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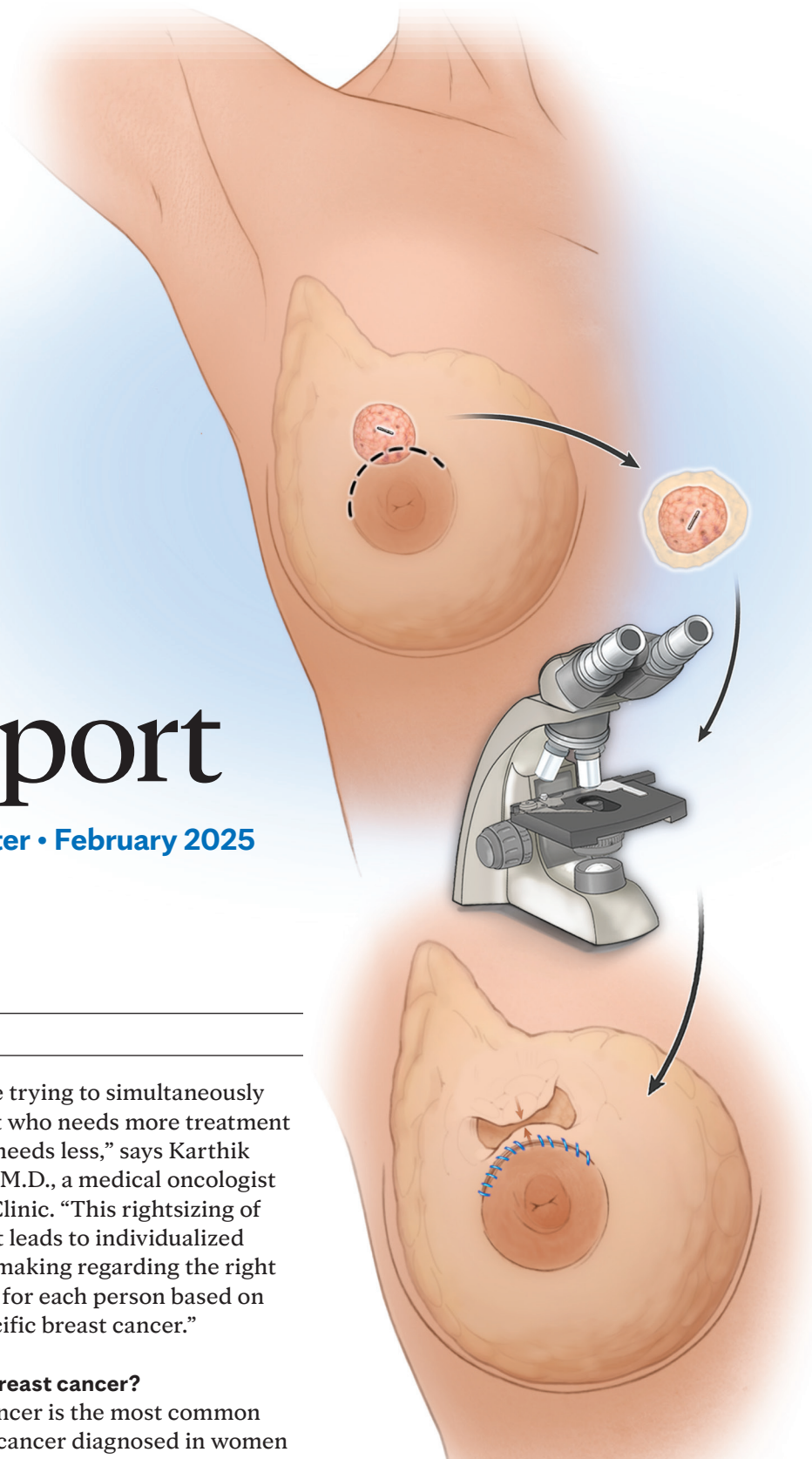
Special Report

A supplement to Mayo Clinic Health Letter • February 2025



Breast cancer

5 ways breast care has become more personalized

Screening and treatment advances have dramatically changed the outlook for people with breast cancer. Between 1975 and 2019, breast cancer death rates dropped 58%. Even with late-stage breast cancer that has spread to other parts of the body, people are living longer than ever before.

These striking improvements stem partly from cancer care that tailors prevention, screening and treatment to each person's unique needs. For example, depending on your family cancer history, you might undergo more-frequent screening at an earlier age, using the most sensitive breast-imaging methods. In addition, should you develop breast cancer, the right treatments for you will depend on your preferences and goals, along with the cancer's size, location and other characteristics.

"We are trying to simultaneously figure out who needs more treatment and who needs less," says Karthik Giridhar, M.D., a medical oncologist at Mayo Clinic. "This rightsizing of treatment leads to individualized decision-making regarding the right approach for each person based on their specific breast cancer."

What is breast cancer?

Breast cancer is the most common non-skin cancer diagnosed in women in the U.S. It starts with changes to the DNA inside breast cells. DNA holds the instructions that tell cells what to do. In healthy cells, the DNA says to grow and multiply at a set rate — as well as to die at an appropriate time. But in cancer cells, DNA gives different instructions, telling those cells to multiply rapidly and persist beyond any preprogrammed death.

During a lumpectomy, the tumor and a rim of surrounding breast tissue are removed. At Mayo Clinic, after a surgeon removes the tissue, a pathologist immediately studies it for signs of cancer at the edges. If necessary, additional tissue is removed until there are no signs of cancer. This spares as much healthy tissue as possible and dramatically reduces the need for follow-up operations.

This leads to a buildup of excess cells, called a mass or tumor. As cancerous masses grow, they can invade and damage healthy tissue. In addition, cancer cells can break away and spread (metastasize) to other parts of the body.

Know your risk

Your risk of developing breast cancer can affect your screening frequency, screening methods and even some lifestyle decisions. For example, if your lifetime risk of developing breast cancer is 20% or higher, your healthcare team may recommend more-frequent screening, says Jessica Fraker, M.D., a Mayo Clinic internal medicine physician specializing in breast medicine.

Your care team will use a risk assessment to calculate your likelihood of developing breast cancer based on several factors, including:

- *Your age* — As you get older, your immune system loses some of its ability to fight against cancer cells, allowing them to multiply more easily. And the longer you live, the more exposure you have to environmental factors that can damage DNA.
- *Your sex* — Men are much less likely to develop breast cancer. The cancer's frequency in women is due, in part, to their higher levels of the hormones estrogen and progesterone.
- *Radiation exposure* — If you had radiation treatments to your chest as a child or young adult, your risk of breast cancer is higher.
- *Family history* — If your parent, sibling or child had breast cancer, your risk of breast cancer may be increased. Your risk could be even higher if a family member developed breast cancer at a young age or if you have multiple family members with breast cancer.
- *Inherited genes* — Certain gene variants are associated with an increased risk of developing breast cancer. For example, if you're a carrier of a high-risk BRCA1 or BRCA2 gene variant, your risk of developing breast cancer is higher.
- *Breast health history* — Breast conditions such as lobular carcinoma in situ (LCIS) and atypical hyperplasia of the breast can raise your risk of developing breast cancer. Having high-density breast tissue, as seen on a mammogram, also raises your risk. If you've already had cancer in one breast, you have an increased risk of developing cancer on the same side or in the other breast.
- *Menstrual and reproductive history* — The longer you have periods, the longer your breasts are exposed to estrogen and progesterone.

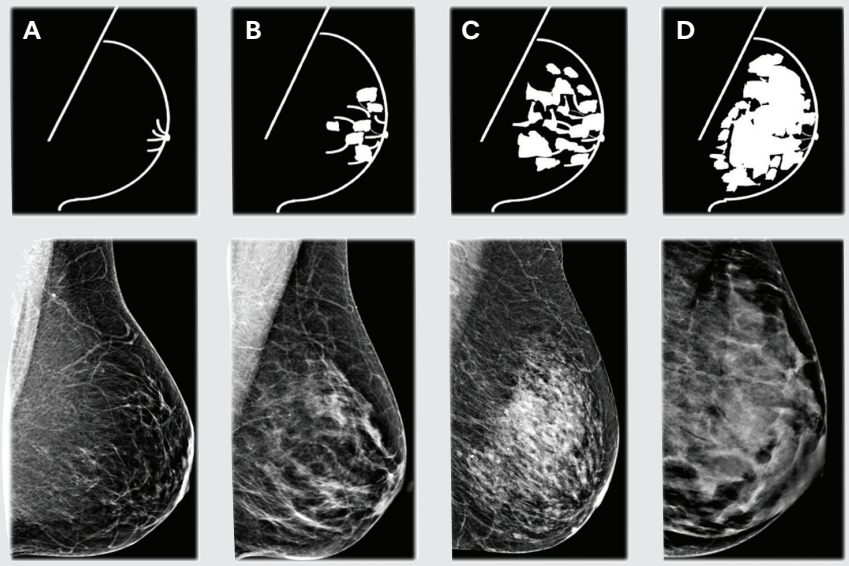
Q&A What are dense breasts?

