

Your cardiac perfusion stress nuclear medicine scan

What is a nuclear medicine scan?

Nuclear medicine is the name given to the use of radioactive isotopes attached to a 'tracer' to produce images of different parts of the body. For this examination, the radioisotope is injected into a vein, usually at the back of the hand or elbow. The tracer then carries the radioisotope to the part of your body under investigation, in this case your heart. The radioisotope gives off gamma rays (similar to X-rays), which are detected by a gamma camera. The gamma camera is positioned either over or under your body while you lie on a couch. The radioactivity is converted to electrical impulses by the camera and the information is passed to a computer, which produces an image on a TV screen. This type of scan will show how well your heart is working as well as what it looks like.

Your scan will involve stressing your heart (making it work harder) either on a treadmill or, if you are unable to exercise, by the injection of a drug that will mimic exercise by raising your heart rate. You will also be given an injection of a radioisotope, which is the substance that shows the heart on the gamma camera. This is performed in the Cardio-respiratory Department by a team of professionals supervised by a cardiologist (heart specialist).

Before your nuclear medicine scan

You will be able to have a light breakfast on the morning of your scan. However, you should not eat or drink anything that contains caffeine, eg tea, coffee, cola, or chocolate. Please see your appointment letter for details. If you are required to stop taking any medication, this will be indicated on your appointment letter. **Please read these instructions carefully.**

What will happen in the Cardio-respiratory Department?

The procedure will be explained to you and you will have the opportunity to ask questions. You will have ECG electrodes (adhesive pads) attached to your chest, which will monitor your heart rate. A cannula (needle) will be inserted into a vein, usually in the back of the hand or elbow.

If you are using the treadmill, you will exercise until your heart rate increases significantly. The radioactive injection will be given through the cannula 1 minute before the end of this exercise period.

For drug-induced exercise, your cannula will be connected to a machine which will inject the exercise-inducing drug over several minutes. During this time, you will also be given the radioactive injection.

After this 'stress' (exercise), you will be allowed to recover. There will then be a delay of about 1 hour before your scan, in which time you will be able to leave the department. This delay is to allow the radioisotope to reach the part of the heart being scanned. You will be given a time to attend the Gamma Camera Unit for your scan.

What will happen in the Gamma Camera Unit?

You will usually be able to stay in your own clothes, although you may be asked to remove coats, belts and to empty your pockets. You will be asked to lie on your back on the scanning couch and be moved into position under the gamma camera. You will **not** be in a tunnel or completely enclosed, although the gamma camera will come close to your chest. The camera will circle your chest slowly, taking images of your heart. This will take about 15 minutes. Some patients find lying for any length of time uncomfortable, but the staff will do everything they can to make you as comfortable as possible. The radiographer will be in the same room as you during the scan.

A cardiac perfusion scan is a 2-part examination. You will be given your appointment for the second part of your test before you leave. This is usually made for within 1 to 2 weeks of your stress test. This is to show your heart at rest.

Your cardiac perfusion stress nuclear medicine scan (cont.)

After the scan

You will be able to return to your normal daily activities. You will be able to drive and return to work. If possible, you should avoid close prolonged contact with children and pregnant women for the rest of the day. This will be explained in more detail when you attend for your scan. You should drink a little more fluid than normal to ensure you are well hydrated. You should empty your bladder (pass urine) regularly, which will help the body get rid of the radioisotope.

When will I get the results?

You will not be given any results on the day of your scan. A radiologist (X-ray doctor) will interpret and report on your scan. This result should reach the doctor that sent you for the scan within 7 days.

Are there any risks?

Nuclear medicine scanning involves the use of radioisotopes and so has the usual risks associated with ionising radiation. We are all exposed to radiation naturally (background radiation). For this test, the extra radiation is equivalent to what you would receive from the atmosphere (background radiation) over a period of around 3 years.

If you are pregnant, or think you could be, you must let us know. You will find our telephone number on your appointment letter.

If you are given the stress-inducing drug, you may experience some side effects. You may feel light headed, your heart rate will increase, and you may become slightly breathless, as you would if you were exercising. The effects of these drugs are short-lived and you will recover quickly. There is also a small risk of a reaction to the drug. This could be a skin rash, headache or abdominal discomfort, or a more serious allergic reaction to the drug, which may require medical treatment.

The test will involve an injection of a radioactive isotope into a vein, usually at your elbow or in the back of your hand. This should be no more painful than a simple blood test. Side effects from this injection are uncommon and the radioactivity is excreted quickly and naturally through your kidneys when you pass urine. It should not make you feel any different and you should see no other effects on the body.

As with any procedure, unforeseen complications can occur, although this is rare. Despite these risks, it is important to remember that the risk of missing a serious problem by not having the test done could be much greater.

Who should I contact if I have any questions?

If you have any questions about your test, please contact a member of the nuclear medicine (gamma camera) team. You will find our telephone number on your appointment letter.

We will do everything we can to make your visit as pleasant as possible.