants may cause pain, swelling, bruising, tenderness or infection. And they do age over time, requiring replacement. There is also a long-term possibility of rupture, deflation, contracture, hardening and shifting.

**Reconstruction with a tissue flap.** Known as TRAM (transverse rectus abdominis myocutaneous) flap, this surgery reconstructs the breast using tissue, including fat and muscle, from one's abdomen. Sometimes the surgeon may also use tissue from the back or buttocks. Because the procedure is fairly complicated, recovery may take six to eight weeks. One may also need future adjustments to the breast. Complications include the risk of infection and tissue death. If one has little body fat, this type of reconstruction may not be an option for her. On the other hand, a breast reconstructed from one's own tissue doesn't seem to interfere with the detection of tumours. It is also permanent and has the look and feel of a normal breast.

**Deep inferior epigastric perforator (DIEP) reconstruction:** In this procedure, fat tissue from the abdomen is used to create a natural-looking breast. But because the abdominal muscles are left intact, one is less likely to experience complications than with traditional breast reconstruction. The patient may also have less pain, and the healing time may be reduced. Active women, in particular, tend to opt for this procedure because it maintains the abdominal wall muscles.

**Reconstruction of nipple and areola:** After initial surgery with either tissue transfer or an implant, further surgery to make a nipple and areola is required. Using tissue from elsewhere in the body, the surgeon first creates a small mound to resemble a nipple and then tattoo the skin around the nipple to create an areola. The surgeon may also take a skin graft from elsewhere in the body, place it around the reconstructed nipple to slightly raise the skin and then tattoo the skin graft.

**Radiation therapy:** Radiation therapy uses high-energy X-rays to kill cancer cells and shrink tumors. It's administered by a radiation oncologist at a radiation center. In general, radiation is the standard of care following a lumpectomy for both invasive and noninvasive breast cancer. Oncologists are also likely to recommend radiation following a mastectomy for a large tumor that has spread to more than four lymph nodes in the armpit.

Radiation is usually started three to four weeks after surgery. One will typically receive treatment five days a week for five to six consecutive weeks. The treatments are painless and are similar to getting an X-ray. Each takes about 30 minutes. The effects are cumulative, however, and one may become quite tired toward the end of the series. The breast may be pink, puffy and somewhat tender, as if it had been sunburned.

In a small percentage of women, more serious problems may occur, including arm swelling, damage to the lungs, heart or nerves, or a change in the appearance and consistency of breast tissue. Radiation therapy also makes it somewhat more likely that one will develop another tumour. For these reasons, it's important to learn about the risks and benefits of radiation therapy when deciding between lumpectomy and mastectomy. One may also want to talk to a radiation oncologist about clinical trials investigating shorter courses of radiation.

**Chemotherapy:** Chemotherapy uses drugs to destroy cancer cells. The doctor may recommend chemotherapy following surgery to kill any cancer cells that may have spread outside breast. Treatment often involves receiving two or more drugs in different combinations. These may be administered intravenously, in pill form or both. One may have between four and eight treatments spread over three to six months. For many women, chemotherapy can feel like another illness. The side effects may include hair loss, nausea, vomiting and fatigue. These occur because chemotherapy affects healthy cells — especially fast-growing cells in your digestive tract, hair and bone marrow — as well as cancerous ones. Not everyone has side effects, however, and there are now better ways to control some of them.

New drugs can help prevent or reduce nausea, for example. Relaxation techniques, including guided imagery, meditation and deep breathing, also may help. In addition, exercise has been shown to be effective in reducing fatigue caused by chemotherapy. One side effect for which no treatment exists is "chemobrain," the common term for cognitive changes that occur during and after cancer treatment. Women undergoing adjuvant chemotherapy for breast cancer were the first to call attention to this problem. Since then, researchers have found that chemotherapy can affect your cognitive abilities in a number of ways, including:

**Word finding.** One might find oneself reaching for the right word in conversation.

**Memory.** The patient might experience short-term memory lapses, such as not remembering where the keys were kept or what was to buy at the store.

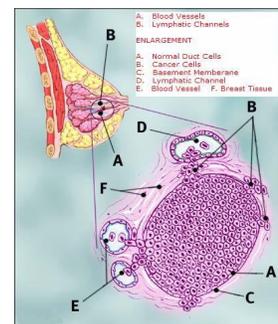
**Multitasking.** Many jobs require managing multiple tasks during the day. Multitasking is important at work as well as at home — for example, talking with both kids and making dinner at the same time. Chemotherapy may affect how well one is able to perform multiple tasks at once.

**Learning.** It might take longer to learn new things. For example, one might find the need to read paragraphs over a few times before one really grasps the content.

