

**Patient  
Information**

# Dobutamine Stress Echocardiogram (DSE)

## Introduction

This leaflet gives you information about your planned dobutamine stress echocardiogram.

## What is a stress echocardiogram?

You may have already had an echocardiogram performed, usually just called an 'echo'. This is a non-invasive imaging test using ultrasound to look at your heart.

Ultrasound is very high-frequency sound which cannot be heard by the human ear. It is used to visualise the heart and is safe and painless.

Performing an echo when your heart is working hard may help us to find the cause of your symptoms. Getting your heart beating faster and stronger can be achieved either by exercise or using medications. When this is combined with an echo it is known as a stress echo.

The stress echo will be supervised by a Cardiologist and/or a specially trained Cardiac Physiologist.

The test can take up to an hour, including the preparation and recovery time.

## Why am I being asked to have this test?

Your heart specialist (doctor or nurse) has asked for this test to assess your heart function when it is working harder.

Having this test can help us find whether the symptoms you experience are due to a heart problem.

This test can be used to:

- Investigate chest pains and/or breathlessness.
- Assess how well previous heart stents or bypass surgeries are working.
- Assess your risk before having an operation.
- Check whether your heart muscle has been permanently damaged after a heart attack, or can recover.

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Department

**Cardiology**

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- Find out more about a known heart valve problem.

Sometimes we do the test when we already know you have a heart problem and we want to find out if stress or exercise makes it worse, or if it might stop you exercising safely.

### **Dobutamine stress echocardiogram (DSE)**

For patients who may not be able to exercise, a medicine called dobutamine can be given. This medication is used to simulate exercise to make your heart beat faster and stronger.

### **What does a dobutamine stress echo involve?**

You will be weighed and have your height measured before the test begins. This is done so that we can calculate some of our measurements.

The test will be explained to you, including a discussion about the symptoms you may experience and possible risks.

You may be asked to sign a consent form. By signing this form, you will have agreed to have the test performed and that you understand why it is needed. This does not take away your right to have the test stopped at any time.

You will be asked to undress to the waist and offered a hospital gown to wear. You will then be asked to lie on a couch. ECG electrodes (sticky pads) will be attached to your chest and connected with wires to the echocardiogram machine. This will monitor your heart rate and rhythm during the test.

We will insert a small plastic tube (cannula) into a vein in your arm. The cannula will be used to give you the dobutamine medication and contrast (dye to improve the image quality) if needed. You will then be asked to lie on your left-hand side. If you are unable to lie on your left side, we can carry out the echo while you are lying on your back. The test is performed in semi-darkness so the lights will be dimmed once you are comfortable.

The sonographer will place the echocardiogram probe on your chest (this is like a thick blunt pen) with cold lubricating jelly (this helps to get good contact with your skin).

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Before you are given the dobutamine medication, a number of pictures of the heart will be recorded from different areas of your chest while you are resting. Once we have done this, we will give you the dobutamine medication.

The dobutamine will be given intravenously by an infusion (drip) over about 10 to 15 minutes, via the cannula inserted into a vein in your arm.

The dose of the medication is calculated based on your weight and will be increased every 3 minutes. This will gradually increase your heart rate.

In most cases, an intravenous ultrasound enhancing agent (contrast) is also given. This can help to improve the image quality and make the results easier to read.

During the test, you will feel your heart beating harder and faster, as if you are exercising. We will monitor your blood pressure, heart rhythm and heart rate throughout the test.

We will take more ultrasound pictures of your heart during and after you have been given the dobutamine infusion.

You may notice symptoms that you might experience during exercise. These include:

- Chest pain
- Breathlessness
- Dizziness or feeling faint

You may also experience some tingling of your skin which can be a side-effect of the dobutamine.

If you notice any symptoms, you must let the Cardiologist or Cardiac Physiologist know.

Most symptoms settle quickly after the test but we may need to stop the test early if your symptoms become severe or there are concerns with your blood pressure or ECG.

Sometimes we may need to use another medication, called atropine, during the test to get your heart rate to target. We will not know if this is needed until the test itself. **If you are given this medication, you cannot legally drive for 24 hours.**

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### After the test

When the test has been completed you will be asked to remain lying down for a few minutes. This is to allow your heart rate and blood pressure to return to your resting levels. The electrodes will then be taken off and you will be able to get dressed.

You will then be asked to sit in the waiting room for 10 minutes to make sure that the effects of the medication have completely worn off before going home.

**It is essential that you are collected from hospital and have a responsible person to stay with you for the rest of the day.**

### Preparing for the stress test

Unless you have been told otherwise, you will need to stop taking **betablockers** (atenolol, bisoprolol, metoprolol) for

**48 hours** before the test.

Certain **calcium channel blockers** should also be stopped for **48 hours** before the test. These include diltiazem (Tildiem, Adizem) and verapamil (Securon).

You can continue taking Amlodipine.

Take all of your other medications as normal. If you are not sure about your medications, please contact the Cardiac Investigations team for advice – the contact details are at the end of this leaflet.

We recommend that you only eat a light meal before the test. **Do not have anything to eat for 2 hours before your appointment. Also do not smoke for 2 hours before the test.**

You can continue to drink normally.

You must contact us if you:

- are pregnant or think that you may be pregnant. The test should not be carried out until after your baby is born.
- are lactating or breastfeeding. You can resume breastfeeding 2 to 3 hours after the test as any medications given will quickly leave the body.

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- are experiencing unstable heart symptoms, including increasing frequency of angina (chest pains) or rhythm disturbance, or if you have artificial heart valves.
- have been diagnosed with heart inflammation or infection or if you have any severe liver or kidney disease.

### **Risks, contraindications and possible side effects of the test**

A dobutamine stress echo is generally considered a safe test and is often used for patients with chest pain and a limited ability to exercise. However, as with all medical procedures, there can be risks.

Dobutamine, atropine and ultrasound contrast are all medicines which may cause side effects, although these are rare and are not usually serious. Some patients might experience serious side effects which may require treatment.

Possible risks of a dobutamine stress echo include:

- An irregular heartbeat known as atrial fibrillation (1 in every 100 patients).
- The heart developing an abnormal rhythm which may require emergency treatment (1 in every 1,000 patients).
- A bad attack of angina, a heart attack or a stroke (1 in every 1,000 patients).
- A severe, life-threatening allergic reaction to any of the medications used during the test (1 in every 10,000 patients).

There will always be medical professionals present during the test who are trained to manage any of the complications mentioned above.

**If you have had allergic reactions to any medicines before, please let a member of the team know before the test is started.**

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During the test, **you must tell the Cardiologist or Cardiac Physiologist straight away** if you notice any of the following side effects, as you may need medical treatment:

- Swelling of your face, lips, mouth or throat which may make it difficult to swallow or breathe
- A skin rash
- Hives
- Swelling of your hands, feet or ankles.

## Are there any alternatives to a dobutamine stress test?

An exercise stress echo is an alternative test if you are able to exercise. CT scans, MRI scans and nuclear medicine scans may also be options.

Your heart specialist has requested this test as they believe it will help to diagnose your condition and/or decide on your treatment better than any other tests can.

You should discuss any concerns you may have about the test with your heart specialist.

## Results

You will not normally be given the results straight away as we need to make measurements and interpret the echo pictures. We will write to the doctor or nurse who referred you for the stress echo.

## Going home

Once your blood pressure and heart rate has returned to normal, you will be able to go home. We recommend that you take things easy for the rest of the day after the dobutamine stress echo.

**You must be collected from hospital and remain with a responsible person for the rest of the day.**

**If you have been given atropine as part of your stress echo, you must not drive or operate machinery for 24 hours.** This will have already been explained to you before the test.

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# Contact information

## Cardiac Investigations

Tel: 0300 422 6551

Monday to Friday, 9:00 am to 4:00 pm

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## Making a choice

### Shared Decision Making

If you are asked to make a choice, you may have lots of questions that you want to ask. You may also want to talk over your options with your family or friends. It can help to write a list of the questions you want answered and take it to your appointment.



### Ask 3 Questions

To begin with, try to make sure you get the answers to three key questions if you are asked to make a choice about your healthcare.

1. What are my options?
2. What are the pros and cons of each option for me?
3. How do I get support to help me make a decision that is right for me?

These resources have been adapted with kind permission from the MAGIC Programme, supported by the Health Foundation

\* Ask 3 Questions is based on Shepherd HL, et al. Three questions that patients can ask to improve the quality of information physicians give about treatment options: A cross-over trial. Patient Education and Counselling, 2011;84: 379-85



<https://aqua.nhs.uk/resources/shared-decision-making-case-studies/>