

## Screening Breast MRI: who benefits, who doesn't?

### Introduction:

**Breast MRI** is the most sensitive test available to detect potentially curable breast cancers *in asymptomatic women*. It can visualize cancers that cannot be seen on either the mammogram or the ultrasound. Additionally, it **does not use radiation** to create an image (it uses a magnet). As a result, it is safe to start yearly MRI screening at age 25 in women with BRCA mutations.

With all of these benefits, why we are restricting MRI screening to high-risk women? As with most sophisticated technology, the breast MRI has major drawbacks, and until they can be surmounted, the **screening MRI** will be primarily limited to women with a **strong family history of breast or ovarian cancer**.

Despite the limited use of the MRI, there is ongoing research to explore its potential benefits in **average risk women**. A recent study from Germany illustrates how more aggressive **MRI screening could benefit all women**. The study followed 2,120 **average risk women** who were given a breast MRI in addition to their yearly mammogram.

The MRI detected 60 cancers that were not visualized on either mammogram or ultrasound. Thus, the MRI identified approximately 3 women in 100 who had a breast cancer that could not be seen with standard imaging. For these 3 women, the MRI was potentially lifesaving,

Given these findings, it seems reasonable to expand the indications for MRI screening. However, before such a decision is made, it is important to take into account its limitations as listed below.

### Cost:

**The cost of a screening breast MRI** is variable and can range from less than a thousand dollars to more than three thousand dollars. Insurance only covers part of the cost of MRI screening in high-risk women, and will rarely cover the cost of

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screening in average risk women. The out of pocket expense makes this study prohibitive for most women. However, there are ongoing efforts to create a **less expensive screening MRI** that could tip the scales in favor of more aggressive MRI screening.

### **Contrast Material (gadolinium)**

In order to obtain a detailed image, a contrast material must be injected into an I.V. before starting the MRI. The standard contrast material is **gadolinium**, which for the most part is safe. The main concern with gadolinium is that it can cause damage to the kidneys, but this is only an issue for **women with abnormal kidney function**. To avoid this problem, it is routine to order renal function tests before scheduling an MRI.

A final theoretical concern is that a very small fraction of the injected gadolinium can remain in the body. For example, cases have been reported where minute deposits of gadolinium have been detected in the brain years after the contrast was injected. This issue has been **reviewed by the FDA**. After an extensive review the FDA concluded that **gadolinium was safe**.

### **False Positives**

As with all imaging studies, the MRI may identify changes that are suspicious for cancer and a biopsy is recommended. In a small percentage of cases the biopsy will be negative. The negative biopsy is **referred to as a false positive**. Critics point out that a false positive is costly and can be very stressful. As imagers gain experience in interpreting breast MRIs, the percentage of false positives goes down. Thus, it is extremely important to have the MRI performed at a highly experienced center.

### **Patient discomfort:**

The MRI, much like the CAT, scan is done with the patient lying face down in a narrow tube. The procedure takes about 45 min. Even the slightest movement will

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blur the image, which reduces its accuracy. To help patients cope, we often provide oral sedatives. We also have “open” MRIs for patients who are claustrophobic.

### **The future:**

There is ongoing research to overcome the challenges listed above. Researchers are optimistic that future breast MRIs will be less costly and take a shorter time to perform. A less expensive screening MRI has the potential to improve survival in asymptomatic women who have a “hidden” breast cancer.

If you have questions, contact us at: [msprouse@beawarefoundation.org](mailto:msprouse@beawarefoundation.org)

**The End**