WHAT YOU NEED TO KNOW

BREAST CANCER

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INTRODUCTION

Cancer is a class of diseases in which a group of cells display the traits of uncontrolled growth, invasion, and sometimes metastasis. These three malignant properties differentiate cancer from benign tumors, which are self-limited, do not invade or metastasize. Most forms of cancers form a tumor but some, like leukemia, do not.

WHAT IS **CANCER**

Cancer originates in cells, the building blocks that make up tissues, which in turn make up human organs. Normally, cells only generate new cells when the body needs them. When cells grow old, they die, and the new cells take their place. Sometimes, this process goes wrong, and new cells form when the body does not need them, or old cells do not die when they should. This is what is referred to as uncontrolled growth.

The second malignant property, invasion, is when a tumor has formed, due to uncontrolled growth, and cells break away from the tumor and crawl through surrounding tissues. This property enables the cancer cells to move into a blood vessel and be transported through the body, possibly establishing a secondary tumor. The creation of this second tumor is also the third malignant property of cancer cells, the metastasis.

Once breast cancer cells spread, the cancer cells are often found in lymph nodes near the breast. But, breast cancer can spread to almost any other part of the body. The most common places where breast cancer spreads to are the bones, liver, lungs, and brain. The new tumors that are a result of the metastasis, have the same kind of abnormal cells and the same name as the original tumor in the breast. For example, if breast cancer spreads to the lung, the cancer cells in the lung are actually breast cancer cells. The disease is metastatic breast cancer, not lung cancer. For that reason, it is treated as breast cancer, not lung cancer. Doctors call the new tumor "distant" or metastatic disease.

BREAST CANCER DETECTION

Currently, mammography is the most effective technology available for breast cancer screening. But, aside from the conventional mammography, there are several techniques that can be used for screening. These techniques are:

- Ultrasound
- Digital Mammography
- Computer-Aided Detection
- MRI
- PET scan
- Electrical Impedance Scanning
- Ductal Lavage

Ultrasound

The ultrasound, also referred to as sonography, is a technique in which high-frequency sound waves, unhearable for humans, are bounced off tissues and internal organs. The echoes generated produce a picture known as a sonogram. This form of imaging is commonly used to distinguish between solid tumors and cysts. An ultrasound is sometimes also used to examine lumps that are difficult to see on a mammogram. The ultrasound can also be used as part of other diagnostic procedures, such as needle biopsies (the removal of tissue, or fluid, through the use of needles). Ultrasounds are not used for routine breast exams, because this technique is not suitable for detecting early signs of cancer.

Digital Mammography

Compared to the conventional mammograms, digital mammograms use computerized images instead of x-ray film. Before printed on film, the images are displayed on a monitor, where they can be modified (enhanced, magnified, etc.). The patient won't notice a difference between the conventional and digital mammogram, as they are both performed using the same procedure.

Digital mammography has a few advantages over conventional mammography. As previously indicated the images are electronically stored, this digital aspect of the mammograms makes long-distance consultations easier. There is also an improved accuracy with the digital mammograms, which decreases the number of follow-ups required. Despite these benefits, digital mammography does not increase the number of breast cancer tumors found in women.
For more information about mammography, visit our section on mammograms.

Computer-Aided Detection

Computer-aided detection (CAD) is the use of computers to bring suspicious areas on a mammogram to the radiologist's attention. It is used after the radiologist has done the initial review of the mammogram, and is performed by scanning the mammogram into the computer.

MRI

MRI (Magnetic Resonance Imaging) is the creation of detailed pictures of areas inside the body through the use of a magnet, this form of imaging does not use radiation.
The MRI of a breast is conducted by placing the patient on her stomach, on a scanning table. The patient's breasts will hang into a hollow in the table, which contains coils which detect magnetic signals. The table is then moved into a tube-like machine that contains a magnet. The first series of picture are then taken, upon which the patient sometimes receives the contrast agent. The contrast agent can be used to improve the visibility of a tumor. The entire session may take about an hour.

PET Scan

A PET (Positron Emission Tomography) scan is a computerized image of chemical changes taking place in human tissue. Patients are given an injection of a combination of sugar and a small amount of radioactive material. This radioactive sugar helps in locating a tumor, because cancer cells absorb sugar faster than other tissues in the body.
After the radioactive substance has been injected, the patients lies still on a table for 45 minutes while she moves through the PET scanner 6 to 7 times. This time period allows the drug to circulate the body, and if a tumor is present the sugar will accumulate in it. PET scans are more accurate in detecting larger and/or aggressive tumors than they are in locating small and/or less aggressive ones.

