

Dense Breasts, Get Educated

What are Dense Breasts? The normal appearances to breasts, both visually and on mammography, varies greatly. On mammography, one of the important ways breasts differ is breast density.

All breasts are made up of fatty tissue as well as glandular and fibrous connective tissue. The ratio of fatty tissue to the other tissues, however, varies from woman to woman, and breast to breast. Some breasts are mostly fatty and some breasts are mostly dense, with the majority in the middle. Breasts made up mostly of glandular rather than fatty tissue, are classified as “dense breasts”. The way breasts look and feel does not predict whether or not they are dense on mammography. Radiologists describe breast density using specific language: A) almost entirely fatty; B) scattered fibroglandular tissue; C) heterogeneously dense, which can obscure detection of small masses; and d) extremely dense which lowers the sensitivity of mammography (**Figure 1**). The last two categories are considered “dense”. About 40% of women over the age of 40 have dense breasts (1).

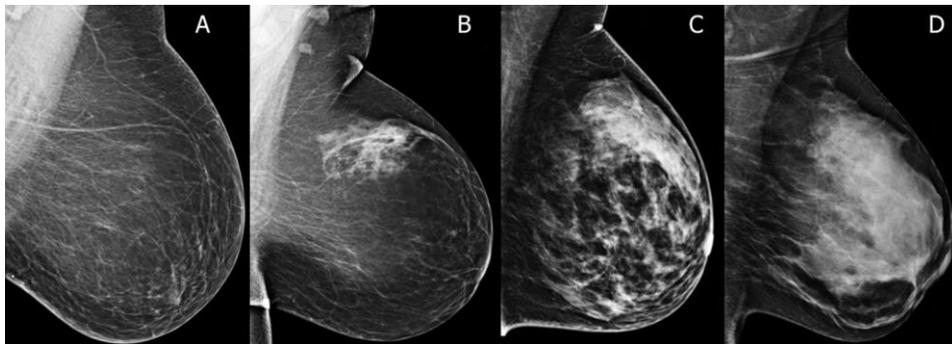


Figure 1. On mammography, there is a wide range of normal patterns of breast density, from A) fatty to B) scattered fibroglandular tissue to C) heterogeneously dense to D) extremely dense. Categories C and D are considered “dense”. As breast density increases, so does the likelihood that cancer, if present, can be masked by normal tissue and not detected on mammography. (Courtesy Dr. Wendie Berg)

Why does breast density matter? ? A mammogram is essentially an x-ray of the breast, and x-rays have difficulty penetrating dense breast tissue. Dense breast tissue shows up as white areas on a mammogram and cancerous masses are also dense and white and can therefore be hidden by normal dense tissue (though malignant calcifications are well seen on mammography across all breast densities). In any woman, cancer may be found because of a lump after a normal mammogram, but this is much more likely to occur in a woman with dense breasts (2) (**Figure 2**).

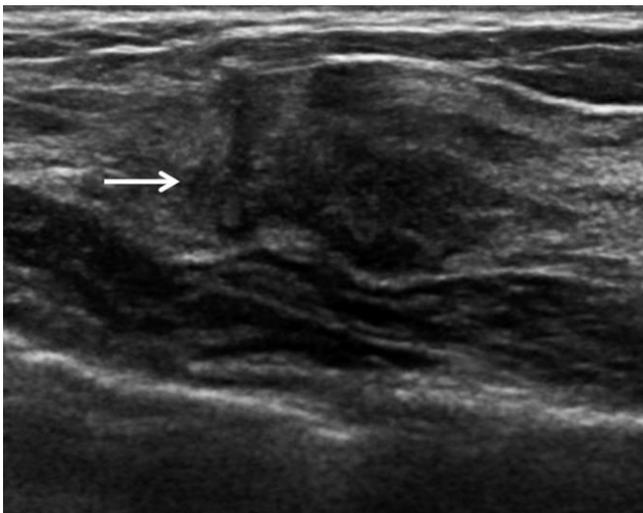


Figure 2. Mammograms from this 46-year-old woman appear normal with heterogeneously dense tissue. Four months later, the woman noted a right breast lump. On ultrasound directed to the lump, an irregular mass (arrow) was identified highly suggestive of cancer. Ultrasound-guided core needle biopsy showed aggressive invasive ductal cancer which was not seen even in retrospect on the mammogram. (Courtesy Dr. Wendie Berg)

How does a woman know she has dense breasts? Breast density is determined on mammography and can be recognized on CT scans or MRI also. Until recently, it has not been a requirement that the results letter a woman is sent after her mammogram include information about breast density, though breast density has been recommended to be included in the report to her doctor for decades. Laws have now been enacted in 24 states that require some information about breast density be communicated in the results sent directly to patients. For information on individual state density inform laws, click [HERE](#).

What should I be telling my patients? Dense breasts are normal and there is no need to panic. Women with dense breasts, however, are more likely to develop breast cancer (3), and are more likely to have that cancer missed by a mammogram, [though a digital mammogram is better than film (4)]. Tomosynthesis (3D mammography) adds detection of 1-2 cancers per 1000 women screened compared to standard 2D mammography and this increase in cancer detection is observed across all breast densities (5, 6). Ultrasound, when added to mammography in women with dense breasts adds detection of 2-4 early stage invasive cancers per 1000 women screened (7-9). The only study to date comparing ultrasound with tomosynthesis showed nearly twice as many additional cancers were seen on ultrasound as on tomosynthesis after a negative standard mammogram (10). MRI shows even more cancers than the combination of mammography and ultrasound (8, 11-13). All screening can result in false positives--abnormalities that are not cancer but that require follow-up or a needle biopsy. Women determined to be at "high risk" for breast cancer due to genetic/family history or other risk factors are recommended to have MRI as part of their annual

screening (14). Click on the link for a screening decision support flow chart, [Who Needs More Screening?](#)

If a woman has dense breasts, it is particularly important for her to be aware of how her breasts normally feel and to report any changes to her healthcare provider. It is also important that a woman discuss all of her risk factors, including breast density, with a health care professional. A helpful tool is the [Patient Risk Factor Checklist](#) which can be downloaded and printed.

Despite growing awareness of breast density, there has been little educational information on what it means and what to do about it. Together with JoAnn Pushkin, a patient advocate, and Cindy Henke-Sarmiento, a technologist, we have developed a medically sourced website to help women and their health care providers become educated about breast density and screening options. For more information about dense breasts, patient question and answers and screening options, please visit: <http://www.DenseBreast-info.org>.

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