**Processing speed.** It might take one longer to do tasks that were once quick and easy for oneself.

Up to one-third of people undergoing cancer treatment will experience cognitive impairment, though some studies report that at least half the participants have memory problems. Memory changes often continue for at least a year or two after treatment and may last longer. Premature menopause and infertility also are potential side effects of chemotherapy. The older the patient is when she begins treatment, the more likely she is to develop these problems. In rare cases, certain chemotherapy medications may lead to cancer of the white blood cells (acute myeloid leukemia) — often years after treatment ends.

**Hormone therapy :** Hormone therapy is most often used to treat women with advanced (metastatic) breast cancer or as an adjuvant treatment — a therapy that seeks to prevent a recurrence of cancer — for women diagnosed with early-stage estrogen receptor positive cancer. Estrogen receptor positive cancer means that estrogen or progesterone might encourage the growth of breast cancer cells in body. Normally, estrogen and progesterone bind to certain sites in breast and in other parts of body. But during this treatment, a hormonal medication binds to these sites instead and prevents estrogen from reaching them. This may help destroy cancer cells that have spread or reduce the chances that cancer will recur.



**Biological therapy :** Sometimes called biological response modifier or immunotherapy, this treatment tries to stimulate the body's immune system to fight cancer. Using substances produced by the body or similar substances made in a laboratory, biological therapy seeks to enhance the body's natural defenses against specific diseases. Many of these therapies are experimental and available only in clinical trials. One medication, very much in vogue these days is trastuzumab (Herceptin), a monoclonal antibody — a substance produced in a laboratory by mixing cells — that's available for treating certain advanced cases of breast cancer.

### Prevention is always better than cure

Clinical exams and mammography won't prevent breast cancer. But these important procedures can help detect cancer in its earliest stages. The sooner it is diagnosed, the more options one has, the more effective treatment and the better overall prognosis. In most cases, doctors don't know what causes breast cancer. Following are some suggestions to reduce the risk:

**Ask doctor about aspirin.** Taking an aspirin just once a week may help protect against breast cancer. A study published in the "Journal of the American Medical Association" in May 2004 found that women who had breast cancer and took aspirin once a week for six months or longer were 20 percent less likely to develop breast cancer than the women who didn't take the drug. Be sure to talk to doctor before taking aspirin as a preventive measure. When used for long periods of time, aspirin

can cause serious side effects including stomach irritation, bleeding & ulcers, bleeding in the intestinal and urinary tracts, and hemorrhagic stroke.

**Limit alcohol.** A strong link exists between alcohol consumption and breast cancer. The type of alcohol consumed — wine, beer or mixed drinks — seems to make no difference. To help protect against breast cancer, limit the amount of alcohol to less than one drink a day or avoid alcohol completely.

**Maintain a healthy weight.** There's a clear link between obesity and breast cancer. This is even more true if a woman gains the weight later in life, particularly after menopause.

**Discuss long-term hormone therapy with doctor.** The Women's Health Initiative study of 2002 raised concerns about the use of hormone therapy for symptoms of menopause. Among other problems, long-term treatment with estrogen-progestin combinations such as those found in the drug Prempro increased the risk of breast cancer.

**Stay physically active.** The Nurses' Health Study, a long-term study of more than 120,000 female nurses, found that women who exercised for at least one hour a day reduced their breast cancer risk by 18 percent. Those who exercised for 30 minutes every day reduced their risk by 10 percent. In addition, experts now think that young women who routinely exercise even a few hours a week during their teenage years can significantly reduce their risk of breast cancer later in life. No matter what your age, a good place to start is to aim for at least 30 minutes of exercise on most days. Try to include weight-bearing exercises such as walking, jogging or dancing. These have the added benefit of keeping your bones strong.

**Eat foods high in fiber.** Try to increase the amount of fibre you eat to between 20 & 30 grams daily. Among its many health benefits, fiber may help reduce the amount of circulating estrogen in body. Foods high in fiber include fresh fruits and vegetables & whole grains.

**Consider limiting fat in diet.** Results from the Women's Health Initiative low-fat diet study suggest a slight decrease in risk of invasive breast cancer for women who eat a low-fat diet. But the effect is modest at best. However, by reducing the amount of fat in diet, one may decrease the risk of other diseases, like diabetes, cardiovascular and stroke

**Emphasize olive oil.** When it comes to protection from cancer, Oleic acid, the main component of olive oil, appears both to suppress the action of the most important oncogene in breast cancer & to increase the effectiveness of drug Herceptin.

**Eat plenty of fruits & vegetables.** Fruits & vegetables contain vitamins, minerals & antioxidants that can protect from cancer. The American Cancer Society recommends five or more servings of fruits & vegetables every day. Look for deep green & dark yellow or orange fruits & vegetables, such as Swiss chard, bok choy, spinach, cantaloupe, mango, and sweet potatoes. Especially emphasize broccoli and brussels sprouts, which contain a chemical called sulforaphane that may hinder the growth of breast cancer cells.

**Avoid unnecessary antibiotic use.** The results of a large-scale study published in the Feb.18,2004, issue of Journal of the American Medical Association found a correlation between antibiotic use & breast cancer. The longer antibiotics are used, greater the risk.



