TEST

Mammogram - calcifications

A mammogram can detect and assess tiny calcium deposits within breast tissue

WHAT IT MEASURES
Tiny calcium deposits and their pattern within breast tissue

SAMPLE
None; low-dose breast X-ray imaging

FASTING NEEDED?
No

HOW LONG IT TAKES
About 30 minutes; extra views may take longer

RESULTS IN
Several days; turnaround varies by imaging service

USED FOR
Screening, diagnosis, and monitoring

MAIN LIMITATION
Calcification appearance cannot confirm or exclude cancer

Overview

Breast calcifications are small deposits of calcium seen on a mammogram. They are common and are usually too small to feel. They do not develop because you eat too much calcium.

A mammogram uses low-dose X-rays to create images of the breasts. Calcifications appear as bright white marks. Their size, shape, number, and arrangement help a radiologist decide whether they look clearly benign, meaning non-cancerous, or need further assessment.

Larger deposits are called macrocalcifications . These are often related to ageing, previous injury, inflammation, or changes in blood vessels and usually do not need additional testing.

Smaller deposits are called microcalcifications . Most are also benign, but certain patterns can occur with ductal carcinoma in situ, or DCIS, and some invasive breast cancers. DCIS means abnormal cells are contained within a breast milk duct. A mammogram alone cannot confirm whether calcifications are cancerous.

Why the test is ordered

Calcifications are often found unexpectedly during routine breast screening. If their appearance is not clearly benign, you may be recalled for a diagnostic mammogram.

Diagnostic mammography provides more detailed images than the original screening views. It can show whether the calcifications are grouped together, follow the shape of a milk duct, or have changed since an earlier mammogram.

The test may be ordered to:

Being recalled does not mean that you have breast cancer. Additional images often show that the area is benign.

- Examine calcifications found during screening
- Compare an area with previous mammograms
- Monitor calcifications judged unlikely to be cancer
- Plan a biopsy when the pattern is suspicious
- Check breast tissue after previous surgery or treatment

Who should have the test

You may be offered diagnostic mammography if a screening mammogram shows new, changing, or unclear calcifications. It may also be used for follow-up when previous imaging recommended another check after a set interval.

People with a new breast lump, nipple discharge, skin change, or other breast symptom may have diagnostic mammography as part of a wider assessment. Calcifications themselves usually do not cause symptoms.

Screening schedules differ according to your age, breast cancer risk, location, and local programme. If you are pregnant, might be pregnant, or are breastfeeding, tell the imaging service before the appointment. Mammography can still be used when clinically needed, but the team may adjust the timing or technique.

How to prepare

You can eat, drink, and take your usual medicines unless the imaging service gives different instructions.

On the day of the mammogram, avoid deodorant, antiperspirant, body powder, creams, or lotions on your breasts and underarms. Some products contain particles that can look like

calcifications on an X-ray.

Wear a two-piece outfit so you only need to remove clothing from your upper body. Bring details of previous mammograms, especially if they were performed at another facility. Comparison with older images can prevent unnecessary repeat imaging or biopsy.

Tell the technologist if you have breast implants, limited shoulder movement, tender breasts, recent breast surgery, or a previous biopsy.

What happens during the test

You will undress from the waist up and stand in front of the mammography machine. A technologist positions one breast on a flat plate. A second plate presses the breast firmly for a few seconds while each image is taken.

Compression spreads the tissue so that calcifications are easier to see. It also reduces movement and allows the test to use less radiation. The pressure can be uncomfortable but should not be unbearable. Tell the technologist if you are in significant pain.

Diagnostic assessment may include magnification views. These enlarge the area without physically enlarging the breast and help show the shape and distribution of very small calcifications. Images may be checked before you leave in case another view is needed.

Ultrasound may also be performed, although tiny calcifications are often easier to see on a mammogram than on ultrasound.

Understanding your results

There is no numerical "normal range" for breast calcifications. Mammograms are read by radiology services rather than laboratories. Interpretation varies with the calcifications' appearance, previous images, age, sex, pregnancy or breastfeeding status, medicines, breast density, and clinical context.

Your report may describe calcifications as:

Reports commonly include a Breast Imaging Reporting and Data System, or BI-RADS , category. BI-RADS 0 means more imaging or previous images are needed. Categories 1 and 2 describe negative or benign findings. Category 3 generally leads to imaging follow-up. Categories 4 and 5 usually lead to consideration of biopsy. BI-RADS describes the imaging assessment; it is not itself a diagnosis.