Breast tissue is made up of two types of tissue: fatty tissue, composed mostly of fat cells, and dense tissue, composed of milk glands, milk ducts and fibrous tissue.

On a mammogram image, the fatty breast tissue is fairly transparent. It's easy to see through, making it less difficult for a radiologist to spot anything concerning. In contrast, dense breast tissue looks solid white, as does breast cancer. That means that if you have dense breasts, not only is your risk of breast cancer higher, but also it's harder for concerning changes to be detected on a mammogram.

The American College of Radiology's Breast Imaging Reporting and Data System uses the following letters to describe four levels of density:

- *A: Almost entirely fatty* — Nearly all the breast tissue is fatty. There is very little dense breast tissue.
- *B: Scattered areas of fibroglandular density* — Breasts are mostly made up of fatty tissue, but there are some scattered areas of dense breast tissue.
- *C: Heterogeneously dense* — The breasts are mostly made up of dense breast tissue. But there are some areas of fatty tissue.
- *D: Extremely dense* — Nearly all the breast tissue is dense. There is very little fatty tissue.



In general, you're considered to have dense breasts if your mammogram report says you have heterogeneously dense or extremely dense breasts. If you've been told you have dense breast tissue, talk to your care team about whether you'd benefit from additional (supplemental) breast cancer screening.

For this reason, your breast cancer risk is higher if you started getting periods before age 12 or stopped after age 55. Never giving birth or having your first child after age 30 also increases your risk.

Based on these and several other factors, healthcare professionals may personalize breast care in five important ways.

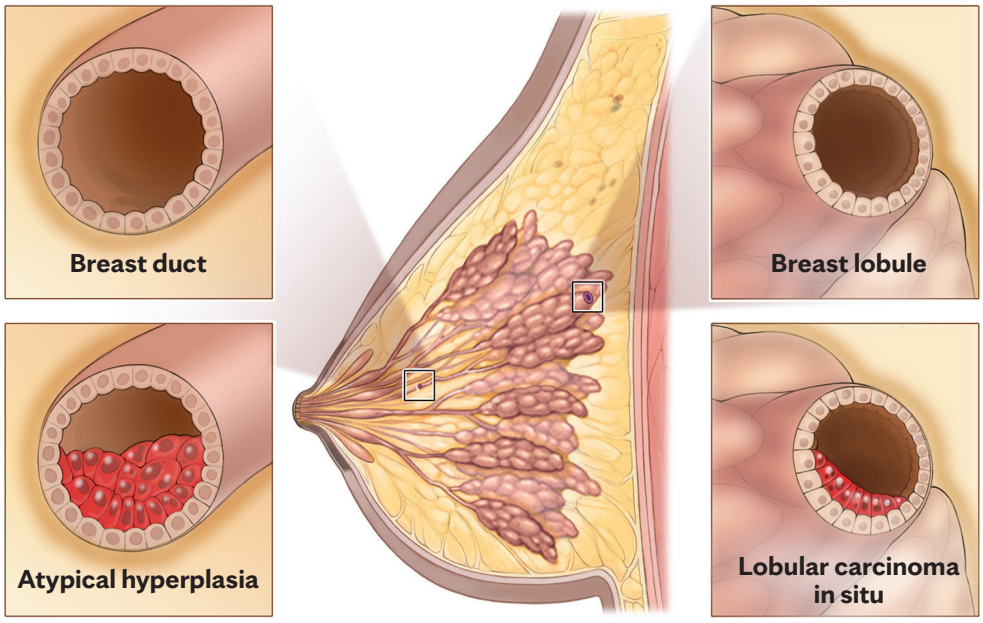
1. Personalized breast imaging

You've likely heard of recommendations to start mammograms at around age 40 and continue them until around age 75. But depending on your personal breast cancer risk, breast density and overall health, you may benefit from additional screening, says Dr. Fraker.

"It's definitely not one-size-fits-all when it comes to screening," says Dr. Fraker. "Make sure your care team knows your family and personal history of breast cancer. That information can prompt conversations about the best kind of screening for you. Talk about your goals, what you hope to achieve with screening and any downsides you hope to avoid."

Potential screening methods include:

- *Mammography* — This is the foundational screening test of breast cancer. A mammogram uses low-dose X-rays to see inside your breasts. Newer 3D mammograms, also called breast tomosynthesis, give radiologists more-detailed views of breast tissue. Like a traditional 2D mammogram, this technology uses X-rays. However, unlike a 2D mammogram, breast tomosynthesis collects multiple images of the breast from several angles. Compared with 2D mammography, 3D technology usually makes it easier to spot concerns in dense breast tissue. It also reduces the likelihood that the radiologist will call you back for additional imaging for something that is ultimately not concerning.
- *Breast MRI* — MRI uses a magnetic field and radio waves to scan your breasts and create detailed images of them. Before a breast MRI,



Breast conditions such as lobular carcinoma in situ (LCIS) and atypical hyperplasia of the breast can raise your risk of developing breast cancer.

