

# Information for Patients and Carers

## Functional Magnetic Resonance Imaging (fMRI) Scan



## What is an MRI scan?

Magnetic Resonance Imaging (MRI) is the name given to a technique which takes very detailed pictures of the inside of your body. It uses a powerful magnetic field and radio waves, together with an advanced computer system to build up a series of images. The scanner is an open-ended tube, surrounded by a large circular magnet.

## What is a functional MRI scan?

Functional magnetic resonance imaging, or fMRI, is a type of MRI that measures brain activity by detecting changes in blood flow. When a brain area is more active, it consumes more oxygen, so blood flow increases in that area.

An fMRI can show which areas of the brain perform specific functions such as speech, language, or movement. It can help guide doctors as they perform surgery or other treatments for the brain.



## Important information

If you wear contact lenses, please bring them to your appointment as you will need to wear them during your scan.

It is very important to contact us before coming for your appointment if you have, or have had any of the following:

- A pacemaker
- A neuro-stimulator
- Cochlear implants
- Aneurysm clips
- A shunt in your head
- A penetrating eye injury with metal fragments
- An artificial heart valve
- Any surgery which involved placing metal implants or clips

Or if any of the following apply:

- You are pregnant or think you may be pregnant (MRI scanning is not advisable in early pregnancy unless there are special circumstances)
- You weigh over 200 kg (approx. 31 stone)
- You need an interpreter. Please tell us this when you receive your appointment so that we can arrange an official interpreter for you
- You have problems weight-bearing and need a hoist to transfer
- You are unable to keep still or lie flat
- You have had a previous allergic reaction to MRI contrast agent Gadolinium (dye)

If you fail to inform us, we may not be able to scan you on the day of your appointment.

**Preston MRI appointments:** 01772 523999/522014.

## What happens when I arrive at the MRI department?

When you arrive at the MRI department, you should go to the reception desk where you will be booked in and asked to have a seat in the waiting area. You may be asked to complete a safety questionnaire.

A radiographer will then go through the questionnaire with you, explain the procedure and answer any questions that you may have.

You may be asked to change into a hospital gown.

You will also be asked to remove anything that may contain metal, such as jewellery, hair grips, wigs and body piercings before entering the scan room.

You will be provided with a locker to put your clothing and belongings into whilst you have your scan.

You should have already had a recent telephone conversation with a radiographer, regarding the tasks you will need to carry out during the functional part of your scan.

Before your scan, our magnetic resonance safety expert (MRSE) will go over the tasks with you, show you examples of the tasks and answer any questions you may have.

## Can you bring a relative or friend with you?

Anyone can accompany you to the hospital, but they will not usually be allowed into the room when you have your MRI scan.

Please note that we do not have childcare facilities, so we ask that you do not bring small children with you unless accompanied whilst you have your scan.

## What will happen during my MRI scan?

During the scan you will lie on the scanning table with the area of your body being scanned in the centre of the tube.

Equipment known as a coil will be placed over the area being scanned. The purpose of the coil is to improve the quality of the MRI images. Once you are comfortable and in the correct position, it is important that you remain very still during the scan, as any movement will affect the quality of the pictures.

You will be given a buzzer to press in case you need to contact the radiographer during the scan.

The radiographer will be able to see you through a window during the scan and will talk to you through an intercom in between the pictures. Throughout the scan you will hear repeated loud banging, buzzing and tapping noises which stop and start.

These noises are normal during a scan, and we will provide you with earplugs and headphones to protect your ears from some of the noise. You may be asked to hold your breath for a short period of time for some of the pictures.



During the functional part of your scan, you will be asked to complete one or more of the following tasks:

- Finger tapping – tap each finger against your thumb on both hands starting with your index finger to your little finger and back again. Relax when prompted
- Toe scrunching – scrunch all your toes on both feet repeatedly. Relax when prompted
- Object naming – name each object displayed on the screen silently in your head. When you see a nonsense object, try not to think of anything

- Tongue movement – move your tongue from side to side in your mouth. Try not to move your mouth or chin. Relax when prompted
- Sentence completion – silently fill in the missing words from each of the sentences shown. When you see a nonsense sentence, try not to think of anything
- Word generation – when a letter is shown on the screen, try to think of as many words as possible starting with that letter. The letter will keep changing. When the screen shows a nonsense symbol, start counting up from 1.

Please do not worry about these instructions, as we will discuss this with you prior to starting your scan and remind you of the instructions before each task.

## **Is MRI safe?**

The MRI scan poses no risk when appropriate safety guidelines are followed. All staff follow appropriate safety measures before, during and after the scan.

## **Will I need an injection?**

Some MRI scans require that you have an injection of MRI contrast (dye) called Gadolinium to ensure we get the information required from the scan. This is given through a cannula in your arm or back of your hand by a qualified member of staff.

## **Is MRI contrast safe?**

As with all medication, a very small number of patients may be allergic to MRI contrast.

Allergic reactions are rare and when they do occur, most of them are mild. Please inform the radiographer if you have any allergies, any kidney problems or are breastfeeding.

It is known that small amounts of Gadolinium may remain in the brain or other tissues after an injection, although there is currently no evidence that these small amounts cause any harm.

## What happens after the scan?

Normally, you are able to go home immediately following your scan, however you are advised to stay in the MR department for 30 minutes after an injection of contrast dye. There are no side effects from the scan itself.

## When will I get the scan results?

The Radiographer will not be able to give you your results on the day of your scan as the MRI images will need to be interpreted carefully by a Radiologist. The results will be sent back to the person who referred you for the scan.

## Contact details

If you have a query about the MRI scan, or you have any other questions or concerns, please do not hesitate to contact us prior to your appointment on **01772 523999**.

## Sources of further information

[www.lancsteachinghospitals.nhs.uk](http://www.lancsteachinghospitals.nhs.uk)

[www.nhs.uk](http://www.nhs.uk)

[www.accessable.co.uk](http://www.accessable.co.uk)

[www.patient.co.uk](http://www.patient.co.uk)

[www.lancsteachinghospitals.nhs.uk/veteran-aware](http://www.lancsteachinghospitals.nhs.uk/veteran-aware)

<https://bepartofresearch.nihr.ac.uk/>

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[www.lancsteachinghospitals.nhs.uk/patient-information-leaflets](http://www.lancsteachinghospitals.nhs.uk/patient-information-leaflets)

Lancashire Teaching Hospitals is a smoke-free site. Smoking is not permitted anywhere on any of our premises, either inside or outside the buildings. Our staff will ask you about your smoking status when you come to hospital and will offer you support and advice about stopping smoking this will include Nicotine Replacement Therapy to help manage your symptoms of withdrawal and the opportunity to speak to a nurse or advisor from the specialist Tobacco and Alcohol Care Team.

If you want to stop smoking, you can also contact Smokefree Lancashire on Freephone **08081962638**

**Please ask a member of staff if you would like help in understanding this information.**

**This information can be made available in large print, audio, Braille and in other languages.**

Our patient information group review our leaflets regularly, if you feel you would like to feedback on this information or to join our reading group please contact us on email address:

[patientexperienceandinvolem@LTHTR.nhs.uk](mailto:patientexperienceandinvolem@LTHTR.nhs.uk)

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