BREAST MAGNETIC RESONANCE IMAGING (MRI)

It is important to have a breast MRI done at a facility with **MRI equipment designed specifically for the imaging of the breasts.**

Sandton Radiology now offers state of the art breast imaging at the Medicinic **Morningside** branch , with a dedicated team of female radiographers , Radiologists and nursing staff, offering a high quality breast facility.

HOW DOES AN MRI WORK?

The MRI machine is a large, cylindrical (tube-shaped) machine that creates a strong magnetic field around the patient. The magnetic field, along with radio waves, alters the hydrogen atoms' natural alignment in the body. Computers are then used to form a two-dimensional (2D) image of a body structure or organ, based on the activity of the hydrogen atoms. Cross- sectional views can be obtained to reveal further details. MRI does not use radiation, unlike standard x-rays or CT scans.

HOW DOES BREAST MRI WORK?

For a breast MRI, the woman usually lies face down, with her breasts positioned through openings in the table.

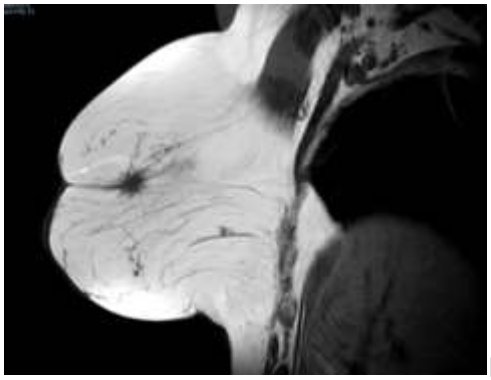
A breast MRI usually requires the use of a contrast that is injected into a vein in the arm before or during the procedure. The dye may help to create clearer images that outline abnormalities more easily.

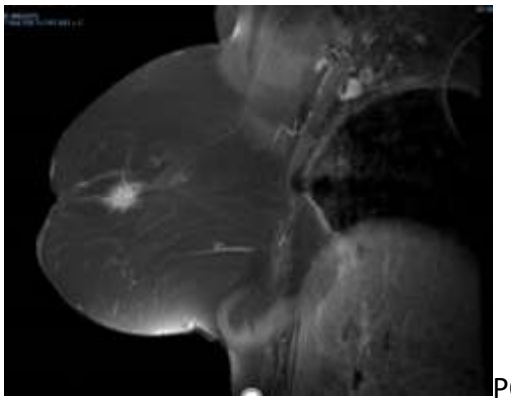
MRI, used with mammography and breast ultrasound, can be a useful tool. Recent research has found that MRI can locate some small breast lesions sometimes missed by mammography. It can also help detect breast cancer in women with breast implants, and in younger women, who tend to have dense breast tissue. Mammography may not be as effective in these cases. Since MRI does not use radiation, it may be used to screen women younger than 40 , and to increase the number of screenings per year for women at high risk for breast cancer.

DURING THE PROCEDURE

MRI may be performed on an outpatient basis or as part of your stay in the hospital.

Generally, a breast MRI follows this process:

- You will be asked to remove any clothing; jewellery ;eyeglasses; hearing aids; hairpins; removable dental work; or other objects that may interfere with the procedure
- You will be given a hospital gown to wear
- An intravenous (IV) line will be inserted into the hand or arm for injection of the contrast
-  PRE-CONTRAST

 POST-CONTRAST

- MALIGNANCY BREAST SHOWING NIPPLE RETRACTION
- You will be positioned, face down on a mobile bed, with your breast positioned through cushioned openings. The radiographer will position your breasts for symmetry, and make you as comfortable as possible. The bed will then be moved into the magnet of the MRI machine.
- The radiographer goes into a separate room where the scanner controls are situated, however, she will be in constant sight of you through a window. You will have a call button so that you can let the radiographer know if you have any problems during the procedure
- You will be given a headset to wear to help block out the noise and play relaxation music, you are welcome to bring a CD of your own selection of music
- During the scanning process, a loud clicking noise will sound as the magnetic field is created and pulses of radio waves are sent from the scanner
- It will be very important for you to remain very still during the examination, as any movement could cause distortion and affect scan quality. When contrast is used, you may feel some effects when the dye is injected into the IV line. These may include a

flushing sensation or a feeling of coldness, a salty metallic taste in the mouth ,a brief headache, these effects usually only last a few moments

- Your breasts may feel slightly warm , but this is normal
- Once the scan has been completed, after about 45 minutes, the table will slide out of the scanner and you will be assisted off the table , when the IV line will be removed

AFTER THE PROCEDURE

You should move slowly when getting up from the scanner to avoid any dizziness or lightheadedness from lying prone for the length of the procedure

Generally, there is no special care required after a breast MRI, you may resume your usual diet and activities. A radiologist will analyse your images and provide a report to your referring doctor.

WHO SHOULD HAVE BREAST MRI FOR SCREENING?

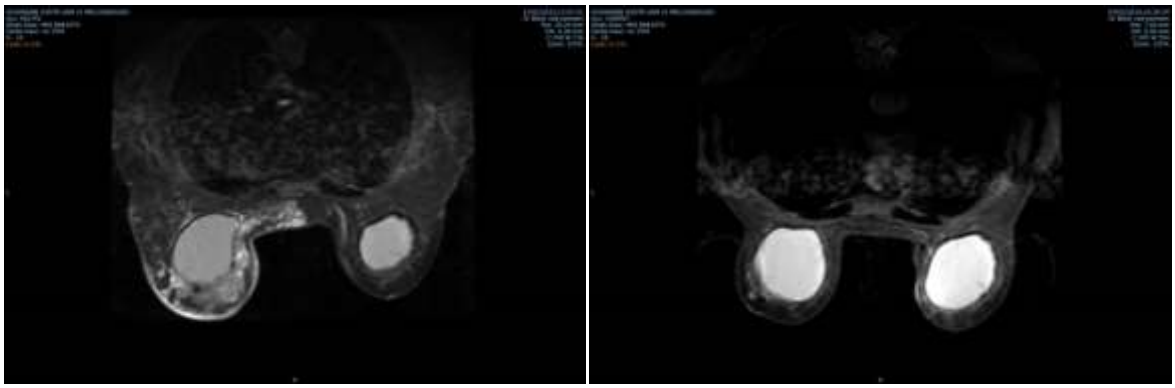
Annual mammograms plus breast MRI screening are typically recommended for women who are at a higher-than-average risk of developing breast cancer .

According to the American college of Radiology, these include

1. Patients with a BRCA gene mutation
2. Untested first degree relatives of BRCA gene positive patients
3. Women with chest irradiation between the ages of 10-30 years for other cancer
4. With a strong family history of breast cancer

BREAST MRI FOR DIAGNOSIS AND MONITORING

1. To better characterise a lesion seen on mammogram or Ultrasound, (MRI being more specific and sensitive) This includes when the clinical and mammographic features do not match with biopsy results
2. Before and after neo-adjuvant chemotherapy



An example of a patient with implants who had an MRI before and after chemotherapy , with a dramatic response to treatment for malignancy of the left breast

3. When the cancer is infiltrating Lobular or Ductal Carcinoma at histology
4. When there are lymph nodes (glands) in the axilla (armpit) and the primary cancer is unknown
5. Where there has been surgical reconstruction
6. To assess the integrity of both Silicone and Non-Silicone breast augmentation i.e. “Are my breast implants leaking?”
7. To check if a cancer has invaded deeper tissues e.g. fascia; chest wall or muscle
8. To assess the contra-lateral (other) breast with a known malignancy
9. After conservative surgery such as a lumpectomy to assess for residual or recurrent disease
10. To check if there has been a recurrence of cancer

Please ladies, remember, early detection saves lives, if you think you fit any of the above criteria, discuss it with your health care professional.