Q&A Do I still need to do breast self-exams?

Most medical experts no longer recommend routine breast self-exams as a part of breast cancer screening. That's because breast self-exams haven't been shown to be effective in reducing deaths from breast cancer.

Still, healthcare professionals believe there is value in being familiar with your breasts. If you feel or see anything that seems unusual — even if you've recently had a mammogram — mention it to your care team.

"You know your body better than anyone," says Dr. Fraker. "Don't be afraid to get things checked out."

This is especially important if you've previously had breast cancer. Except for breast imaging, breast care experts do not recommend routine full-body scans such as computerized tomography (CT) to check for signs that a cancer has returned. Instead, your healthcare team will meet with you to monitor your health. Between these visits, watch for symptoms on your own. Call your care team to schedule an evaluation if you notice any of the symptoms below.

If you've had a lumpectomy:

- A new lump or irregular area of firmness in your breast, underarm, collarbone or neck.
- Changes to the skin on your breast.
- Skin inflammation or area of redness or other color changes.
- Nipple discharge, changes or inversion.
- Changes to the shape or contour of your breast.

If you've had a mastectomy:

- One or more painless nodules — with or without redness or other color changes — on or under the skin of your chest wall, reconstructed breast, underarm, collarbone or neck.
- A new area of thickening along or near the mastectomy scar.
- Changes to skin on your chest.

you usually receive an injection of a gadolinium-based contrast dye into a vein. The dye helps improve the clarity of the images. "MRI is a very sensitive test that can pick up even tiny cancers that are hiding in hard-to-see places such as the armpit or the back of the breast, especially for women with dense breast tissue," says Dr. Fraker. However, MRI also is more likely to lead to unnecessary further testing, which can cause stress, anxiety and additional costs.

- *Molecular breast imaging (MBI)* — Developed by Mayo Clinic experts, this supplemental imaging technique uses a specially designed gamma camera that records the activity in the breast of an injected radioactive tracer as it circulates in the body. Healthy tissues and cancerous tissues react differently to the tracer, which is then seen in the images. Several studies show that MBI consistently finds about three times more breast cancers in women who have dense breast tissue than does mammography alone and more often finds early invasive breast cancers than do other supplemental screening methods. However, this test is still not widely available.
- *Contrast-enhanced digital mammogram* — For this test, a healthcare professional will use an iodine-based contrast agent to highlight possible areas of concern. This is followed by a mammogram.
- *Breast ultrasound* — Ultrasound uses sound waves to make pictures of structures inside the body. It's often used in conjunction with other tests to give your healthcare team more information about a suspicious mammogram or exam finding. For example, an ultrasound might show whether a lump is a solid mass or a fluid-filled cyst.

Each of these tests has different pros and cons. Talk with your care team about which one will work best for you. In general, your breast cancer risk and personal preferences will help inform the right breast cancer screening plan for your needs. Screening plans may vary if you:

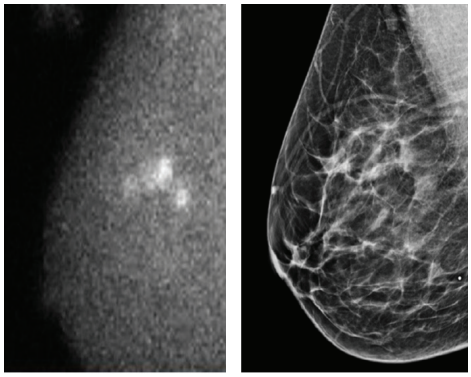
- *Have dense breasts* — Compared with 2D mammography, 3D mammography can make it easier for radiologists to detect cancer more accurately in people with dense breasts. 3D mammography is now often the standard approach for all screening mammograms. In addition, your care team may recommend that you have further screening.
- *Are at a higher risk of developing breast cancer* — Your team may recommend that you start screening before age 40, have more-frequent screening, and consider additional contrast-enhanced screening such as a breast MRI or contrast-enhanced mammogram.
- *Are older than 75* — The age at which you stop screening depends on your health and personal preferences. "If you are in your 70s or 80s, are healthy, and would like to know if breast cancer is there, you might continue with screening," says Dr. Fraker. In contrast, if your health declines and you're more concerned about other medical issues, you might choose to forgo screening. Work closely with your care team to weigh your individual risks and benefits.

