Oxford University Hospitals NHS Trust

Nuclear Cardiology Imaging

MUGA scan

Information for patients

OXFORD HEART CENTRE
What is Nuclear Cardiology?

Coronary Artery Disease (CAD) is caused by the narrowing of the blood vessels that supply the heart (the coronary arteries). It is one of the main causes of heart failure. Nuclear Cardiology tests use a small dose of a radioactive substance, which is injected into the bloodstream. This substance shows up on the screen during a scan, as it travels round the body. This allows us to look at the blood flow through the heart cavities and assess contraction and pumping function of the heart.
What is a MUGA scan?

A Multigated Acquisition or MUGA scan (also called Gated Imaging or a Gated Blood Pool scan) is one type of Nuclear Cardiology test. A MUGA scan tells doctors how well your heart is pumping blood when you are resting and during exercise. This is known as the ejection fraction, which is the amount of blood pumped out of your heart’s lower chambers with each heartbeat. A radioactive substance, called technetium, is injected into a vein in your arm and allows us to see the pumping action of your heart using a special scanner called a ‘gamma camera’.

You may have:

- **a resting MUGA**
- **an exercise MUGA** – this is to assess the pumping action of your heart during exercise
- **a Pharmacological stress MUGA** – this uses a drug called dobutamine which increases your heart rate in a similar way to exercise. This helps us to assess the pumping action of your heart at rest and during stress.

Preparing for the scan

You can have a light breakfast or snack before the scan, but not a heavy meal, as this can affect your ability to exercise and may increase the side effects of dobutamine.

If you are female and you are pregnant, or think you may be pregnant, please telephone us before your scan. Being exposed to radiation when pregnant can harm your unborn baby. However, we may be able to arrange an alternative test for you. Also, to avoid unnecessary radiation exposure, please do not bring children with you.

Please wear loose comfortable clothing and shoes suitable for exercise if you need to have a MUGA scan whilst exercising. Your appointment letter will tell you whether will be having this.
What happens when you arrive

When you arrive in the department you will be taken into the preparation room. We will ask you some questions about your medical history and about any medications that you are taking. This includes off the shelf medicines and herbal remedies. We will also ask if you are allergic to anything.

The cardiac physiologist will then apply some sticky electrodes onto your skin. These are connected to an ECG (electrocardiogram) machine so that we can monitor your heart rate and take a blood pressure measurement. A fine tube known as a cannula will be put into a vein in your arm so that we can give you injections during the test.

What happens during the test?

For the resting MUGA scan:

• We will give you two separate injections, 20 minutes apart, into the cannula in your arm.

• After the second injection we will take a series of pictures using a gamma-camera positioned over your chest. It is quite open, so you shouldn’t feel claustrophobic.

• The ECG electrodes allow the images to be triggered by your heartbeat so that we can look at your heart muscle movement.

For the exercise or dobutamine MUGA scan:

• We will give you two separate injections, 20 minutes apart, into the cannula in your arm.

• After the second injection we will take a series of pictures with you at rest using a gamma-camera positioned over your chest.

• After the resting scans we will ask you to exercise using a stationary bicycle while lying on the imaging couch. The gamma-camera will be positioned over your chest and we will take a few more pictures.
• If you are unable to exercise, we will give you an injection of a drug dobutamine, to make your heart beat as if you were doing exercise. This is called pharmacological stress.

• During the scans we will continue to monitor your ECG, blood pressure and symptoms.

How long does the test last?

The resting MUGA takes between one to one and a half hours. The exercise MUGA or dobutamine MUGA takes two hours.

Is this test safe?

Yes. There are no side or after effects from the injection or the radioactive substance. You will not feel drowsy, nor should the test prevent you from driving home. The amount of radiation you will be exposed to is similar to that from a CT examination (computerised tomography scan). If you have a pharmacological stress MUGA, you may have a headache, slight nausea, feel light headed or have chest pain. However, these are rare side effects and wear off quickly.
How will I get the results?

We will give you some information on the outcome of the scan on the same day. The full report will be sent to the hospital doctor who referred you for the test, and they will contact you to explain the results.

Transport

If you are eligible and need hospital transport, please telephone the South Central Ambulance Service NHS Trust on 0300 100 0015. Please tell them that you will be in the department for two hours.

Confirming your appointment

Please contact our automated appointment line when you receive your appointment letter, to confirm that you are able to come:

Tel: 01865 222 932
How to contact us

If you have any other questions or concerns, please contact us. We want your visit to be as pleasant as possible.

You can find the Nuclear Cardiology Department in the main building of the John Radcliffe Hospital. We are situated on Level 1, opposite the entrance to the Cardiac Recovery Unit.

**Nuclear Cardiology**
Cardiac Department
The John Radcliffe Hospital
Oxford OX3 9DU

**Tel: 01865 221 979**
(9.00am to 5.00pm, Monday to Friday)
If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call 01865 221 473 or email PALSJR@ouh.nhs.uk

Dr Oliver Ormerod, Consultant Cardiologist
February 2015
Review: February 2018
Oxford University Hospitals NHS Trust
Oxford OX3 9DU
www.ouh.nhs.uk/information