



## Having a research MRI scan

*The Peter S. Allen MR Research Centre is a state-of-the-art facility, fully dedicated to research, and located in the Department of Biomedical Engineering at the University of Alberta.*



*It is home to two high-field full-body MRI systems (3T Siemens Prisma, and 4.7T) and provides a wide range of possibilities in magnetic resonance research and clinical research applications.*

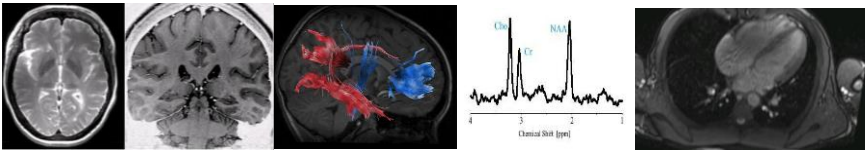
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## What is an MRI?

MRI (magnetic resonance imaging) is the name given to an imaging technique which provides pictures of an internal cross-section of parts of the body. MRI does not use the ionizing radiation (as in x-ray or computed tomography (CT) scans), but uses very strong magnetic fields, radiofrequency energy, and a computer system to create very clear pictures of internal body structures. These images are very detailed and can show both bones and soft tissues in the body, which can be adjusted to highlight different structural features, and provide the research program with a great deal of information.



## How safe is MRI?

To date, over 150 million people have had MRI examinations. Every year, approximately 10 million people undergo MRI procedures. MRI has been shown to be extremely safe as long as proper safety precautions are taken. The MRI procedure produces no pain and causes no known short-term or long-term tissue damage of any kind.

The magnetic field of the scanner will attract certain metallic “ferromagnetic” objects, causing them to move suddenly and with great force towards the center of the MR system if they are allowed to get too close. This may pose a risk of injury to the volunteer or anyone in the way of the moving object. Therefore, great care is taken to prevent such objects from entering the MR magnet room. It is vital that you remove metallic objects in advance of an MRI exam, including watches, jewellery, and items of clothing that have any metallic threads, components or fasteners.



The screening procedures that you will be required to complete, will ensure that the MRI staff know about the presence of metallic implants and materials so that special precautions can be taken. In some cases the examination may be cancelled because of concern related to a particular implant or device. Also, the magnetic field of the scanner can damage an external hearing aid or cause a heart pacemaker to malfunction. If you have a bullet or other metallic fragment in your body there is a potential risk that it could change position, possibly causing injury.

For female volunteers, if you are or might be pregnant, you must make sure that the staff know as soon as possible in advance. Research MRI scans may not be performed on volunteers who are pregnant, unless that aspect of the research project you are volunteering for has been approved by the University of Alberta Health Research Ethics Board.

## Are you required to make any special preparations?

Usually you don't need to make any special preparations for an MRI scan. Unless you have been told otherwise, you may eat and drink normally before and after the scan. Continue to take any medication prescribed by your doctor unless otherwise directed. You won't be allowed to wear anything metallic during the MRI examination, so it would be best to leave watches, jewellery or anything made from metal at home. Even some cosmetics contain small amounts of metals, so it is best to not wear make-up or deodorant.

Please arrive early to give yourself time to prepare yourself for the procedure. While an Alberta Health Care card is not required for a research procedure, having one with you may help with determining whether the procedure is safe for you in case you had any injuries or medical procedures in the past.



Our staff will speak with you in English. If you are not fluent in English, please bring an adult interpreter with you who can stay for the entire test.

If you are not able to keep your appointment, please notify the researcher right away. They will be able to reschedule your appointment to another suitable time slot.

Please do not wear perfume, cologne, or aftershave to your appointment. Some people are allergic to fragrance ingredients and can suffer severe reactions.

### Can you bring a relative/friend?

Yes, but for reasons of safety they will not be able to accompany you in the scan room. Only in special circumstances is this allowed, for example, a parent accompanying their child who is being scanned. A waiting area is provided for them while the scan is completed.

Do not bring children under the age of 12 with you unless you bring someone to care for them while you are having the test.





## Where to find us?

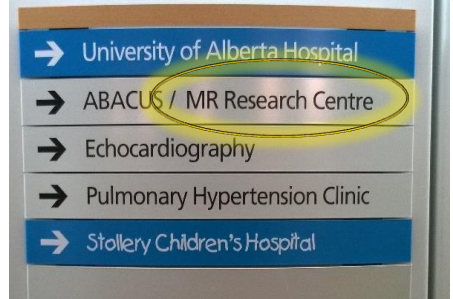
The Peter S. Allen MR Research Centre, at the University of Alberta is located in the basement of the University Hospital (Walter MacKenzie Centre, area 0A6).