2. Personalized lifestyle steps

The following lifestyle changes can help you reduce your risk of developing breast cancer. However, how you put these recommendations into practice will depend on your health, ability and current lifestyle practices.

Exercise regularly

Regular physical activity is probably the closest thing to an elixir of life that humans will ever encounter. Being active doesn't just help with



Supplemental screening options such as molecular breast imaging (left) may identify concerning areas in dense breast tissue more clearly than a mammogram (right) can.

Q&A I've heard that hormone therapy can increase my risk of breast cancer. How do I weigh that risk against the benefits?

Whether taken by mouth or through the skin (transdermal), menopausal hormone therapy contains hormones that replace some of the hormones lost after menopause.

It's true that some forms of hormone therapy can slightly increase the risk of developing breast cancer, especially in people who already are considered high risk. That's because the hormones estrogen and progesterone can fuel the growth of some breast cancers. However, this doesn't necessarily mean you must forgo hormone therapy, especially if menopause symptoms such as hot flashes and night sweats are interfering with your quality of life. Ask your care team to help you weigh your individual risks and benefits.

Most women with a history of breast cancer are not candidates for hormone therapy. In addition, hormone therapy isn't recommended for women who have a history of blood clots in the veins. Those who smoke or who have unmanaged high blood pressure should proceed with caution.

weight loss and maintenance. It also reduces health risks — including the risk of breast cancer. For example, after analyzing the health records of over 174,000 women between 2006 and 2014, researchers determined that the most physically active women were less likely to be diagnosed with breast cancer during the 5.7-year study than were the women who were the least physically active.

Experts currently recommend that you exercise at a moderate intensity for 150 to 300 minutes a week or vigorously for 75 to 150 minutes a week, along with doing twice-weekly strength training sessions.

However, if you can't reach these goals, anything is better than nothing, says Dr. Fraker. In fact, if you haven't been active for a long time, it's better to start slowly and increase your effort and duration over time. Walking for just 10 minutes a day can help reduce your cancer risk if you previously were doing no walking at all. Choose activities you enjoy. The best exercise is the kind you're willing to continue over the long term.

Q&A Can a blood test determine whether my breast cancer has returned?

Companies have developed a test that detects small fragments of DNA called cell-free DNA in the blood. These tests can predict a cancer returning (recurrence) about a year earlier than can typical monitoring. However, experts are still unraveling how to use these results.

Regardless of your test result, your treatment plan might not change right away. For example, if you're taking long-term anticancer medicines, that treatment plan will likely continue regardless of a negative test result. A positive test result may prompt scans or additional testing. Medical experts aren't sure what to do if a test is positive and imaging does not show evidence of cancer, though trials are being developed for this situation. At this point, there's no evidence that additional treatment would translate to a longer life.

"Healthcare professionals like to believe that early detection means better outcomes," says Dr. Giridhar. "But this isn't always the case. We have to be cautious and demonstrate that early detection of recurrence can help people live better and longer."

In the coming years, healthcare professionals may better understand how to use the information provided by these blood tests, says Dr. Giridhar. In the meantime, talk with your care team about what you can and can't learn from such testing. In addition, consider how you'll likely react to your results.

Will having this information alter how you live your life now or bring you a sense of peace? If so, blood testing might make sense for you. On the other hand, if the test will generate anxiety, you might instead focus on things within your control. This includes eating well, being physically active, getting enough rest and finding healthy ways to handle stress.

Eat a plant-based diet

Fruits, vegetables and other plant-based foods contain nutrients, fiber, healthy fats and antioxidants that protect cells from damage. In addition to lowering your cancer risk, these foods may reduce your risk of other serious conditions, such as heart disease. Aim to eat a colorful variety of plant-based foods, including fruits, vegetables, whole grains and legumes. In addition, cook with healthy fats, such as olive oil, and opt for nuts, seeds and avocados over red meat and other foods high in saturated fats.

Try to focus more on progress than on perfection. If you're currently eating few or no plant-based foods, start with one daily serving. Once that becomes routine, try for two and improve from there. Similarly, focus on what you can afford and are willing to do. For example, try boosting your consumption of beans and other convenient, inexpensive plant foods.

Maintain a healthy weight

Body fat releases estrogenlike molecules that are thought to increase the risk of hormone receptor positive (HR+) breast cancer. Excess body fat can raise insulin and inflammation levels, which may increase your risk. To assess your body fat, measure your waist circumference. A waist circumference that exceeds 35 inches in women and 40 inches in men is associated with increased cancer risk.

According to a recent analysis of the health outcomes of over 180,000 women age 50 and older, losing as few as 4.5 pounds — and keeping them off — can significantly reduce breast cancer risk. This is true even in people with obesity.

De-prioritize alcohol

Drinking even small to moderate amounts of alcohol can increase your breast cancer risk. If you have been diagnosed with breast cancer, avoiding alcohol may reduce your risk of a cancer recurrence.

The risks of drinking alcohol may be particularly high for breast cancer survivors who are postmenopausal, who have obesity or who have estrogen receptor positive cancers. It's healthiest and safest to drink no alcohol. However, if abstinence is not what you choose, keep your intake to no more than three drinks a week and no more than one a day. One drink is about 12 fluid ounces of beer, 5 fluid ounces of wine, or 1.5 fluid ounces of hard liquor or distilled spirits.

Don't smoke or vape

In addition to raising your risk of developing breast cancer, smoking and vaping also reduce your ability to survive a breast cancer diagnosis. Quitting these habits substantially improves your odds of living longer.

3. Personalized preventive treatments
If you have a high risk of developing breast cancer, your healthcare team may recommend risk-reducing medicines. These drugs work in two main ways.

- *Estrogen-blocking medicines* — Selective estrogen receptor modulators (SERMs) such as tamoxifen bind to the estrogen receptors on cells, stopping the hormone from fueling cell growth. Common side effects include hot flashes, fatigue, nausea, and vaginal dryness or discharge changes. Less common side effects include an increased risk of blood clots, stroke and postmenopausal uterine cancer.
- *Estrogen-lowering medicines* — Aromatase inhibitors decrease estrogen production. Side effects include hot flashes, vaginal dryness, joint pain and bone loss leading to osteoporosis. Aromatase inhibitors are not associated with a higher risk of blood clots, stroke or uterine cancer.

Some people assume that these drugs only work for premenopausal women whose ovaries are still producing estrogen. However, estrogen-fueled breast cancer is more common after menopause, says Dr. Fraker.

First, as you age, your risk of getting breast cancer rises. Age 63 is the median age of diagnosis. Second, the body still produces small amounts of estrogen long after menopause, says Dr. Fraker. For example, fat cells can produce some estrogen, she says.

"It's the cellular damage that occurs with getting older that increases your breast cancer risk. However, even small amounts of estrogen can feed into those changes and help breast cancer grow," says Dr. Fraker.

If you're at a high risk of breast cancer, talk with your care team about risk-reducing medicines. Together, based on your health, family history, age and medical history, you can decide whether the drugs are right for you.

4. Personalized cancer treatment
Using a tissue sample from a breast biopsy, along with information from other tests, a medical team can gain a clearer picture of how a specific cancer will respond to chemotherapy and other cancer-fighting medicines.

The cancer's hormone status
Some breast cancer cells are sensitive to the body's naturally occurring estrogen and progesterone.

If you have a hormone receptor positive (HR+) cancer, you may benefit from endocrine therapy, which blocks estrogen's effect on the cancer cells, helping to decrease their growth. Endocrine therapy options include:

- Medicines that block hormones from attaching to cancer cells.
- Medicines that stop the body from making estrogen after menopause.
- Surgery or medicines to stop the ovaries from making hormones.

Endocrine therapy is often used after cancer-removing surgery and other treatments. It's usually recommended for 5 to 10 years because it reduces the risk of cancer recurrence both in the breast and elsewhere. But for some people, the side effects of endocrine therapy can make it hard or impossible to take the medication for years. If you're experiencing significant side effects, talk with your cancer care team. Many symptoms can be managed by adjusting or changing the medication or adding supportive therapies.

The cancer's HER2 status
About 1 in every 5 breast cancers contains cells with extra copies of the gene that makes the human epidermal growth factor 2 receptor (HER2) protein. In healthy cells, HER2 proteins are far apart. So when a cell needs to divide, two of these proteins join in a regulated, controlled way, signaling the cell to replicate. However, when cells have higher than typical amounts of HER2 proteins, they can divide in an uncontrolled manner. HER2-positive cancers can spread quickly.

