

Magnetic Resonance Imaging (MRI)



MRI uses a powerful magnet, radio waves and a computer to produce images of internal

anatomy. Atoms within the body are moved out of alignment through exposure to a strong magnetic field and radio waves. During this process, the atoms give off signals that are measured by the computer and used to create a detailed image. MRI is best used for studying soft tissue, the brain, joints, musculoskeletal system and vascular system. MRI is painless, uses no X-rays and has no known side effects.

MRA (Magnetic Resonance Angiography) uses a strong magnet and radio waves to produce detailed images of blood vessels without using a contrast agent. While MRI produces detailed pictures of tissue and organs, MRA specifically images blood vessels and blood flow. As a result, some patients with arterial diseases are now treated in the radiology department rather than undergoing surgery. MRA is most often used to study vessels in the head and neck, but it may also be used to study the vessels of the heart, abdomen and extremities. It can

help doctors to diagnose problems in the kidneys and nearby blood vessels, to determine the extent of blockage or narrowing in the vessels, to detect aneurysms and tumors in the vessels, to check circulation and to screen for blood clots in the arms and legs.

Please note: People with cardiac pacemakers *cannot* have an MRI scan because the magnet and radio waves used in the procedure could damage the pacemaker or cause irregular heartbeats. People with surgical clips on blood vessels inside the head *cannot* have an MRI scan. Pregnant women are advised *not* to have MRI scans; this guideline is waived in certain critical situations. Most surgical implants are not magnetic and do not pose a hazard. Rods for straightening the back, artificial joints, most screws and plates used to heal broken bones, and clips used in coronary bypass surgery usually cause no problems with MRI scans.

How to prepare for your MRI

- There is no special preparation for an MRI scan. You may go about your normal routine at home or work. Take your medications according to your usual schedule, and do not change or restrict your diet.

- Upon arrival you will be asked about your medical history. You will be reminded to remove any metal objects such as keys, hearing aids, hairpins, earrings, watches and jewelry (with the exception of rings on fingers and dental fillings, which are not a problem since gold and silver do not interfere with the MRI scan). We will provide a safe place to store your personal items.
- For exams of the brain or neck, you may be asked to remove any dentures or bridgework. For a scan of the middle or lower back, you may be asked to change into a pullover shirt and pants that we will provide for you.
- Our business office will probably call the day before your exam to obtain insurance and other information so your paperwork will be ready for your signature when you arrive. You may be asked to pay a portion of the cost on the day of your exam. Feel free to discuss any payment questions with the business office representative who contacts you.

What to expect during your MRI You will be helped onto the scanning bed and positioned comfortably with pillows under your legs and head. (If pictures of the brain are needed, a special headrest will be used.) You will be given earphones so that the technologist may talk to you during the exam. A microphone is built into the MRI to make it easy for you to talk with the technologist.

Once you are in position, the scanning bed will slide into the magnet. As the scan begins, you will hear a variety of clicking and popping noises, but you will not feel any sensations. During the scan it is important that you remain relaxed and still. An MRI scan usually takes approximately 30 minutes.

MRI is offered at the following ETMC Outpatient Imaging facilities in Tyler:

- Outpatient Imaging Center at the Olympic Plaza
- Outpatient Imaging Center at 5th Street
- Radiology Department in ETMC Tyler Hospital