BACK PAIN

MRI OF THE LUMBAR SPINE

Introduction

Magnetic Resonance Imaging (MRI) is a powerful diagnostic tool that uses radio frequency waves and a magnetic field to create highly detailed images of the lumbar spine and its surrounding structures.

In addition to other medical conditions, MRIs are used to detect nerve compression, infection, and cancer. They are also helpful when it comes to the planning of surgical procedures and injections, as well as in post-operative monitoring. [1,2,3]

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Risks associated with MRIs

MRIs are considered to be one of the safest medical exams available. However, individuals considering an MRI should discuss any concerns about the following risk factors with a doctor before proceeding[1,2,3]:

- Risk of harm or birth defects from MRIs performed on women who have been pregnant for less than 12 weeks.
- Allergies to contrast dye, if used. See below for more information.

Procedure for MRIs

With the exception of possible discomfort caused by the hard surface of the examination table and the assuming of different positions according to the area to be scanned, an MRI is a painless procedure.

Testing facilities and individual circumstances may vary. In general the procedure is as follows[2,3]:

- You will lie on an examination table and be positioned according to the area that needs to be scanned. The radiographer performing the test will ensure you are as comfortable as possible.
- The examination table moves inside a large cylindrical scanner, and the test begins.
- A banging or loud tapping noise is heard throughout the MRI, which some people find disagreeable. Ear plugs or headphones are provided to lessen the noise.

Claustrophobia or anxiety

Although there are no physical side effects to CT Scans, people with claustrophobia or anxiety issues may be uncomfortable during the test. If this is the case, your doctor may prescribe a sedative and you will need to be accompanied to and from the CT scan.
It is normally possible for individuals — especially children — to be accompanied during the exam

- It is very important to keep as still as possible while the MRI is being performed in order to ensure the best results.
- The radiographer will be in a separate room reading the images that are sent back during the test but will be able to see you at all times. Communication is possible via intercom for any further instructions or if you have any concerns.
- **Duration:** an MRI takes 15 to 90 minutes, depending on the circumstances.

Contrast dyes[3,4,5,6,7]

For certain MRIs, a contrast dye is administered in order to highlight certain areas of the body. This can be done either through an intravenous (IV) line in the hand or forearm, or by spinal cord injection.

Individuals for whom a contrast dye has been recommended should inform their doctor and the radiographer about any previous or possible allergies to injections or iodine, blood clotting problems, diabetes, or kidney conditions.

If a contrast dye is administered, additional precautions for eating, drinking, and medications before and after the test may apply.

Contrast dyes do not generally produce unpleasant side effects apart from IV administration, which may produce symptoms including a slight burning sensation, metallic taste in the mouth, and warm flushing of the body. All of these symptoms are normal and disappear within a few seconds.

Inform the radiographer immediately if you have any itching or hives, lightheadedness, nausea sneezing or nasal congestion, scratchy throat, swelling in your face, or trouble breathing during the test.

The use of a contrast dye may cause the test to take slightly longer.

Important precautions for MRIs

Before proceeding with an MRI, you must inform your doctor and the facility performing the scan about the any of the following[1,2,3]:

- Pregnancy
- Any medical conditions or health problems
- Allergies
- Recent surgical interventions
- Medical devices, pacemakers, orthopedic or dental implants, or any metal in your body. In such cases, an MRI is not usually possible, due to potentially serious complications.
- If you have a tattoo, inform your doctor and the testing facility beforehand. If you experience any pain, discomfort, or heat in your tattoo during the test, you should inform the radiographer immediately.

Preparing for an MRI

Most facilities will provide information and consent forms regarding the safety of an MRI before the test begins. Individuals will also be given a health questionnaire or be asked questions about their health and medical history to ensure that they are eligible for the procedure.[2,3,6]

Review the following checklist when preparing for your CT Scan[3,5,6]:

- Can I take my regular medications as usual?
- Are there any limitations on what I can eat or drink in the hours before the exam?
- Do I have the test order issued by my doctor?
- Do I have something to read or listen to in case I have to wait?
- Am I prepared to remove the following: all jewelry, watches, piercings, hair accessories, wigs, hearing aids, and dentures?
- Am I wearing comfortable, loose-fitting clothing with no buckles, snaps, or metal objects? Women should wear a bra with no underwire. Many facilities will require you to change into a gown for the test.
- Have I left any valuable items at home? There might not be a secure storage area for personal belongings.

After an MRI

There is no recovery time needed for an MRI, and individuals can resume their normal activities immediately after the test, with the following precautions3[3,5,6]:

- Individuals who have taken a sedative must be accompanied home by an authorized adult and will not be able to drive or drink alcohol for 24 hours after the exam.
- Individuals who have received a contrast dye should follow the instructions given by the test facility for ensuring that the dye is flushed out of their system. This may include precautions such as drinking six to eight glasses of water after the exam.

MRI results, unless considered urgent, usually take from one to two weeks.

MRI results

Depending on the country and facility performing the test, you or an authorized third party will collect the results of your MRI from the test facility or they may be sent directly to your doctor. In either case, MRI images should only be read and interpreted by your doctor or specialist, who can then help you take the appropriate decisions for treatment or further testing, if necessary.

Understanding MRI images

Due to the high sensitivity and precision of MRIs, darker or shaded areas, and certain structures appearing in the images might appear frightening to individuals when viewing them for the first time. Furthermore, MRI scans may highlight features which are consistent with the ageing process and normal wear and tear, and which do not require any particular treatment or attention beyond a healthy lifestyle and regular check-ups.

It is also important to bear in mind that imaging studies cannot necessarily provide a definitive diagnosis for lower back pain. In fact, for 85% of back pain cases an exact cause is not discovered.[2] For this reason, individuals are encouraged to undertake a preventive treatment program which includes exercise, nutrition, and stress reduction, among other health and wellbeing practices. For more information on preventing and reducing back pain, please consult our back pain prevention guides.

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4. Lumbar spine CT scan. MedlinePlus website. https://medlineplus.gov/ency/article/007350.htm. Updated September 5, 2017. Accessed October 4, 2017.
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6. CT Scans. Brain & Spine Foundation website. https://www.brainandspine.org.uk/ct-scans?gclid=CKjo45qH19YCFe2_7QodIHgIaQ Reviewed September 2015. Accessed October 4, 2017.
7. X-ray. Mayo Clinic website. http://www.mayoclinic.org/tests-procedures/x-ray/basics/definition/prc-20009519. March 26, 2015. Accessed October 4, 2017.