

MAMMOGRAPHY

What is a mammogram?

Mammography is a specific type of imaging that uses a low-dose x-ray system to examine breasts. A mammography exam, called a mammogram, is used to aid in the early detection and diagnosis of breast diseases in women.

Digital mammography, also called full-field digital mammography (FFDM), is a mammography system in which the x-ray film is replaced by solid-state detectors that convert x-rays into electrical signals. These detectors are similar to those found in digital cameras. The electrical signals are used to produce images of the breast that can be seen on a computer screen or printed on special film similar to conventional mammograms. From the patient's point of view, having a digital mammogram is essentially the same as having a conventional film mammogram.

Computer-aided detection (CAD) can be applied to mammography exams to help radiologists identify and mark regions of interest that are potentially indicative of cancer. The computer software then searches for abnormal areas of density, mass, or calcification that may indicate the presence of cancer. The CAD system highlights these areas on the images, alerting the radiologist to the need for further analysis.

Breast tomosynthesis, also called three-dimensional (3-D) breast imaging, is a mammography system where the x-ray tube and imaging plate move during the exposure. It creates a series of thin slices through the breast that allow for improved detection of cancer and fewer patients recalled for additional imaging.

Common uses

Screening mammogram versus diagnostic mammogram

A screening mammogram is an exam used to detect early breast cancer in women experiencing no symptoms. Mammography plays a central part in early detection of breast cancers because it can show changes in the breast up to two years before a patient or physician can feel them. Current guidelines recommend screening mammography every year beginning at age 40. In addition, women who have had breast cancer and those who are at increased risk due to a genetic history of breast cancer should seek expert medical advice about whether they should begin screening before age 40 and about the frequency of screening.

Diagnostic mammography is used to evaluate a patient with abnormal clinical findings, such as a breast lump or lumps that have been found by the woman or her doctor. Diagnostic mammography may also be done after an abnormal screening mammogram in order to determine the cause of the area of concern on the screening exam.

Safety

State-of-the-art X-ray systems have tightly controlled X-ray beams with significant filtration and dose control methods to minimize stray or scatter radiation. This ensures those parts of a patient's body not being imaged receive minimal radiation exposure.

Although there is no radiation that reaches the uterus during a mammogram, it is preferred not to perform routine mammograms on women who might be pregnant. If you are coming in because of a breast problem and you are or may be pregnant, please notify the mammographer so that we can decide the best way to evaluate your situation.

What should I expect BEFORE my mammogram?

Discussion

Prior to your mammogram, discuss any new findings, prior surgeries, hormone use, and family or personal history of breast cancer with your doctor.

What to wear

On the day of the exam do not use deodorants, antiperspirants, powders, or ointments since these can show up and be confusing on the mammogram. Since you will need to undress from the waist up, a two-piece outfit is recommended.

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What to bring

If possible, obtain prior mammograms and make them available to the radiologist at the time of the current exam. You will be asked a number of important questions about your medical history so that we can assess your breast cancer risk.

What will I experience DURING my mammogram?

Preparation

You will be asked to remove your clothing from the waist up and will be given a gown. You will be escorted into the mammography room.

The mammographer who performs your exam is a highly trained individual who is board certified in breast imaging studies. She can answer most of your questions, but if she cannot, then she can ask a radiologist who specializes in mammography.

If you have not had a mammogram before, the mammographer will explain the procedure. If you have any scars on your breasts, breast implants or skin irritations, particularly underneath your breast in the fold where the breast attaches to the chest, please point them out to the mammographer.

Breast compression

It is very important that you work with the mammographer to ensure that your breast is as far into the machine as possible so that the tissues deep in the breast can be examined.

Your breast will be placed on a special platform and gradually compressed with a paddle (often made of clear Plexiglas or other plastic).

You will feel pressure on your breast as it is squeezed by the compressor. Some women with sensitive breasts may experience discomfort. If this is the case, schedule the procedure when your breasts are least tender. Be sure to inform the mammographer if pain occurs as compression is increased. If discomfort is significant, less compression will be used.

Breast compression is necessary in order to:

- Even out the breast thickness so that all of the tissue can be visualized.
- Spread out the tissue so that small abnormalities won't be obscured by overlying breast tissue.
- Allow the use of a lower X-ray dose because a thinner amount of breast tissue is being imaged.
- Hold the breast still in order to eliminate blurring of the image caused by motion.
- Reduce X-ray scatter to increase sharpness of picture.

Scanning

You will be asked to change positions slightly between images. Routine views are a top-to-bottom view and an oblique side view. The process will be repeated for the other breast. The mammographer will walk behind a wall or into the next room to activate the X-ray machine. The X-ray beam will remain on for a few seconds at most. You may hear a whining noise that persists even after the X-ray is turned off. This is just a mechanical part of the tube that spins at high speed and does not stop immediately even though no more X-rays are being produced.

Length of exam

Your mammogram should take about 30 minutes.

What should I expect AFTER my mammogram?

When the examination is complete, you will be asked to wait until the mammographer determines that the images are of high enough quality for the radiologist to read. After that you will be free to go.

Mammogram results

We understand that quick results are important for our patients. Exams are typically read within 24 hours and results will be sent to your physician who will go over them with you.