## Breast Cancer general misconceptions

**Breast cancer only affects older women.** No. Every woman is at some risk for breast cancer. While it's true that the risk of breast cancer increases as we grow older, breast cancer can occur at any age. From birth to age 39; one woman in 231 will get breast cancer; from age 40–59, the chance is one in 25; from age 60–79, the chance is one in 15. Assuming lives to age 90, the chance of getting breast cancer over the course of an entire lifetime is one in 8, with an overall lifetime risk of 12.5%.

**If one has a risk factor for breast cancer, one is likely to get the disease.** No. Getting breast cancer is not a certainty, even if one has one of the stronger risk factors, like a breast cancer gene abnormality. Of women with a BRCA1 or BRCA2 inherited genetic abnormality, 40–80% will develop breast cancer over their lifetime; 20–60% won't. All other risk factors are associated with a much lower probability of being diagnosed with breast cancer.

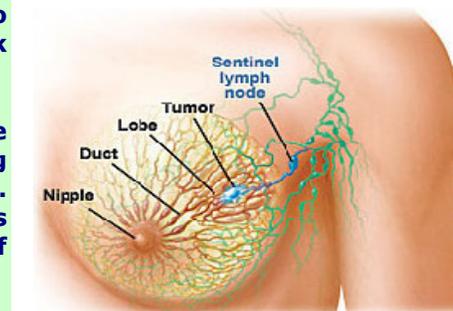
**If breast cancer doesn't run in your family, you won't get it.** No. Every woman has some risk of breast cancer. About 80% of women who get breast cancer have no known family history of the disease. Increasing age – just the wear and tear of living – is the biggest single risk factor for breast cancer. For those women who do have a family history of breast cancer, the risk may be elevated a little, a lot, or not at all. If you are concerned, discuss your family history with your physician or a genetic counselor. You may be worrying needlessly.

**Only your mother's family history of breast cancer can affect your risk.** No. A history of breast cancer in your mother's OR your father's family will influence your risk equally. That's because half of your genes come from your mother, half from your father. But a man with a breast cancer gene abnormality is less likely to develop breast cancer than a woman with a similar gene. So, if you want to learn more about your father's family history, you have to look mainly at the women on your father's side, not just the men.

**Using antiperspirants causes breast cancer.** No. There is no evidence that the active ingredient in antiperspirants, or reducing perspiration from the underarm area, influences breast cancer risk. The supposed link between breast cancer and antiperspirants is based on misinformation about anatomy and a misunderstanding of breast cancer.

**Birth control pills cause breast cancer.** No. Modern day birth control pills contain a low dose of the hormones estrogen and progesterone. They have not been associated with an increased risk of breast cancer. The higher-dose contraceptive pills used in the past were associated with a small increased risk, in only a few studies. Today's birth control pills can provide some protection against ovarian cancer.

**Eating high-fat foods causes breast cancer.** No. Several large studies have not been able to demonstrate a clear connection between eating high-fat foods and a higher risk of breast cancer. Ongoing studies are attempting to clarify this issue further. We can say that avoidance of high-fat foods is a healthy choice for other reasons: to lower the "bad" cholesterol (low-density lipoproteins), increase the "good" cholesterol (high-density lipoproteins); to make more room your diet for healthier foods, and to help you control your weight. Excess body weight, IS a risk factor for breast cancer, because the extra fat increases the production of estrogen outside the ovaries and adds to the overall level of estrogen in the body. If you are already overweight, or have a tendency to gain weight easily, avoiding high-fat foods is a good idea.



**A monthly breast self-exam is the best way to diagnose breast cancer. No. High quality, film-screen mammography is the most reliable way to find breast cancer as early as possible, when it is most curable. By the time a breast cancer can be felt, it is usually bigger than the average size of a cancer first found on mammography. Breast examination by you or your healthcare provider is still very important. About 25% of breast cancers are found only on breast examination (not on the mammogram), about 35% are found on mammography alone, and 40% are found by both physical exam and mammography. Keep both bases covered.**

**I'm at high risk for breast cancer and there's nothing I can do about it. No** There are several effective ways to reduce—but not eliminate—the risk of breast cancer in women at high risk. Options include lifestyle changes (minimize alcohol consumption, stop smoking, exercise regularly), medication (tamoxifen, also called Nolvadex); and in cases of very high risk, surgery may be offered (prophylactic mastectomies, and for some women, prophylactic ovary removal). Be sure that you have consulted with a physician or genetic counselor before you make assumptions about your level of risk.

**A breast cancer diagnosis is an automatic death sentence. No.** Fully 80% of women diagnosed with breast cancer have no signs of metastases (no cancer has spread beyond the breast and nearby lymph nodes). Furthermore, 80% of these women live at least five years, most longer, and many live much longer. Even women with signs of cancer metastases can live a long time. Plus promising treatment breakthroughs are becoming available each day.

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