Electrical Impedance Scanning

Human tissue has different electrical impedance levels (the speed of electricity through material). Breast tissue that is cancerous has a much lower electrical impedance (conducts electricity better) than normal breast tissue. The EIS is done by placing an electrode patch on the patient's arm, and passing a very small current into the body. The current travels through the breasts, where it is measured by the scanning probe, which is placed over the breast. This gives a computerized image of the breasts; tumors show up as bright white spots on the screen. At this time, mammograms are the most effective tool we have to detect changes in the breast that may be

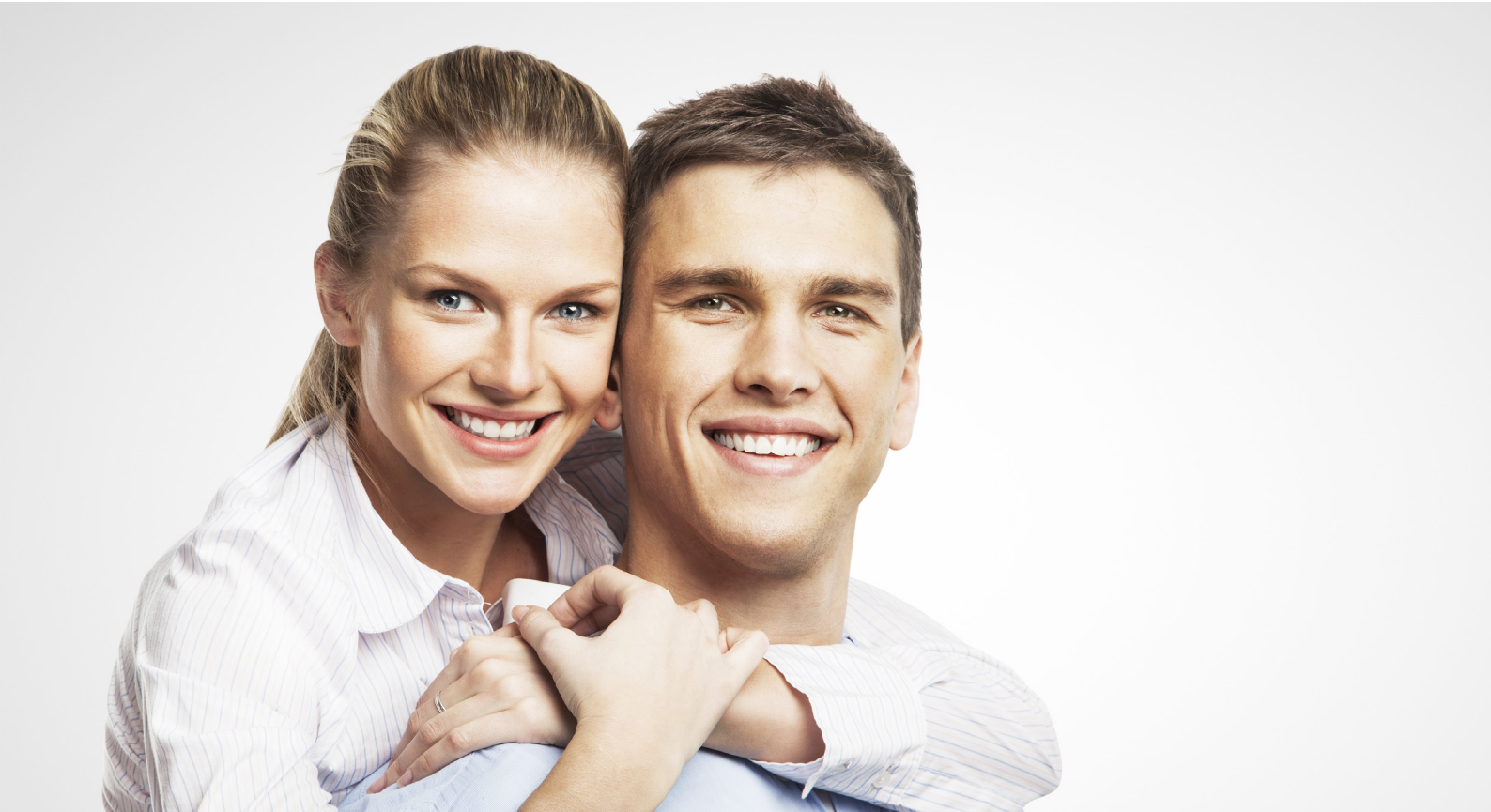
cancer. In women at high risk of breast cancer, researchers are studying the combination of mammograms and ultrasound. Researchers are also exploring positron emission tomography (PET) and other ways to make detailed pictures of breast tissue.

