

Nuclear Medicine DMSA Scan

Consumer Information

Contributors:

Mrs Lynne Bowlen, *Dip.App.Sci. (Medical Nucleography)*

Dr Timothy Cain, *MBBS, FRANZCR, MBA*

Dr Dee Nandurkar, Ms Ann Revell, Dr Christine Walker,
A/Prof Stacy Goergen

What is a DMSA Scan?

DMSA, or dimercaptosuccinic acid, is a radiopharmaceutical that is injected into a vein and enters the kidneys. It is detected by gamma cameras to form images of the kidneys. See [Nuclear Medicine](#) for more detailed information.

The scan shows which areas of the kidneys are working normally and which areas have been damaged (usually following kidney infections).

How do I prepare for a DMSA Scan?

There is no preparation for a DMSA Scan. You can eat and drink normally.

If you think you may be pregnant or are breast feeding you must inform your doctor or specialist who is referring you for the DMSA Scan and the radiology staff where you are having the DMSA Scan. They will discuss with you any need to stop breast feeding and minimise your contact with your baby for a short time.

What happens during a DMSA Scan?

There are 2 parts to a DMSA Scan – an injection of a radiopharmaceutical and then images taken with a gamma camera.

You will receive a small injection of a radiopharmaceutical into a vein, usually in your arm. Sometimes, the injection may be followed up immediately by pictures being taken with a gamma camera to show which areas of the kidneys are making urine normally and which areas have been damaged. Other radiopharmaceuticals perform this test better and the main purpose of a Nuclear Medicine DMSA Scan is the delayed images.

Two to four hours after having the injection you return to have the scan. During this time you will feel no effect from the injection and can maintain normal activities. The radiopharmaceutical is detected by a gamma camera (that takes images or pictures showing the functioning of the kidneys. These can include one or several still “long exposure” images, and often the creation of a 3D image where the camera moves around your whole body taking pictures from many angles. These pictures are then used to create a 3D image of your kidneys. The reason for the delay between the injection and having pictures taken is to give the

radiopharmaceutical a chance to be absorbed into the kidneys. You will not feel any different whilst you are being imaged and there is no noise or lights.

The radiopharmaceutical you receive is eliminated from your body through the urine. For that reason, you should drink plenty of fluids and urinate frequently following the injection. How much fluid will depend on each individual but you should be well hydrated, and for an adult this could be 3-4 glasses of water. Your urine will not change colour. However, as it contains the radioactive tracer it is recommended that you wash your hands well after going to the toilet.

In the case of babies and youngsters in nappies who are having a DMSA Scan, there will be a small amount of radioactivity in the urine and therefore on the child's nappy. The radiotracer will not affect the baby's skin, but carers should wash the baby's bottom as is normal practice and wash their hands thoroughly. Cloth nappies need to be washed thoroughly and disposable nappies put in a plastic bag and sealed before being disposed of.

Are there any after effects of a DMSA Scan?

There are no after effects from a DMSA Scan of the kidneys.

How long does a DMSA Scan take?

A DMSA Scan of the kidneys involves an injection of the DMSA tracer solution and then imaging 2-4hrs after the injection. You can usually leave the hospital, radiology or nuclear medicine practice between the two parts of the procedure and eat and drink normally during this time. The reason for the delay between the 2 parts is to give the solution a chance to be absorbed by the kidneys.

The imaging itself takes about half an hour. You will not feel any different whilst you are being imaged.

When small children are having a DMSA Scan, it can be difficult giving them the DMSA tracer injection, so various techniques are used such as distracting their attention with DVDs/videos or toys. In some cases local anaesthetic may be used or, more rarely, sedation (see [How can I make my child's examination less stressful?](#)).

What are the risks of a DMSA Scan?

There are no risks involved in the DMSA Scan procedure itself.

There is a small dose of ionising radiation that is similar to other routine medical imaging tests (see [Radiation Risk of Medical Imaging for Adults and Children](#))

What are the benefits of a DMSA Scan?

A DMSA Scan enables the doctor to evaluate the functioning tissue of your kidneys because the radiopharmaceutical does not attach itself to areas of the kidneys that are damaged. Doctors can measure the relative function of each kidney to see if one kidney functions differently to the other, and by performing regular DMSA Scans they can monitor any changes to inflammation of the kidneys.

Who does the DMSA Scan?

The DMSA Scan of the kidneys is performed by nuclear medicine technologists who are trained to perform this type of test. The technologists provide these images to a nuclear medicine specialist.

This specialist will direct the technologist on which images are required to give an accurate diagnosis. The specialist also writes a report and sends it back to the doctor who referred you for the DMSA Scan.

See [Nuclear Medicine](#) for more detailed information.

Where is a DMSA Scan done?

Most large public and private hospitals and private radiology and nuclear medicine practices have nuclear medicine facilities where DMSA Scans are performed.

When can I expect the results of my DMSA Scan?

The time that it takes your doctor to receive a written report on the test or procedure you have had will vary, depending on:

- the urgency with which the result is needed
- the complexity of the examination
- whether more information is needed from your doctor before the examination can be interpreted by the radiologist
- whether you have had previous X-rays or other medical imaging that needs to be compared with this new test or procedure (this is commonly the case if you have a disease or condition that is being followed to assess your progress)
- how the report is conveyed from the practice or hospital to your doctor (in other words, email, fax or mail)

Please feel free to ask the private practice, clinic, or hospital where you are having your test or procedure when your doctor is likely to have the written report.

It is important that you discuss the results with the doctor who referred you, either in person or on the telephone, so that they can explain what the results mean for you.

Further information about DMSA Scans:

This is a simple test to perform that allows the doctor to assess any damage to the kidneys - usually looking for scarring as a result of urinary reflux (backflow of urine from the bladder to the kidneys) or damage following trauma or reduced blood supply, such as from blocked renal arteries.

Regular scans (for example one every year) are often performed to monitor any change in the function of the kidneys or their response to treatments you may be having.

Please note:

This information is of a general nature only and is not intended as a substitute for medical advice. It is designed to support, not replace, the relationship that exists between a patient and his/her doctor. It is recommended that any specific questions regarding your procedure be discussed with your family doctor or medical specialist

The QUDI Program is managed by the Royal Australian and New Zealand College of Radiologists and funded by the Australian Commonwealth Department of Health and Ageing.

Publication Date: May 1st 2009

The RANZCR is not aware that any person intends to act or rely upon the opinions, advices or information contained in this publication or of the manner in which it might be possible to do so. It issues no invitation to any person to act or rely upon such opinions, advices or information or any of them and it accepts no responsibility for any of them.

The RANZCR intends by this statement to exclude liability for any such opinions, advices or information. The content of this publication is not intended as a substitute for medical advice. It is designed to support, not replace, the relationship that exists between a patient and his/her doctor. Some of the tests and procedures included in this publication may not be available at all radiology providers.

The RANZCR recommends that any specific questions regarding any procedure be discussed with a person's family doctor or medical specialist. Whilst every effort is made to ensure the accuracy of the information contained in this publication, The RANZCR, its officers, councillors and employees assume no responsibility for its content, use, or interpretation. Each person should rely on their own inquiries before making decisions that touch their own interests.