Historically, overexpression of HER2 proteins was associated with an increased risk of breast cancer recurrence and an overall worse outlook. However, treatments that specifically target HER2 are so effective that the prognosis for HER2-positive breast cancer is now good. HER2-targeted therapies include these classes of medicines:

- *Monoclonal antibodies* — Drugs such as trastuzumab (Herceptin), pertuzumab (Perjeta) and margetuximab (Margenza) attach to HER2 receptors on cancer cells,

BREAST CANCER-FIGHTING MEDICINES

Systemic medicine treats the entire body. Systemic drugs used to treat breast cancer include:

- *Chemotherapy* — Usually delivered through a vein, chemotherapy targets and kills rapidly growing cells. Because cancer cells typically replicate at a faster rate than healthy cells, chemotherapy can effectively kill cancer cells, regardless of whether they are dependent on estrogen.
- *HER2-targeted therapies* — These medicines attach to HER2 receptors on the surface of cancer cells to stop them from receiving signals, engage the body's immune system to destroy cancer cells and, in some cases, deliver chemotherapy directly to the cancer cell.
- *Other targeted therapies* — Additional targeted therapies interfere with specific cellular processes that allow cancer cells to grow more rapidly or become resistant to other treatments.
- *Immunotherapy* — Cancer cells often produce proteins that help them hide from the immune system. Immunotherapy interferes with that process.
- *Endocrine therapy* —This treatment blocks the cancer's access to estrogen, decreasing cancer cell growth.

Q&A I've heard that cryoablation is sometimes used to kill breast cancer cells. How does this treatment work?

During this minimally invasive outpatient procedure, healthcare professionals insert a needlelike cryoprobe into the breast, using ultrasound to guide it to the cancer's location. The probe injects freezing gas into the cancerous mass. Then the mass is thawed and refrozen, killing the cancer cells. You remain awake during the procedure, which lasts about 30 minutes.

This new procedure is currently reserved for people with small cancers and health concerns that make general anesthesia riskier.

stopping them from receiving signals. Monoclonal antibodies also engage the body's immune system to destroy cancer cells.

- *Tyrosine kinase inhibitors* — Drugs such as lapatinib (Tykerb), neratinib (Nerlynx) and tucatinib (Tukysa) block the protein tyrosine kinase, which can help stop cancer growth.
- *Antibody-drug conjugates (ADCs)* — Drugs such as ado-trastuzumab emtansine (Kadcyla) and fam-trastuzumab deruxtecan-nxki (Enhertu) neutralize HER2-positive cancer cells.

Other biological factors

According to Dr. Giridhar, a cancer's unique biology and stage can help healthcare professionals tailor the right sequence of surgery, systemic therapy or radiation.

For example, if your cancer cells lack receptors for hormones and HER2 — sometimes referred to as triple-negative breast cancer — your care team may recommend chemotherapy before surgery. In addition to chemotherapy, immunotherapy such as pembrolizumab (Keytruda) may be recommended to stimulate your immune system to recognize and attack cancer cells.

By tailoring these medicines to your cancer's unique biology, healthcare professionals can sometimes clear all cancer cells, even before surgery has been done to remove cancerous masses from the breast and ensure that the lymph nodes are clear. This is known as a pathological complete response (PCR), meaning there are no signs of cancer in the tissue samples removed during surgery.

"If someone achieves a PCR, we know that outcomes are excellent and the chances of cancer recurrence are really low," says Dr. Giridhar. "If there is residual disease at the time of surgery, your team may recommend different or additional therapy to further reduce the risk of recurrence."

5. Personalized surgical options

If breast cancer hasn't spread beyond the breast and lymph nodes, your cancer care team will generally recommend surgical cancer removal. In recent years, the surgical options have expanded, giving you more choices than ever before.

"Most people with breast cancer still need appropriate surgery," says Judy Boughey, M.D., a breast surgical oncologist who has conducted several clinical trials related to breast cancer treatment and care. "But often, we can personalize our approach, perform a less aggressive surgery and still have a good outcome."

The right surgical options for you depend on the size of your breasts and the cancer's location, size and biology. The options also depend on your health and preferences.

Breast-conserving surgery

Also known as lumpectomy, this typically outpatient procedure involves removing the tumor and a rim of surrounding tissue known as a margin. Treatment advances have made this option available to more people with breast cancer than ever before.

By pretreating breast tissue with cancer-killing medications, for example, your care team can shrink the tumor, making the subsequent surgery less extensive.

"This process allows someone who might have initially required a mastectomy to become a candidate for breast conservation," says Dr. Boughey. "It's been a phenomenal advance. When the cancer has an excellent response to the drugs, there is sometimes no evidence of disease at surgery."

In addition, advanced oncoplastic techniques often allow surgeons to remove tumors without changing the shape of the breast or leaving a divot.

At Mayo Clinic in Rochester, Minnesota, surgeons work closely with pathologists in the operating suite. After a surgeon removes breast tissue, the pathologist immediately studies it. If the pathologist determines that cancer is present at the edges of the removed tissue, the surgeon then takes out more tissue from that area to ensure clean margins.

