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Learn the benefits of 3-D mammography

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3-D mammography, also known as breast tomosynthesis, is an exciting breakthrough in breast imaging and is considered to be a major improvement over standard 2-D mammography. During a standard mammogram the entire breast is included on each image, causing the internal tissues of the breast to overlap one another. Sometimes the overlapping tissues can obscure or hide a cancer, making it difficult or impossible to see on the standard mammogram. In addition, areas of dense normal tissue can be superimposed on one another causing an appearance that mimics a cancer or other abnormality. The difficulties related to superimposed tissues on standard mammograms are more common in dense breasts, but can occur in less dense breasts also. Therefore 3-D mammography helps to decrease the impact of overlapping tissues in many women, but especially those with dense breasts.

A woman having a 3-D mammography exam will find that it is performed similarly to a standard mammogram, with the breast held in compression. However, for the 3-D exam the x-ray machine moves in an arc or semicircle over the breast, rapidly taking a series of low radiation x-ray exposures in addition to the standard mammogram views. This only takes a few seconds longer than a standard mammogram. A computer program then processes the data to create a stack of 1 millimeter thick images that better show the internal structure of the breast...in 3-D. The interpreting radiologist scrolls through the set of images on a computer workstation to see the entire volume of breast tissue one slice at a time, similar

to looking through a deck of cards one at a time. This 3-D technique greatly reduces the interference and confusion caused by overlying tissues. Some breast cancers are much more easily seen on the 3-D images than on the standard mammogram, while some areas of concern questioned on the standard mammogram are shown on the 3-D images to be simply due to normal tissues.

This means that 3-D mammography has increased sensitivity, specificity and accuracy over standard mammography. In fact, a recent major study reported in the *Journal of the American Medical Association* in June, 2014 indicates that 3-D mammography has a 41% increase in detection of invasive breast cancers (which are the most lethal type of breast cancer), a 29% increase in detection of all breast cancers, and a 15% decrease in the number of women recalled for additional imaging.¹ These significant improvements make 3-D mammography a great step forward in the early detection of breast cancer, with the added benefit of decreased patient anxiety and inconvenience due to a lower recall rate for additional imaging.

Novant Health Breast Center is pleased to offer 3-D mammography beginning in September, 2014.

1. Friedewald SM, Rafferty EA, Rose SL, Durand MA, Plecha DM, Greenberg JS, Hayes MK, Copit DS, Carlson KL, Cink TM, Barke LD, Greer LN, Miller DP, Conant EF, Breast Cancer Screening Using tomosynthesis in Combination with Digital mammography, *JAMA* June 25, 2014.