Ductal Lavage

Ductal lavage is an investigational technique for collecting samples of cells from breast ducts for analysis. The physician introduces a salt water solution into a milk duct, through a thin tube which is inserted into the opening of the duct on the surface of the nipple. The doctor then extracts fluids from the duct, which are then checked for indications of cancer.

BREAST CANCER MYTHS

Could that sexy underwire bra cause breast cancer? What about that frozen yogurt you just ordered? Or hormone therapy? And how would you know if you had the disease until it was too late anyway? Don't some studies show that examining your breasts and getting mammograms are useless?
Amid all the rumors and controversies surrounding breast cancer these days, what causes it, how to diagnose and treat it, it's hard to know what to think. Or do. One thing we can tell you is that being able to separate fact from fiction could make a difference between life and death.



Myth 1 — Having a risk factor for breast cancer means you'll develop the disease.
No risk factor either alone or in combination with others means you'll definitely get breast cancer. There are various factors that may increase your risk of developing the disease. Some of these appear to increase your risk only slightly. They include smoking, drinking (more than 5 alcoholic drinks per week year after year), getting your first menstrual period before age 12, continuing to have periods after age 55, and not having your first full-term pregnancy until after age 30. If you have a number of these, the increase in risk can start to be more meaningful.
That said, even an inherited genetic abnormality in your family doesn't necessarily mean you're going to get breast cancer. Abnormalities in the so-called breast cancer genes BRCA1 and BRCA2 are very strong risk indicators. But 20 to 60 percent of women with these inherited abnormalities will not develop breast cancer.

Myth 2 — If there is no breast cancer in your family, then you're not at risk for the disease. Every woman is at risk for breast cancer. So are some men! For any individual woman, an inherited abnormality is the strongest risk factor, but only about 10 percent of all cases of breast cancer are due to inherited abnormalities. About 85 percent of women who develop the disease don't have a family history. That's why it's important for all women to get screened regularly.

Myth 3 — Breast cancer is passed only from your mother, not your father.
We now know that breast cancer genes can be inherited from your dad's side of the family. So ask relatives about cases on both sides and in both men and women. About 2,000 cases of male breast cancer are diagnosed in the US each year. In fact, male breast cancer is most closely associated with a BRCA2 abnormality. So if there's a man in the family who's had breast cancer, be sure to tell your doctor.

Myth 4 — No matter what your risk factors are, you really don't have to worry about breast cancer until you're through menopause.
The odds of getting the disease do increase as you age. But breast cancer can occur at any age. That's why all women need to be vigilant. Though experts recommend yearly mammograms starting at age 40, your doctor may suggest that you start even earlier if you have a family history of breast cancer at a young age.
Mammography isn't the ideal screening test for women younger than 40 because it can't "see through" their dense breast tissue. So your doctor may also recommend ultrasound or magnetic resonance imaging (MRI). You may be able to enroll in a study of MRI for breast cancer detection for women at increased risk.

Myth 5 — Wearing a bra or using antiperspirants and deodorants increases your risk of breast cancer.
These are two Internet rumors that never seem to quit. It's not true that wearing a bra, especially underwire bras, traps toxins by limiting lymph and blood flow in your breasts, increasing risk. There's also no proof for the claims that antiperspirants and deodorants cause cancer by keeping the body from sweating out the cancer-causing substances that build up in the breasts, or because they contain harmful chemicals that are absorbed through the skin.

Myth 6 — If you have small breasts, you're much less likely to get breast cancer. Size doesn't matter. Anyone with breasts can get it.

Myth 7 — Research shows that using hormone therapy (HT) even for a short period of time, causes breast cancer.

Many women were understandably concerned when a major study found that HT combining estrogen and progestin increased risks of invasive breast cancer slightly. Another study also showed that a combination of therapy boosts breast cancer risk somewhat, however, it was able to offer some reassurance: This risk appeared to return to normal within a year or so after women stopped using the therapy. This seems to be the case for women who've been on HT for just months and those who've used it for more than 5 years.
One more thing: It's important to note that no studies have found a boost in breast cancer risk for women using estrogen-only therapy. This type of therapy is prescribed solely for women who have had hysterectomies, because estrogen taken alone can cause cancer in the lining of the uterus (endometrial cancer).

Myth 8 — A number of studies have found that women who live in countries where diets tend to be lower in fat have a lower risk of breast cancer. But the majority of studies focusing on women in the US haven't found a solid link between dietary fat consumption and breast cancer risk. Why are these finding contradictory? It may be that women in other countries are at lower risk for other reasons: They exercise more, eat less, weigh less, smoke less, or have a different genetic profile or environmental interaction that makes them less susceptible. One thing we do know: Postmenopausal obesity is a risk factor that does put you at risk for breast and other cancers, so it pays to maintain a healthy weight.

