

Patient information factsheet

Magnetic resonance imaging (MRI) cardiac stress scan (adenosine or dobutamine)

We have given you this factsheet because you have an appointment for an MRI cardiac stress scan. It explains what an MRI cardiac stress scan is and what to expect at your appointment.

Your appointment letter will also give you details of your appointment date and other useful information. Please check the date and let us know if you will not be able to attend, so that another appointment can be arranged for you.

We hope this factsheet will help to answer your questions about the scan and prepare you for your appointment. If you have any further questions, please contact a member of the team using the contact details at the end of this factsheet. If you are unsure why you need to have this scan, please speak to the doctor who referred you.

What is an MRI scan?

MRI is a type of scan that uses strong magnetic fields and radio waves to produce detailed images of the inside of the body. It is a painless and safe procedure. The results of an MRI scan can be used to help diagnose conditions, plan treatments, and assess how effective previous treatment has been.

What is a cardiac stress scan?

A cardiac stress MRI is a scan of your heart during which you will be given medication called adenosine or dobutamine. This medication mimics the effect of exercise on your heart while you are lying down in the scanner.

Preparing for your MRI cardiac stress scan

48 hours before the scan

Do not take any beta blockers you may have been prescribed. Beta blockers include:

- atenolol
- metoprolol
- propranolol
- sotalol
- carvedilol
- bisoprolol

24 hours before the scan

You **must not** have any caffeinated or decaffeinated drinks or food.

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This includes:

- tea
- coffee
- hot chocolate
- fizzy drinks
- chocolate
- sweets

You also **must not**:

- smoke or vape
- take medications containing nitrates. These are commonly prescribed to patients with angina and include:
 - nicorandil
 - isosorbide
 - mononitrate
 - dinitrate tablets

All other tablets should be taken as normal, including on the morning of the scan. If you are unsure whether your medication contains nitrates, you can ask your GP or pharmacist.

You can continue to use glyceryl trinitrate (GTN) spray, but please let us know about this when you attend your appointment.

Four hours before the scan

Please do not eat or drink anything. If you are diabetic, you can have a light breakfast (such as toast or a bowl of cereal).

At the appointment

Please bring a list of your current medication with you, as well as any inhalers you use.

Please arrive 15 minutes before your appointment time.

Check in at our reception using the self-service monitors. We will be available to help if required. Alternatively, you can knock on the double doors to Cardiac MRI and take a seat.

We will greet you, explain the procedure and go through a safety questionnaire.

You will be asked to change into a hospital gown and put your belongings into a locker before your scan. You will need to remove all jewellery, piercings, drug patches, metallic denture plates and hearing aids.

As preparation for the scan, we will measure your weight and height. We will place a cannula (a thin, plastic tube) into a vein in each arm. During the scan we will inject a contrast dye into one of the cannulas. Contrast dye helps certain tissues and blood vessels show up more clearly on the images. We will also inject a medication (adenosine or dobutamine) into the other cannula.

Your scan will take approximately one hour, but you may be in the department for up to two hours.

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During the scan

An MRI scanner is a short cylinder magnet that is open at both ends.

You will enter the scanner head-first, lying on your back on the motorised bed. We will try to make you as comfortable as possible, using pads and supports as required.

A light frame (called a coil) will be rested on top of your chest. The coil contains receivers that pick up the signals sent out by your body during the scan, which helps to create a better-quality image.

We will also attach an ECG to your chest. We will use this to scan in time with your heartbeat.

You will need to lie very still throughout the scan to achieve the best-quality images.

You will be given instructions to hold your breath for a few seconds at a time. You will be told when you can breathe normally again.

We will operate the MRI scanner using a computer in a separate room. You will be able to communicate with the radiographer between scans via a built-in microphone system.

During the scan you may feel your body temperature increase and you may experience tingling in your hands and feet. These are normal sensations. Please tell us if you feel uncomfortable at any point. We will give you an emergency buzzer to hold during the scan.

