

MRI Testing Getting the Most Out of It

Since some magnetic resonance imaging (MRI) machines lack the magnetic strength to provide clear images to help physicians make an accurate diagnosis, a Duke University Medical Center radiologist advises patients how to get the most from their scan.

Since its introduction in 1977, MRI technology provides physicians with images of unprecedented clarity, enabling them to make more accurate diagnoses than ever before.

However, many experts, including Nancy Major, an associate professor of in the Department of Radiology at Duke, said some MRI units make an accurate diagnosis far more difficult than others.

"Magnets come in a variety of strengths," explained Major, a specialist in musculoskeletal imaging. "Basically, when the decimal point comes before the number that indicates the magnet strength, that's a low-field-strength magnet. It's going to give poor-quality images.

"Without getting into the physics, basically what happens is that really strong magnets manipulate tiny protons in each of the body's tissue types. As the protons go back to where they're supposed to be, they give off a signal. The stronger the magnet, the stronger the signal. So you're more likely to get a better diagnostic study from a stronger magnet."

Major said manufacturers can sell weaker magnets, such as low-field-strength, extremity and open magnets, because they require little shielding and are easy to put in a doctor's office. She says open magnets can be comforting to large patients or patients who might have some claustrophobia because it doesn't require them to be confined inside the MRI machine's magnetic field.

"Let's say a patient has claustrophobia, and that's the real reason they don't want to have a high-field-strength MRI in an enclosed machine," she said. "They should be aware that there are short-term medications that can make the MRI much more tolerable.

"You arrive for the test with a driver, a friend or relative who can take you home afterward, so you don't have to drive after you've had the medication," Major continued. "But you have a higher-quality study. You stayed still for it. You weren't worried about the machine being too close or confining. Everybody wins."

She pointed out that a better scan makes the physician's job easier. Scans performed with weaker magnets are often more difficult for radiologists to interpret, so they may need to request a second, high-field-strength scan, she said. However, if an insurance company has already covered the first scan, they may be unwilling to pay for a second one.

"We're really talking about an education issue," said Major. "When patients go into the doctor's office, they should know they have a choice. They should be able to say, 'I want the MRI exam that's going to give me the most accurate diagnosis.'"

www.duke.edu.