

The Role of Breast Density in Breast Cancer Screening

Breast cancer affects **2.3 million women** each year globally.

Breast cancer is the most common type of cancer globally and – according to the WHO – impacts **2.3 million women each year globally**. Early detection is important to improve the course of the disease.¹

Regular screening can have a beneficial impact on clinical outcome. Women aged between 40-74 who are screened with a mammogram every 1-2 years can **reduce their mortality risk by 40%**.²



Current breast cancer screening options include:^{3,4,5}



Clinical examination, which is a manual palpation carried out by yourself or a healthcare professional.



Tomosynthesis, which creates a 3D image of the breast using multiple x-ray images from different angles.



Contrast-enhanced mammography, which uses iodinated intravenous contrast media in combination with mammography.



Mammography, which takes an x-ray of both breasts from two angles.



Ultrasound, which uses sound waves to generate a grey scale picture of the breast tissue.



Contrast-enhanced MRI, which uses a strong magnetic field in combination with contrast media to take detailed images of breast tissue.

Contrast-enhanced mammography and breast MRI may reveal additional breast cancers which are missed by x-ray mammography, especially in women with high breast density. Breast MRI often has the perception of being a long and complicated procedure, but recent studies provided evidence that the exam can be completed **in less than 15 minutes and its sensitivity is approximately 2 to 3 times higher than that of x-ray mammography**.^{6, 7, 8, 9}



Breast Density and Breast Cancer Risk



Breast density impacts both breast cancer risk...



...and the accuracy of a breast cancer screening test.

Breast density impacts both breast cancer risk and the accuracy of a breast cancer screening test. Dense breasts are composed of a relatively high amount of fibro-glandular tissue, and a relatively low amount of fatty tissue.

The ability of x-ray mammography to detect breast cancer is decreased in women with dense breasts, which means cancer is more often missed or found later in advanced stages in women with dense breasts.¹⁰

In addition, women who have dense breasts have an increased risk of developing breast cancer when compared with women with fatty breasts.¹¹

Causes of Breast Density ^{12, 13, 14}

Certain factors can affect a woman's breast density, including:



Age

Breast tissue tends to become less dense after menopause



BMI

Women with less body fat are more likely to have denser breast tissue



Hormones

Women who take combination hormone therapy for menopause are more likely to have dense breasts



Genes

Breast density is also influenced by heredity

Breast Density Measurement

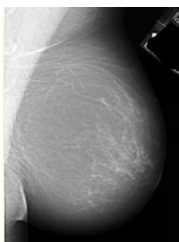
Breast density cannot be determined by either sight or clinical examination and needs to be determined by x-ray mammography.^{15, 16}

Radiologists classify breast density using the Breast Imaging Reporting and Data System (BI-RADS) which includes 4 categories, ranging from almost all fatty tissue to extremely dense tissue with minimal fat.¹⁷

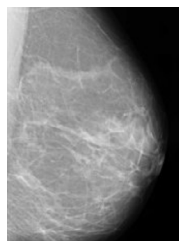
Breast Density

is an important risk factor for doctors to consider when deciding whether a patient should have additional screening examinations.

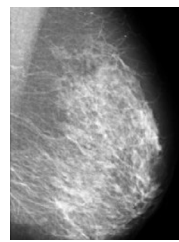
Almost entirely fat



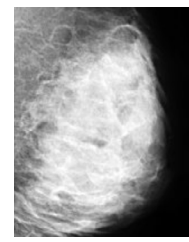
Scattered fibro-glandular densities



Heterogeneously dense



Extremely dense



Ranges from almost all fatty tissue...

...to extremely dense tissue with minimal fat.

myradiologyscan.ca/breastscreening

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