At certain times during the scan, the scanner will make loud tapping noises. This is the electric current in the scanner coils being turned on and off. We will give you earplugs to protect your hearing from the noise. The breathing instructions will be given through headphones.

Adenosine and dobutamine

The specialist doctor supervising the scan will decide whether you need to have adenosine or dobutamine through one of the cannulas. This is the 'stress' part of the cardiac stress MRI.

Adenosine

Adenosine is given slowly for approximately three minutes and increases your heart rate.

Normal reactions to adenosine include:

- feeling short of breath
- some chest tightness
- a hot, flushed feeling

We will then take a scan. At the same time, we will inject contrast dye through the second cannula.

We will stop the adenosine during the scan. You will notice that the effects of the drug quickly wear off. You will be monitored carefully and be in constant contact with the staff.

Adenosine interactions

Please contact the department if you:

- have asthma (or require any type of inhaler)
- currently have any kidney function impairment
- currently take Persantin (dipyridamole)
- currently take aminophylline or theophylline

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We may need to modify the test. If you are unsure if you are currently taking Persantin (dipyridamole), aminophylline or theophylline, you can ask your GP or pharmacist.

Dobutamine

Dobutamine is given slowly for approximately 15 minutes. This medication gradually increases your heart rate, so we will scan you at regular intervals during this time.

During this time, you may notice that your heart is beating faster and stronger, as if you were exercising. Normal reactions to dobutamine include:

- feeling short of breath
- feeling lightheaded
- feeling nauseous (queasy)
- some chest tightness

As well as this medication, we will also inject the contrast dye through the second cannula during one of the scans. We will monitor you during the scan.

After the 'stress' part of the scan, we will take some more images with you holding your breath.

After your scan

After the scan, you may have to spend a short time in the department before we remove the cannulas. Once we have removed the cannulas, you will be able to dress and leave the department.

You will be able to eat and drink normally and restart any medication that was stopped for the scan.

You may feel tired for two to three hours after the scan. We advise that you have something to eat or drink before returning home.

You may not be allowed to drive after this test, so you will need to arrange for someone to drive you home.

Your results

The radiographer will review your images to check the quality of the scan images. Your doctor will discuss your results with you at your next follow-up appointment.

MRI safety information

Please read the information below carefully.

Implants and devices

Due to the powerful magnetic field created by the scanner, even when not in use, it may not be safe for some people with implants and devices to have an MRI scan. We will need to investigate the safety of these before your appointment.

You must contact us if:

- you have a cardiac pacemaker or defibrillator
- you have had a heart valve replacement
- you have ever had surgery on your head

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- you have ever had metal in your eyes from welding or metal-work accidents (an eye x-ray may be required before your scan)
- you have any metallic or electronic implants
- you have had any surgery within the past six weeks
- you have any auditory implants (such as cochlear implants)
- you have ever swallowed a capsule camera (pillcam)

If you do not let us know in advance, we may have to postpone your scan.

Pregnancy

Please call us when you receive your appointment letter if:

- you are pregnant
- you think you might be pregnant
- you are currently breastfeeding

Bringing someone with you for support

If you wish to have someone in the scanner room with you for support, they will need to complete a safety questionnaire and comply with safety regulations.

We do not have crèche facilities at the hospital. We would advise that you do not bring young children with you for this scan. If you do bring young children with you, you will need to arrange for someone you know to look after them while you are having the scan.

Further information

If you are arriving by car, please remember that our car parks can get very busy, so it's a good idea to allow plenty of time to find a space. You may wish to consider getting a lift or coming by public transport.

If you have a medical condition that means you need help getting to hospital, please contact your GP surgery so they can arrange transport for you.

Contact us

If you have any concerns or would like further information, you can contact us.

Cardiothoracic radiology appointment team

Telephone: **023 8120 4833** (8.30am to 4.30pm, Monday to Friday)

023 8120 4499 (8am to 6pm, Saturday and Sunday)

Email: **CardioRadApts@uhs.nhs.uk**

Useful links

www.nhs.uk/conditions/mri-scan

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For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalsupport**