MAGNETIC RESONANCE IMAGING (MRI)

Unlike other imaging techniques, Magnetic Resonance Imaging (MRI) does not use radiation, but rather radio waves and a powerful magnet to produce clear images of organs, structures and tissues inside the body. Hundreds of images taken one slice at a time offer an unparalleled look inside the body helping physicians and radiologists diagnose abnormalities, disease, trauma to internal tissue, and so on. MRI exams are extremely safe as long as strict precautions are taken regarding metal objects - including pacemakers, prostheses, implants (stents, shunts, screws, pins, plates, surgical staples), body piercings and jewelry. Shoshone Medical Radiology uses a 1.5T MRI. The "T" refers to Tesla, a unit of measurement. A magnet with strength measured at 1.5 Tesla is approximately 30,000 times the earth's magnetic field. What does this mean for patients? Quicker scan times and clearer images to make a more accurate diagnosis, but safety always comes first. Please notify Shoshone Radiology if a patient has an implant of any kind, prior surgeries, or has been welding or grinding metal. Want a more accurate diagnosis? Shoshone Radiology's 1.5T MRI provides physicians with some of the highest resolution images in the industry. It also offers patients quicker scan times than most MRI scanners on the market. Clearer images and faster scan time at no additional cost… that's what we call excellence in patient care.

Studies available

MRI

- Abdomen
- Ankle
- Brain
- Chest
- Elbow
- Foot
- Hip
- IACs
- Knee
- Lower Extremity - Non Joint
- MRCP
- Neck
- Orbits
- Pelvis
- Pituitary
- TMJ
- Shoulder

- Spine
- Upper Extremity - Non-Joint
- Wrist

- MRI Angiography
- Aorta Thoracic Abdomen
- Carotid
- Head
- Peripheral
- Renal

- MRI Arthrogram
- Hip
- Knee
- Shoulder
- Wrist

FAQ:

What is MRI?

Magnetic resonance imaging (MRI) uses radiofrequency waves and a strong magnetic field rather than x-rays to provide remarkably clear and detailed pictures of internal organs and tissues. The technique has proven very valuable for the diagnosis of a broad range of pathologic conditions in all parts of the body including cancer, heart and vascular disease, stroke, and joint and musculoskeletal disorders. MRI requires specialized equipment and expertise and allows evaluation of some body structures that may not be as visible with other imaging methods.

What are common uses of MRI?

Because MRI can give such clear pictures of soft-tissue structures near and around bones, it is the most sensitive exam for spinal and joint problems. MRI is widely used to diagnose sports-related injuries, especially those affecting the knee, shoulder, hip, elbow and wrist. The images allow the physician to see even very small tears and injuries to ligaments and muscles. In addition, MRI of the heart, aorta, coronary arteries and blood vessels is a fast, noninvasive tool for diagnosing coronary artery disease and heart problems. Physicians can examine the size and thickness of the chambers of the heart and determine the extent of damage caused by a heart attack or progressive heart disease. Organs of the chest and abdomen—including the lungs, liver, kidney, spleen, pancreas and abdominal vessels—can also be examined in high detail with MRI, enabling the diagnosis and evaluation of tumors and functional disorders. MRI is growing in popularity as an alternative to traditional x-ray mammography in the early diagnosis of breast cancer. Because no radiation exposure is involved, MRI is often the preferred diagnostic tool for examination of the male and female reproductive systems, pelvis and hips and the bladder.

How does MRI work?

MRI is a unique imaging method because, unlike the usual radiographs (x-rays), radioisotope studies or even Computed Tomography (CT) scanning, it does not rely on ionizing radiation. Instead radiofrequency waves are directed at protons, the nuclei of hydrogen atoms, in a strong magnetic field. The protons are first "excited" and then "relaxed," emitting radio signals that can be computer-processed to form an image. In the body, protons are most abundant in the hydrogen atoms of water—the "H" of H_2O—so that an MR image shows differences in the water content and distribution in various body tissues. Even different types of tissue within the same organ, such as the gray and white matter of the brain, can easily be distinguished. Typically, an MRI examination consists of two to six imaging sequences, each lasting two to 15 minutes. Each sequence has its own degree of contrast and shows a cross-section of the body in one of several planes (right to left, front to back, upper to lower).

What are the benefits of MRI?

Images of the soft-tissue structures of the body—such as the heart, lungs, liver and other organs—are clearer and more detailed than with other imaging methods. MRI can help physicians evaluate the function as well as the structure of many organs. The detail makes MRI an invaluable tool in early diagnosis and evaluation of tumors. MRI contrast material is less likely to produce an allergic reaction than the iodine-based materials used for conventional x-rays and CT scanning. MRI enables the detection of abnormalities that might be obscured by bone with other imaging methods. MRI provides a fast, noninvasive alternative to x-ray angiography for diagnosing problems of the heart and cardiovascular system. Exposure to radiation is avoided.