- Benign: A pattern linked with non-cancerous changes, such as skin, blood vessel, or coarse age-related calcification
- Probably benign: The chance of cancer is considered low, but repeat imaging may be recommended to confirm stability
- Suspicious: The shape or distribution is unusual enough for a biopsy to be considered
- Highly suggestive of malignancy: The pattern has features strongly associated with cancer, so tissue sampling is usually recommended

What affects the results

Several factors can make calcifications harder to assess or create an appearance that needs clarification:

Calcifications are not usually affected by fasting, coffee, exercise, or calcium in your food. Do not stop calcium supplements or prescribed medicines solely because calcifications were found.

- No previous images: A radiologist cannot tell whether the calcifications are new or unchanged over many years
- Deodorant, powder, or skin products: Tiny particles may resemble superficial calcifications
- Movement or incomplete positioning: Blurring or missing breast tissue can lead to repeat views
- Dense breast tissue: Dense tissue can hide some abnormalities, although mammography is good at showing calcifications
- Implants: Implants can obscure tissue unless special displacement views are taken
- Previous surgery, biopsy, injury, infection, or radiation treatment: Healing, scar tissue, fat damage, and surgical materials may produce calcifications
- Pregnancy and breastfeeding: Breast tissue becomes denser, which can make images more difficult to interpret
- Age and medicines: Age-related changes and medicines that affect breast density can alter the overall mammogram appearance

Accuracy and limitations

Mammography is particularly useful for finding microcalcifications, including some abnormalities that cannot be felt. However, it does not detect every breast cancer. Dense tissue, positioning, movement, or very subtle disease can hide an abnormality.

It can also raise concern when no cancer is present. Benign healing, inflammation, and age-related changes sometimes produce suspicious-looking patterns. This may lead to additional imaging or biopsy.

Magnification views can classify many calcifications, but appearance alone cannot always give a definite answer. When tissue is needed, a stereotactic core needle biopsy is often used. This procedure uses mammogram images to guide a needle to the calcifications. Ultrasound is a better test for many lumps or fluid-filled cysts, but it may not show tiny calcifications clearly. MRI may help in selected situations but does not replace mammography or biopsy.

Risks and complications

Mammography uses a small dose of ionising radiation. The compression may cause brief discomfort, and occasionally mild tenderness or bruising.

Extra imaging can cause worry and may identify benign changes that require follow-up. A biopsy has separate risks, including bleeding, bruising, infection, and an inconclusive sample; these should be explained if one is recommended.

What happens next

Clearly benign calcifications generally need no special treatment. You can usually return to your normal screening schedule.

Probably benign calcifications may be checked with another mammogram after a defined interval. Suspicious calcifications may need a stereotactic biopsy. The biopsy result, rather than the mammogram alone, determines whether cancer cells are present.

Contact your breast clinic promptly if you develop a new lump, bloody nipple discharge, nipple pulling inward, or skin dimpling rather than waiting for routine screening. These symptoms are not usually emergencies but need clinical assessment.

Seek same-day medical advice for a breast that becomes hot, very swollen, and painful with fever. Emergency care is appropriate if you become severely unwell, faint, or have difficulty breathing.

Common questions

Can I drink coffee before a mammogram?

Yes. Fasting is not needed. Some people find caffeine makes their breasts more tender, but it does not create calcifications or invalidate the images.

Does the time of day matter?

Not for image accuracy. If your breasts become tender before a menstrual period, scheduling after the tenderness settles may make compression more comfortable.

Can I exercise beforehand?

Yes. Normal exercise does not affect breast calcifications. You may want to shower afterward and avoid applying deodorant, powder, or lotion.

Should I stop calcium supplements?

No, not solely for this test. Breast calcifications are not caused by eating calcium or taking a usual calcium supplement. Only change prescribed medicines or supplements after advice from the clinician responsible for them.

Why do I need another mammogram if I have no lump?

Microcalcifications are often too small to feel. Additional magnified images can show details that were not clear on the screening mammogram.

Will I need a biopsy?

Not always. Clearly benign calcifications usually need no biopsy. A biopsy may be recommended if the shape, arrangement, or change over time cannot be safely explained by imaging.

Sources

- American College of Radiology - BI-RADS: Breast Imaging Reporting and Data System
- American Cancer Society - Understanding Your Mammogram Report
- Breast Cancer Now - Breast calcifications
- National Cancer Institute - Breast Cancer Screening, Patient Version
- Radiological Society of North America and American College of Radiology - Mammography
- US Food and Drug Administration - Mammography