

Abdominal and Pelvic MRI

Magnetic resonance imaging (MRI) of the abdomen and pelvis uses a powerful magnetic field, radio waves and a computer to produce detailed pictures of the inside of your body. It may be used to help diagnose or monitor treatment for a variety of conditions within the abdomen and pelvis. If you're pregnant, MRI may be used to safely monitor you or your baby.

Tell your doctor about any health problems, recent surgeries or allergies and whether there's a possibility you are pregnant. The magnetic field is not harmful, but it may cause some medical devices to malfunction. Most orthopedic implants pose no risk, but you should always tell the technologist if you have any medical devices or metal in your body.

Guidelines about eating and drinking before your exam vary between facilities. Unless you are told otherwise, take your regular medications as usual. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown. If you have claustrophobia or anxiety, you may want to ask your doctor to prescribe a mild sedative before the exam.



What is abdominal and pelvic MRI?

CMID4001 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4001>)

What are some common uses of the procedure?

MR imaging of the abdomen and pelvis is performed to evaluate:

- organs of the abdomen, such as the liver, biliary tract, kidneys, spleen, bowel, pancreas, and adrenal glands.
- organs of the pelvis, such as the bladder and the reproductive organs such as the uterus and ovaries in females and the prostate gland in males.
- blood vessels (including MR Angiography (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/articles/a-to-d/angiomr>)).
- lymph nodes.

Doctors use MRI to help diagnose or monitor treatment for conditions such as:

- tumors of the abdomen or pelvis.
- diseases of the liver, such as cirrhosis (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/articles/a-to-d/cirrhosisliver>), and abnormalities of the bile ducts and pancreas.
- inflammatory bowel disease such as Crohn's disease (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/articles/a-to-d/crohns-disease>) and ulcerative colitis.
- abnormal blood vessels and inflamed vessels (vasculitis).
- a fetus in the womb of a pregnant woman.

How should I prepare for the procedure?

CMID4002 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4002>)

CMID4003 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4003>)

CMID4004 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4004>)

CMID4005 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4005>)

Infants and young children usually require sedation or anesthesia to complete an MRI exam without moving. Whether your child requires sedation depends on their age, intellectual development and the type of exam. Moderate and conscious sedation can be provided at many facilities. A doctor or nurse specializing in sedation or anesthesia for children should be available during the exam for your child's safety. You will be given special instructions for how to prepare your child.

Some hospitals employ certified child life specialists to provide children and families with emotional support in medical settings. These specialists have backgrounds in child development, psychology and counseling. They can prepare children for medical imaging procedures. This can help decrease the child's stress and anxiety and even reduce or eliminate the need for sedation.

Ask your doctor if child life specialists are available at your imaging facility.

Many facilities offer child-friendly imaging suites decorated with murals and lighting that can help entertain and calm pediatric patients. Silent MRI techniques and distraction devices like DVD goggles and music headphones may reduce or eliminate the need for sedation during MRI.

New and improved MRI approaches produce high-quality images and reduce the time children spend in the scanner. This may also eliminate the need for sedation. *For more information, see the Pediatric*

Sedation (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/articles/p-to-t/safety-pediatric-sedation>) page.

What does the equipment look like?

CMID4006 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4006>)

How does the procedure work?

CMID4007 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4007>)

How is the procedure performed?

MRI examinations may be performed on outpatients or inpatients.

The technologist will position you on the moveable exam table. They may use straps and bolsters to help you stay still and maintain your position.

The technologist may place devices that contain coils capable of sending and receiving radio waves around or next to the area of the body under examination.

MRI exams generally include multiple runs (sequences), some of which may last several minutes. Each run will create a different set of noises.

If your exam uses a contrast material, a doctor, nurse, or technologist will insert an intravenous catheter (IV line) into a vein in your hand or arm. They will use this IV to inject the contrast material.

You will be placed into the magnet of the MRI unit. The technologist will perform the exam while working at a computer outside of the room. You will be able to talk to the technologist via an intercom.

If your exam uses a contrast material, the technologist will inject it into the intravenous line (IV) after an initial series of scans. They will take more images during or following the injection.

Some MRI exams, such as MR Enterography, may use oral contrast in order to evaluate diseases of the bowel. *For more*

information, see the MR Enterography page (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/articles/l-to-o/mrenterography>) .

When the exam is complete, the technologist may ask you to wait while the radiologist checks the images in case more are needed.

The technologist will remove your IV line after the exam is over and place a small dressing over the insertion site.

Depending on the type of exam and the equipment used, the entire exam is usually completed in 30 to 50 minutes.

What will I experience during and after the procedure?

CMID4015 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4015>)

CMID4016 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4016>)

Who interprets the results and how do I get them?

CMID4018 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4018>)

Follow-up exams may be necessary. If so, your doctor will explain why. Sometimes a follow-up exam is done to further evaluate a potential abnormality with additional views or a special imaging technique. Or, a follow-up exam may be to monitor any changes in a known abnormality over time. Follow-up exams are sometimes the best way to see if treatment is working or if a previous finding has changed.

What are the benefits vs. risks?

Benefits

CMID4019 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4019>)

- MR images of soft-tissue structures—such as the liver and many other organs— may be more likely to accurately identify and characterize disease than other imaging methods. This makes MRI an invaluable tool in early diagnosis and evaluation of many focal lesions and tumors.
- MRI has proven valuable in diagnosing a broad range of conditions, including cancer, heart and vascular disease, and muscular and bone abnormalities.

CMID4020 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4020>)

- MRI allows physicians to assess the biliary system noninvasively and without contrast injection.

CMID4021 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4021>)

- MRI provides a noninvasive alternative to x-ray, angiography and CT for diagnosing problems of the blood vessels.

Risks

CMID4022 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4022>)

- Manufacturers of intravenous contrast indicate mothers should not breastfeed their babies for 24-48 hours after contrast medium is given. However, both the American College of Radiology (ACR) and the European Society of Urogenital Radiology note that the available data suggest that it is safe to continue breastfeeding after receiving intravenous contrast. For further information please consult the *ACR Manual on Contrast Media* (<https://www.acr.org/Clinical-Resources/Contrast-Manual>) and its references.

What are the limitations of abdominal and pelvic MRI?

High-quality images depend on your ability to remain perfectly still and follow breath-holding instructions while the images are being recorded. If you are anxious, confused or in severe pain, you may find it difficult to lie still during imaging.

A person who is very large may not fit into the opening of certain types of MRI machines.

Implants and other metallic objects can make it difficult to obtain clear images. Patient movement can have the same effect.

Breathing may cause artifacts, or image distortions, during MRI. Bowel motion may also cause artifacts. This is less of a problem with state-of-the art scanners and techniques.

CMID4025 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4025>)

MRI may not always distinguish between cancer tissue and benign tumors or other conditions, such as edema.

CMID4027 (<https://www.rsna.org/sitecore/content/radinfo/non-addressable-content/content-modules/40/4027>)

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