As for dairy products, the study results are mixed. But Harvard's Nurses' Health Study, a large-scale study of 120,000 women, recently found that premenopausal women who ate a lot of dairy products, especially low-fat and fat-free ones, ran a lower risk of breast cancer. The study found no link between dairy product consumption and breast cancer risk in women who are past menopause.

Myth 9 — Mammograms can prevent breast cancer.
A 2003 Harris survey of more than 500 women found that about 30 percent thought mammograms could prevent breast cancer. The truth: While mammograms can detect breast cancer, they can't prevent it.

Myth 10 — Some studies actually show mammograms are worthless. Two studies, including a review study done by Danish scientists, did suggest that getting a regular mammogram didn't lower a women's risk of dying of breast cancer. But several other studies, including one done by the US preventive Services Task Force, totally disagree. You can maximize the benefit of mammography screening by seeking out the best facilities and staff in your area. Look for the radiology center that handles the most breast cancer cases in the region. Go to a radiologist who specializes in reading mammograms, and ask, "How many mammograms do you read each year?" More tends to be better. A study in the Journal of the National Cancer Institute found that radiologists who read more than 300 mammograms a month were more accurate.

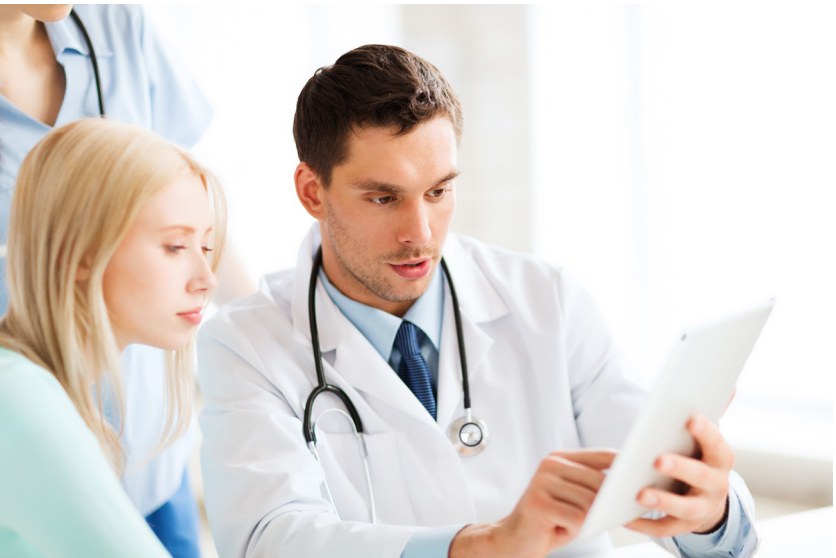
LIFE AFTER BREAST CANCER

Having a healthy and balanced diet is an important aspect of recovery from breast cancer. Your body needs all the help it can get to recover from the surgery and therapy you underwent. A registered dietitian is your best source of information about your diet, but we have provided a few tips to help you on your way. If you want to get in touch with a dietitian, ask your doctor for a referral.

The majority of eating-related side effects caused by radiation, chemotherapy, or other treatments will start to go away after you finish you treatment. If you experience side effects, you will notice that they will gradually go away, and you will start to get your appetite back. In some cases, the side effects persist, in particular weight loss. If this happens to you, you should contact your doctor or dietitian, with whom you will be able to set up a plan to beat the problem.

After the cancer treatment ends, and the side effects start to wear off, you will want to start eating normally again. However, it is important that you eat right at such an important time in your life. Your body will not regain its strength from a high fat diet, but starving yourself won't help either. In order to regain your strength, rebuild tissue, and help you feel better you need to eat well balanced meals on a daily basis. There is no scientific proof that a well balanced diet will prevent cancer from recurring, but it will help you recover. A few tips:

- It is important that you eat a variety of foods daily, no one food contains all the nutrients you need to recover.
- It is important to eat lots of fruits and vegetables. Raw, or cooked, vegetables, fruit, and fruit juices provide the minerals, vitamins, and fiber you need.
- Breads and cereals are also important, especially whole grain varieties. These types of food provide carbohydrates, vitamins and minerals, and fiber.
- Try to eat a s little fat, salt, sugar, alcohol, and smoked or pickled foods. When buying milk products, choose the low fat varieties. You should also try to keep you portions of lean meat and poultry (without skin) small, no more than 6-7 oz. a day. You should also try to use lower-fat cooking methods, such as broiling, steaming, and poaching.



"You gain strength, courage and confidence by every experience in which you really stop to look fear in the face"

Eleanor Roosevelt