The easiest access to the MR Centre is via Mazankowski Alberta Heart institute.

If you are getting dropped off, please use circle driveway at the front door of Mazankowski (83rd avenue just west of 112 street), or use the hospital visitor parkade on the opposite (south) side of 83rd avenue.

Enter the main Mazankowski front door on 83 avenue, pass the statues on your right, and proceed down stairs (or take the elevator down to 0-level) - following directions to **ABACUS / MR Research Centre**. Walk through to ABACUS, and follow the main hallway which turns left; the MR Research Centre is a turn to the right in 20 metres.

There are several alternative routes from the University Hospital - for example, follow the "MR Research Centre" pointers on the basement/lower floor ("L" in elevators) of the hospital, or use the stairwell 87 (next to the ER exit-only door on the main floor).





## Before the MRI

Before the MRI procedure, you will be asked by a member of the MR Research Centre to fill out a screening form. This form asks about anything that might pose a health risk or interfere with the quality of the images. During the screening interview ensure that you understand the questions on the form and ask questions about anything that are not clear. Even if you have undergone an MRI procedure before at this or another facility, you will still be asked to complete an MRI screening form prior to your scan. Details of the research study will be explained to you, and you will be asked for your signed consent to participate.

You will be asked to change into hospital pants and top. The Centre has a private change room where you may take off your outer garments and remove all jewellery, coins, cash, keys, credit cards, body piercings and watches etc. This is because anything containing metal may interfere with the magnetic field of the MRI unit. Pagers, cell phones, MP3 players and other electronic objects are not allowed into the examination room. Once changed, you may place your clothes, jewellery, and personal belongings into a secure locker. Please leave on underpants and socks and continue to wear your glasses if needed. You may also be asked to remove any makeup at this time. It is advisable to use a bathroom prior to MRI procedure.

Check with the MRI staff if you have questions or concerns about any implanted object or health condition that could impact the MRI procedure. This is particularly important if you have undergone surgery involving the brain, ear, eye, heart, or blood vessels.



## What happens during the MRI?

You will be taken into the scanner room and made comfortable lying on the MRI table. Sponges and pillows may be used to help you stay still and maintain your position during imaging.

The MRI table will be moved slowly to position the part of your body under investigation within the scanner. The staff will be in the control room but you will be able to talk to them via a speaker phone, and they will be watching you at all times. It is important that you relax and remain completely still while the images are being recorded. During the scan, you will be given earplugs and earphones which will help reduce the noise when the scanner is collecting images. If you feel uncomfortable, tell the staff right away. When the MRI procedure begins, you may breathe normally, however, for certain examinations it may be necessary for you to hold your breath for a short period of time.

You will be given an emergency squeeze bulb before the table slides into the machine. You can use this to notify the staff in case you need the procedure to be immediately stopped.

## Will it be uncomfortable?

Apart from any machine noise you will not be aware of anything happening. Most volunteers do not mind lying with their body within the scanner (even having a nap), but some find it uncomfortable to be in a confined space (claustrophobia). If this makes you feel worried, tell the technologist right away. However, if you suffer badly from claustrophobia, you should talk to the researcher as soon as possible ahead of your appointment. If you take any mild calming medicine prescribed by a physician, please notify the staff prior to your procedure.



### How long will it take?

The process of taking the images depends on the type of study and can vary anywhere from about 30 minutes up to 2 hours. The researcher will advise of the expected time requirements for their specific study.

### Are there any side-effects from the MRI scanning?

No. You can drive home afterwards and return to work as necessary, unless you took a calming medication as ordered by your doctor. You can eat and drink as you normally would.

### When will you get the results?

All images are acquired for research purposes only, with no diagnostic value, and will not be examined nor reported by a medical professional. The researcher may be able to provide some scientific publications and materials explaining how the data would be used. However, if, at any point during data analysis, a suspicious finding is discovered, this will be followed up by the physician involved in the research study.

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*Establishing and operating this kind of facility wouldn't be possible without extensive funding from the Province of Alberta and several funding agencies – [Alberta Innovates](#), [Toupin Foundation](#), [CFI](#) (Canada Foundation for Innovation) and [University Hospital Foundation](#).*



*We would also like recognize a very generous donation from Al Owen and his family that helped secure the 4.7T system and provided us with the opportunity to build the facility in its current shape and form.*