"Members of the surgical team know they've removed all of the cancerous tissue before someone wakes," says Dr. Boughey. "Not only does this spare healthy tissue but it also dramatically reduces the need for follow-up surgery."

In most people, breast-conserving surgery is followed by radiation. However, this practice is changing, says Dr. Boughey. Research is showing that people with small, less aggressive cancers may be able to sidestep postsurgery radiation without raising the risk of cancer recurrence, she says.

Mastectomy

In this procedure, surgeons remove one or both breasts while you're under general anesthesia. This is now often done as an outpatient procedure.

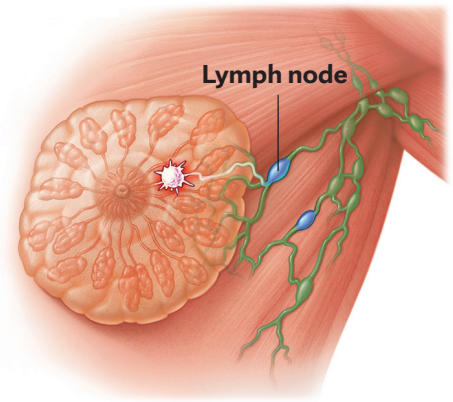
Mastectomy is more involved than lumpectomy and requires a longer recovery. If undergoing mastectomy, you may choose to have surgery to restore a breast shape. This procedure is called breast reconstruction.

BREAST SURGERY: WEIGHING THE BENEFITS AND DRAWBACKS			
	Pros	**Cons**	**Best for ...**
Breast-conserving surgery (lumpectomy)	• Recovery lasts about 1 week. • Most of the breast tissue remains intact. • Advanced surgical techniques can often preserve the original appearance of the breast.	• Surgery is done under general anesthesia or monitored anesthesia (sedation). • Surgery may change shape of the breast. • Regular follow-up breast imaging is needed for both breasts. • Follow-up radiation is usually needed.	• Small, single cancerous masses. • Average or large breasts.
Mastectomy	• No follow-up breast imaging is needed on that breast. • Advanced surgical options can preserve the nipple and areola, depending on the cancer's size and location.	• Surgery is done under general anesthesia. • Surgery generally lasts 2 to 4 hours. • All breast tissue is removed, sometimes excluding the nipple and areola. • Recovery lasts several weeks.	• Large cancerous masses or multiple breast masses. • Any breast size.

Ideally reconstruction can be done at the same time as mastectomy, though it may be a second surgery later.

While mastectomy has historically involved removing the nipple and areola, now the nipple and areola may be preserved in some people having a mastectomy, depending on the size and location of the cancer. In recent years, robotics and other advances also have enabled surgeons to use smaller incisions.

In addition to all the advances in breast surgery, there have been dramatic changes in the management of the lymph nodes under the arm.



Rather than removing all lymph nodes under the arm during a mastectomy, surgeons today more commonly remove only the first few lymph nodes to which cancer usually spreads. These are known as the sentinel nodes.

Rather than removing all of the lymph nodes from the armpit, surgeons more commonly remove only the first few lymph nodes to which cancer usually spreads. These are known as sentinel nodes. This change greatly reduces the risk of postsurgical arm swelling, known as lymphedema.

Weighing the pros and cons

Whether you opt for a lumpectomy or a mastectomy depends on more than your cancer's size, location and biology. It also depends on your preferences.

"When a woman asks me what I recommend, I explain that I need to get to know her, her preferences and what she's worried about," says Dr. Boughey. "Once I have that information, we talk through the options and together make a decision that is best for her."

For example, some women prefer breast-conserving surgery because they worry that, after a mastectomy, they would feel uncomfortable in locker rooms, the shower, the bedroom or other situations.

Other women, however, feel that a mastectomy would give them more peace of mind. In addition, no breast imaging is needed after a double mastectomy. Some women prefer this.

No one can make these important, personal decisions for you. However, your care team can help you consider how each option might affect your life in the short and long terms.

When deciding on a treatment plan, consider how you'll likely feel about your choice 10 or 15 years from now, says Dr. Boughey. How will it likely affect you physically? Emotionally? Socially? Romantically? The chart above can help you weigh the pros and cons.

Fast-changing science

The science of breast cancer continues to change. New screening options, medications and surgical techniques are continually being explored. For example, since 2023, the Food and Drug Administration has approved four new breast cancer-fighting medicines and expanded the use of two others.

"We keep getting advances in systemic therapy options and radiation and even whole new categories of treatments," says Dr. Giridhar.

These advances do much more than improve survival. They also provide more choices, allowing you to match your care to your needs and goals. ■

Printed in the USA
ISSN 0741-6245
MC2020-0225 • 110225