What to expect as an MRI Volunteer

What is MRI?

Magnetic **R**esonance **I**maging is a non-invasive imaging modality that has been in use since the early 1980's. Thousands of MR scans are done every day in hospitals, clinics and research facilities in the US and the rest of the world. MRI uses a combination of a very strong magnetic field and carefully selected radio frequency (RF) pulses to generate signals from the tissues in your body. These signals are collected and processed by computer to generate images. The signals can also be used to detect the presence of certain chemical compounds (MR Spectroscopy) in the body or to show levels of brain activation when performing a specified task (Functional MRI or fMRI).

What will the test involve?

MRI exams generally take thirty minutes to an hour in a clinical setting, and one to two hours in a research environment. The duration depends on what is being examined or the number of trials involved for an experiment. You will be asked to lie on your back on a padded table. Every effort will be made to get you as comfortable as possible for the length of the test. A receiver coil will be placed over a body part to collect the MR signals. There are many different types of coils for different body parts. The one most commonly used in research is the head coil which resembles a large football helmet. You would then be placed in the scanner with the area to be examined at the center of the magnet. The bore (opening) of a typical scanner is 60 cm (approximately 24 inches) in diameter and five to six feet in length. It is open on both ends. You will generally remain in the magnet until the test is completed. During the test, there will be series of scans or "sequences" performed. A sequence (also known as a measurement) is the part of the procedure where the MR signals are collected. They typically last from four to eight minutes, during which time the machine will produce a very loud noise. Ear protection will be provided. The noise will vary in pitch and volume depending on the parameters of the sequence. You may also notice some vibration in the table. During each scan, you will be asked to lie as still as possible while breathing normally. Some research exams will require you to perform a specified task which will be explained to you prior to the study. This task may be repeated several times during the study. You may also be required to wear special goggles if the study involves the visual areas of the brain. Occasionally, the task will require some pre-scan training to ensure that you perform the task in the desired manner.

How should I prepare for the test?

If this is your first time being scanned, arrive early (15-20 minutes) to allow time to complete paperwork. If you take any medication, please inform the staff as early as possible, as certain medications may preclude you from participating in a particular study. Wear loose, comfortable clothing, cotton preferably, with few or no zippers. Do not wear any jewelry or make-up. If you have body piercings, please remove them prior to arrival. If they can not be removed, it may not be possible to scan you safely. You can bring a CD of your favorite music with you to listen to during the procedure, but be aware that some research will not allow you to have music during a study. If you wear contact lenses, you may wish to take them out before the test to avoid any problems with dryness. Eyeglasses will need to be removed prior to scanning. All personal items can be placed in a locker during your procedure. The following items are not permitted in the scan room: pagers, cell phones, personal stereo equipment, metallic objects, credit cards, PDAs. Avoid eating a large meal or drinking large amounts of fluid immediately prior to the test.

Is it safe?

Millions of MR procedures have been performed without incident over the last two decades. While getting an MRI exam has become a fairly routine event, there are some safety issues. The primary concern involves the strength of the magnet. These magnets are extremely powerful-as much as 30,000 times stronger than the earth's magnetic field. Metallic (ferromagnetic) objects near the magnet will be strongly attracted to it, and in some cases become projectiles. The magnetic field can also interfere with certain implanted medical devices such as cardiac pacemakers or nerve stimulators. Persons with such implanted devices ***should not*** have an MR scan. However, most medical implants are "MR compatible" and do not prevent the procedure from being completed safely. The MR staff will ask you a series of questions to determine if it safe for you to be scanned. You will be asked to complete a screening questionnaire, which will be reviewed by the staff prior to your scan. If you have any implanted devices or know of metal fragments in your body, or have done metal work (welding, grinding) please notify the staff immediately.

MR scanners also produce a lot of noise during their operation. You will be provided ear protection during the scan. There is a choice of headphones, earplugs or a combination of the two.

Another area to consider is that of the MR scanner environment. Portions of your body (depending on the area of interest) will be inside the scanner. The space can feel somewhat confining, especially to claustrophobic individuals and persons who weigh more than 300 lbs***. If you know you are claustrophobic or weigh over 300 lbs, you should not participate as a MR volunteer***. During a procedure, the staff will remain in contact with between scans. If at any time during the test you do not feel comfortable, you can ask to stop the test and be removed from the magnet immediately.