

Dense Breasts

Dense breasts have a higher level of dense tissue compared to the level of fatty tissue. This diagnosis is made after a radiologist views your mammography pictures and compares the ratio of dense tissue to fatty tissue.

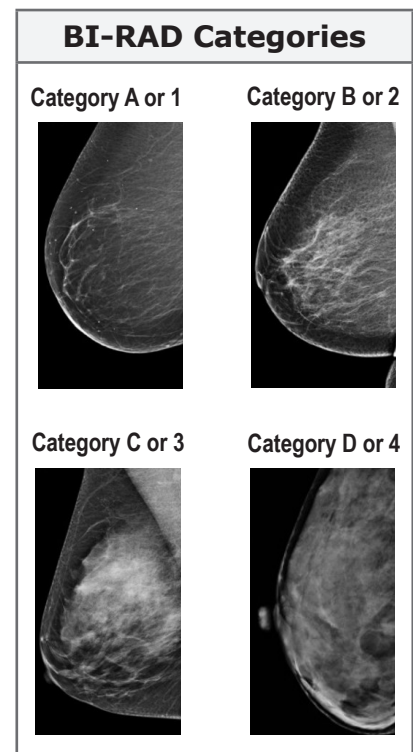
The breasts are composed of fibroglandular (fibrous and glandular) tissue and fatty tissue. The fibrous tissue is the supportive tissue of the breast that holds the breast to the chest wall. Glandular tissues include the working units of the breasts, the milk glands and milk ducts. When looking at a mammogram, the glandular and fibrous tissues appear white. Fatty tissues appear black. Abnormalities, including cancer, also appear white on a mammogram. Since dense tissue and cancer both show up as white during mammography, dense breasts create a challenge for the radiologist. Abnormalities in the breast become more difficult to identify in dense breasts.

How Do You Know If You Have Dense Breasts?

Your breast density is determined when a radiologist analyzes your mammography pictures and determines the ratio of fibroglandular (dense) tissue to fatty (non-dense) tissue. The radiologist will assign a level of density based on the BI-RADS reporting system into one of four levels of density.

- **Category A or 1:** The breasts are almost entirely fatty. Approximately 1 in 10 women have this result.
- **Category B or 2:** There are scattered areas of fibroglandular density. The majority of the breast is non-dense. Approximately 4 in 10 women have this result.
- **Category C or 3:** The majority of the breasts are dense with some areas of non-dense tissue. Approximately 4 in 10 women have this result.
- **Category D or 4:** The breasts are extremely dense. Nearly all of the breast tissue is dense. Density may lower the sensitivity of a mammogram. Approximately 1 in 10 women have this result.

Women who are assigned Category C (3) or Category D (4) are considered to have dense breasts. The radiologist will report the grade level of density in the written mammography report.



Causes of Dense Breast Tissue:

- **Young Age:** Younger women are more likely to have dense breasts caused by higher levels of female hormones. Breast tissue tends to become less dense as one ages and hormonal levels decrease. However, women may have dense breasts at any age.
- **Hormonal Therapy:** Women who take hormonal therapy, estrogen/progesterone, for menopausal symptoms are more likely to have dense breast tissues.

Concerns About Dense Breasts

Dense breast tissues cause your mammogram to be more difficult to interpret by a radiologist since both dense tissue and cancer appear as white on mammography pictures.

What to Do if You Have Dense Breasts:

- Closely follow your recommended schedule for regular mammography screening.
- Digital mammography is highly recommended for dense breasts.
- Tomosynthesis (3-D) mammography has recently been approved and has been found effective in the imaging of dense breasts. Tomosynthesis is a specially designed digital mammography machine, which includes an additional X-ray tube that rotates over the top of the compressed breast and takes a series of approximately 11 pictures. The images are sent to a computer and are converted into a 3-D image. The 3-D image increases the visibility of abnormalities.

A contrast-enhanced mammogram is a new technology that uses intravenous contrast material to improve the pictures of the inside of the breast. It is recommended as an option for high-risk patients. Ask your breast center if this option is available.

Discuss your breast density and risk factors with your healthcare provider. Ask for recommendations about additional supplemental imaging methods.

Supplemental Imaging Types

Each of the imaging tests discussed below has advantages and disadvantages. Each test has proven to detect more breast cancers than mammography alone. However, none of these tests has proven to reduce the risk of dying from breast cancer.

- **Breast MRI:** MRI (magnetic resonance imaging) uses magnets to create images of the breasts. MRI does not use radiation. It is recommended for women with a very high risk of breast cancer including those with known BRCA mutations, which increase breast cancer risk.
- **Breast Ultrasound:** Breast ultrasound uses sound waves with no radiation to analyze breast tissue. Diagnostic breast ultrasound is commonly used to further evaluate areas of concern found during mammography.
- **Molecular Breast Image (MBI):** MBI uses a special camera (gamma) to record the activity of an injected radioactive tracer. The tracer is injected into an arm vein. Normal tissues and cancerous tissues react differently to the tracer, which is identified when the breasts are scanned with the gamma camera.

Supplemental Exam	Advantages	Disadvantages
Breast MRI	<ul style="list-style-type: none"> • No additional radiation exposure • Widely available • Detects 18 more cancers per 1,000 women screened 	<ul style="list-style-type: none"> • Requires injection of contrast material; potential allergic reaction to contrast material • Identifies non-cancerous areas that require additional imaging or biopsy • Expensive test: often not covered by insurance unless very high risk is proven
Breast Ultrasound	<ul style="list-style-type: none"> • No additional radiation exposure • Widely available • Detects 3-4 more cancers per 1,000 women screened 	<ul style="list-style-type: none"> • Identifies areas that require additional imaging but are not cancerous • Highly dependent on the skill of the person performing exam
Molecular Breast Imaging (MBI)	<ul style="list-style-type: none"> • Least likely of all the tests to require an unnecessary biopsy of benign lesions • Detects approximately 7 cancers per 1,000 women screened 	<ul style="list-style-type: none"> • Requires injection of radioactive tracer, exposing the patient to a very low dose of radiation • Not readily available in all centers • Expensive

Additional Information:
