

A Siemens MAMMOMAT Inspiration mammography machine is shown in a clinical setting. A woman in a white lab coat stands next to the machine, and another woman in a grey shirt is adjusting her shoulder. The machine has a pink and grey color scheme and the text 'MAMMOMAT Inspiration' is visible on the side.

**SIEMENS**

# Breast Biopsy

General Information

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Answers for life.



# General Information Breast Biopsy

If you've ever received an abnormal mammogram result, you know the worry and anxiety that can follow. Breast abnormalities, however, are not uncommon and do not automatically mean that you have breast cancer. Following an abnormal result, additional imaging tests may be performed and your physician may recommend that a breast biopsy be done.

## What is a breast biopsy?

In the United States, it is estimated that more than 48 million mammograms are performed each year, and of these, less than one million (less than five percent) are recalled to undergo a biopsy. In some instances, and depending on factors such as population demographics and method of care, the number of cases requiring biopsy can be as low as two percent. Fortunately, approximately 80 percent of breast biopsies result in benign (non-cancerous) diagnosis.

A breast biopsy involves removing a sample of breast tissue to determine whether it is malignant (cancerous) or benign (non-cancerous). While physical breast examination, mammography, ultrasound, and other breast imaging methods detect a breast abnormality, biopsy followed by pathological (microscopic) analysis is the only definitive way to determine if cancer is present.

Once a sample of breast tissue has been removed by the radiologist or surgeon, it is sent to the laboratory for microscopic examination by a pathologist. A clinical pathologist is a physician who performs laboratory analyses of tissue(s) to determine their type.



Image captured using MammoTest Prone Table

## What if cancer is found?

In the event that cancer is found to be present following pathological analysis of the biopsy sample(s), it is critical that the type and stage of the cancer are identified as soon as possible. Generally, the earlier breast cancer is diagnosed, the greater the chances of successful treatment and survival.

There are several different breast biopsy methods. These include:

- **Fine needle aspiration (FNA)**  
FNA is a procedure often performed to drain cysts. Using a fine gauge needle (22 or 25 gauge) and a syringe, sample fluid from a breast cyst or clusters of cells from a solid mass are removed.
- **Vacuum-assisted biopsy**  
Vacuum-assisted biopsy is a minimally invasive procedure that can remove multiple tissue samples. Usually performed as an outpatient procedure, a vacuum is used to remove tissue from the suspicious area. This breast biopsy method may not require the use of general anesthesia or the application of stitches.
- **Open surgical biopsy**  
Traditional open surgical biopsy is the standard to which other methods of breast biopsy are compared. In some cases, the surgeon will use mammography (X-rays) to help locate the area of concern and then mark the area with a wire marker, visible dye, carbon particles, or several of these methods. The patient may be given general or local anesthesia with sedation. An incision is then made in the breast to remove the suspicious area and, once completed, closed with stitches.

The breast biopsy method used will depend on a number of factors, including how suspicious the abnormality appears; the size, shape, and location of the abnormality; the number of abnormalities present; the patient's medical history; the patient's preference; the training of the radiologist or surgeon who is performing the biopsy; and the breast imaging center or surgical center in which the biopsy is performed.

## How is stereotactic (stereo) biopsy performed?

Fine needle or core needle biopsies are significantly less invasive procedures than open surgical biopsy, and produce sufficient tissue sampling. Some radiologists favor the use of a prone table when performing a biopsy (because the procedure is out of the patient's sight as she lies in the prone position), while others prefer using add-on breast biopsy units (as they are considered faster and allow closer patient contact).

When the lesion is not palpable (obvious), the radiologist/surgeon may need to use a guiding system, such as X-ray or ultrasound. The most accurate biopsy procedures include X-ray guided stereotactic biopsy for marking, fine needle, core needle, and vacuum-assisted biopsy.

A stereo biopsy procedure is usually performed by either a radiologist, with the help of the technologist, or a surgeon. The radiologist and the technologist, or the surgeon performing the biopsy typically has studies of the mammogram beforehand to become familiar with the location of the abnormality. The breast is compressed with a compression paddle similar to that used during a normal mammogram. Following this, a confirmation X-ray is taken to ensure that the area of interest is centered in the paddle window. Two stereo X-rays (X-rays taken at different angles) are then taken of the abnormality. Once these images are obtained, a computer determines the exact positioning for the needle to remove part or all of the breast abnormality.

During a stereo breast biopsy procedure, the breast stays compressed. To minimize patient discomfort, it is important that the procedure is performed as quickly as possible without sacrificing the integrity of the abnormality retrieved. It is also important that the image quality is optimal, as high resolution helps to detect smaller lesions and those that might otherwise be missed.



**MAMMOMAT® Inspiration**  
**Efficiency in biopsy**  
**and digital imaging**

With a full-field digital detector, MAMMOMAT Inspiration provides excellent image quality for the radiologist or surgeon.



**MammoTest Prone Table**  
**Designed to provide**  
**maximum access, excellent**  
**imaging and targeting**

MammoTest, a fully digital prone table biopsy system, offers all the advantages of minimally invasive intervention. Its unique, ergonomic table design allows the patient to rest in the more comfortable prone position. MammoTest's central breast aperture is the largest in the industry (measuring 11 inches), and its rotating gantry eliminates patient repositioning during an examination.

## FAQs

**Q:** My doctor told me that my mammogram results were “abnormal.” What does this mean?

**A:** An abnormal mammogram does not necessarily mean that you have breast cancer. In fact, many of these results may be benign, meaning non-cancerous. To be sure, your doctor may perform additional testing.

**Q:** If a biopsy is performed, how large is the incision that will be made in my breast?

**A:** This depends on the biopsy method used. Open surgical biopsy requires a one- to two-inch incision, and often the application of stitches. If core needle biopsy is performed, multiple needle insertions will be made, but stitches are rarely required.

**Q:** Are there risks associated with having a breast biopsy performed?

**A:** As with any procedure, there may be risks associated with breast biopsy. Patients should discuss this with their physicians as well as which breast biopsy procedure is most appropriate for them.

## References

### Indications for Breast Biopsy

Imaginis [Internet]. Greenville (SC): Imaginis Corporation; c2012. Benefits and Risks of Breast Biopsy [cited 2012 Feb 02]. Available from: <http://www.imaginis.com/biopsy/benefits-and-risks-of-breast-biopsy-5>. English.

### Stereotactic Breast Biopsy

Welle G, Clark M, Loos S, Pauls D, Warden D, Sheffield M, Parsells C: Stereotactic Breast Biopsy: Recumbent Biopsy Using Add-On Upright Equipment. *American Journal of Roentgenology*, 2000 July; 175(1): 59-63.

### Multifunctional Mammography—High Patient Throughput, Favorable Economics

Cupples T, Anderson R: Multifunctional Mammography – High Patient Throughput, Favorable Economics. *Electromedica*, 1999; 67(2): 46-49.

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