TEST

Breast ultrasound

Breast ultrasound uses sound waves to create images of breast tissue and nearby structures.

WHAT IT MEASURES
Sound-wave images of breast tissue and nearby lymph nodes

SAMPLE
None; imaging uses sound waves

FASTING NEEDED?
No

HOW LONG IT TAKES
About 15 to 30 minutes

RESULTS IN
Same day to several days; varies by laboratory or imaging center

USED FOR
Diagnosis, procedure guidance, and selected supplemental screening

MAIN LIMITATION
Can miss cancers and mammographic calcifications

Overview

A breast ultrasound uses high-frequency sound waves to make pictures of breast tissue. It does not use X-rays or expose you to radiation.

A handheld device called a transducer sends sound waves into the breast and records the echoes. A computer turns them into images.

Ultrasound can show whether a lump is fluid-filled, solid, or has both features. A fluid-filled lump is called a cyst. A solid finding may be harmless, but some findings need further testing.

Ultrasound is usually used alongside mammography, not instead of it. Mammography can detect changes, especially tiny calcium deposits, that ultrasound may miss.

Why the test is ordered

A breast ultrasound may be ordered to examine:

Ultrasound can also guide a needle during a biopsy. A biopsy removes cells or tissue for examination. The biopsy result, not ultrasound alone, confirms whether cancer is present.

Some centers offer ultrasound as supplemental screening for people with dense breasts or particular risk factors. It may find abnormalities hidden on a mammogram, but it also causes more false alarms and biopsies. It does not replace routine mammography.

- A new breast or underarm lump
- Pain, swelling, or thickening
- Nipple discharge or another nipple change
- A change found during a physical examination
- An area seen on a mammogram, MRI, or another scan
- A possible cyst, abscess, or other fluid collection

Who should have the test

You may be offered breast ultrasound if you have a breast symptom or another test shows an area needing closer examination. People of any sex can have it.

Ultrasound is often the first imaging test for a lump during pregnancy, while breastfeeding, or in younger people. Mammography may still be needed depending on your age, symptoms, examination, and ultrasound findings.

Supplemental screening decisions depend on breast density, personal and family history, previous results, and overall cancer risk. Major guidelines do not recommend ultrasound for everyone with dense breasts.

A normal recent mammogram does not mean a new lump should be ignored. Arrange a clinical assessment for any persistent change, even if earlier imaging was normal.

How to prepare

You can eat, drink, and take your usual medicines unless you have separate instructions for another procedure. Coffee and the time of day do not affect the images.

Wear clothing that is easy to remove from the waist up. You may need to remove necklaces or other items near your chest.

Bring previous breast imaging and biopsy details if the center does not already have them. Comparisons can show whether an area has changed and may prevent unnecessary repeat

tests.

Tell the staff if you are pregnant, breastfeeding, have breast implants, recently had breast surgery or a biopsy, or take blood-thinning medicine. These details may affect interpretation or management of a planned biopsy.

What happens during the test

You will usually undress from the waist up, wear a gown, and lie on an examination table with one arm raised.

The sonographer or radiologist applies clear gel to your skin and moves the transducer over the breast. You may be asked to change position or point to the exact location of a lump or pain. The underarm may also be scanned to examine lymph nodes.

Gentle pressure helps produce clear images. It may be uncomfortable over a tender area but should not usually be painful. A targeted scan generally takes 15 to 30 minutes; a more extensive examination may take longer.

Understanding your results

A radiologist reviews the images. The report usually includes a Breast Imaging Reporting and Data System, or BI-RADS, category.

Results may describe:

BI-RADS 1 or 2 generally means a negative or benign result. BI-RADS 3 means probably benign and usually requires repeat imaging after a shorter interval. BI-RADS 4 or 5 generally means tissue sampling is recommended because imaging cannot safely exclude cancer. The category is not itself a diagnosis.

Results are interpreted alongside your symptoms, examination, previous imaging, age, pregnancy status, and personal risk. Unlike blood tests, breast ultrasound does not use reference ranges.

- Normal breast tissue
- A simple cyst with harmless features
- A solid finding that appears benign, meaning non-cancerous
- A finding needing follow-up imaging
- A suspicious area for which biopsy is recommended

- An incomplete assessment requiring another test or previous images

What affects the results

Results depend partly on the equipment and the person performing the scan. Show the sonographer exactly where you feel a change so the correct area is examined.

Small, deep, or poorly defined abnormalities may be harder to see, as may findings near the nipple, chest wall, or an implant.

Pregnancy, breastfeeding, hormonal changes, infection, previous surgery, radiation treatment, implants, and scar tissue can alter the images. A recent biopsy may also cause bruising, swelling, air, or fluid, so tell the radiologist when and where it was performed.

Food, coffee, exercise, hydration, and the time of day have little direct effect on the scan.

Accuracy and limitations

Ultrasound is useful for distinguishing many fluid-filled findings from solid ones and assessing an area's shape, edges, orientation, and blood flow. However, it cannot always determine whether a solid finding is cancerous.

Accuracy varies with the reason for testing, the finding's type and location, equipment quality, and operator experience. Ultrasound can miss cancer, particularly when it does not form a clear mass. It is also less reliable than mammography for detecting tiny calcium deposits.

Ultrasound can produce false alarms that lead to repeat imaging or biopsy. Mammography is generally better for routine screening, while MRI may be appropriate for selected high-risk people or specific clinical questions.

If imaging does not explain a persistent physical change, clinical review, another imaging test, or biopsy may still be needed.

Risks and complications

Standard breast ultrasound has no known harmful effects and uses no radiation. Transducer pressure may cause brief discomfort over a tender area.

Ultrasound-guided biopsy is a separate procedure and can cause soreness, bruising, bleeding, or, less commonly, infection.

What happens next

If the result is normal or clearly benign, you may return to routine screening or need no further imaging. Follow the plan in your report because timing depends on the finding and your clinical situation.

A probably benign finding may require repeat imaging to confirm that it remains stable. A suspicious finding may lead to mammography, MRI, or needle biopsy.

Arrange prompt medical assessment for a new or persistent lump, bloody nipple discharge, a nipple pulling inward, skin dimpling, or a continuing breast change despite a reassuring scan.

Seek urgent care for rapidly worsening redness or swelling with fever, feeling very unwell, or heavy bleeding after a biopsy. Call emergency services for severe breathing difficulty, collapse, or another immediate medical emergency.

Common questions

Can I drink coffee before a breast ultrasound?

Yes. Coffee does not affect the images. Avoiding it is optional if caffeine makes your breasts tender.

Do I need to fast?

No. Eat and drink normally unless another planned procedure has separate instructions.

Does the time of day matter?

Usually not. If your breasts are more tender at a particular stage of your menstrual cycle, another time may be more comfortable, but timing does not normally affect accuracy.

Can I exercise beforehand?

Yes. Tell the sonographer if recent strenuous activity or an injury caused swelling, bruising, or tenderness.

Can ultrasound replace a mammogram?

Usually not. Mammography is better at detecting some findings, including tiny calcium deposits. Ultrasound is useful for assessing lumps and areas found on other imaging.

Will I get the result immediately?

Sometimes a radiologist discusses the result during the appointment. Otherwise, a written report is sent later. Timing varies by imaging center and whether previous images need review.

Sources

- American College of Radiology and Radiological Society of North America - Breast Ultrasound
- American College of Radiology - ACR Appropriateness Criteria: Palpable Breast Masses
- U.S. Preventive Services Task Force - Breast Cancer: Screening, 2024 recommendation
- U.S. Food and Drug Administration - What Does It Mean to Have Dense Breasts?