



SER Patient Information Sheet: **Nuclear Medicine Bone Scan**

What is a bone scan?

A nuclear medicine bone scan shows the effects of injury or disease or infection on the bones. A nuclear medicine bone scan also shows whether there has been any improvement or deterioration in a bone abnormality after treatment.

A radioactive material (radiopharmaceutical) is injected into a vein, attaches to the bones and is detected by a gamma camera that takes images or pictures that show how the bones are working.

Why would my doctor refer me for this procedure?

Bone scans image both the structure, and the active cell growth of the bones, and are often used in conjunction with other imaging e.g. X-rays, computed tomography (CT) or magnetic resonance imaging (MRI).

They are often used as a follow-up test when the cause of your pain or symptoms needs to be clarified, for example:

- to evaluate the source of bone pain; for example, foot or hip pain
- to evaluate the findings from other diagnostic images or abnormal laboratory results.

Listed below are some common reasons why your doctor may refer you for a bone scan:

- difficult to find fractures, stress fractures, shin splints;
- osteomyelitis (infection of the bone), cellulitis (infection of the skin);
- or to assess a response to treatment (e.g. antibiotics) you might be having
- arthritis, Paget's disease, fractures from osteoporosis (where bones become fragile and are more likely to break)
- to assess the presence or spread of cancer in bone, then to follow up on the response to treatment
- complex regional pain syndrome (CRPS or previously known as reflex sympathetic dystrophy), avascular necrosis, prosthesis loosening or infection.



How do I prepare for a bone scan?

There is no special preparation for a bone scan. However, it is important to drink normally or more than usual, as the radiopharmaceutical is eliminated from your body in your urine. You should continue to take your usual medications.

You will need to lie still while the images are being taken, so they are not blurred. If you feel you will not be able to stay still for a long period of time, please advise your own doctor or the nuclear medicine staff where you are having the scan. If you are severely claustrophobic, please advise the department when you make your appointment.

If you are (or think you might be) pregnant, breast-feeding and/or the primary or sole carer for small children, you must inform the doctor who is referring you for the bone scan and also the staff where you are having the bone scan.

Bone scans are generally not carried out on pregnant women. Women who are breast-feeding and people who are the primary or sole carer for small children might need to make special preparations for after the scan. This will involve stopping breast-feeding and avoiding close contact with young children for a short time. This is due to the small amount of radioactivity your body might release after the scan injection. You should discuss this with your referring doctor or with the nuclear medicine practice where you will be having the test.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has recommendations about breast-feeding and close contact with children after nuclear medicine tests. For a bone scan, the recommended time for not breast-feeding or having close contact with young children is 1 hour. It might be easiest to breast-feed your baby immediately before the test. You might need a bottle of formula or previously expressed breast milk available. Someone else should care for the baby or any young children for the hour after the injection.

Who does the bone scan?

The nuclear medicine bone scan is carried out by nuclear medicine technologists. The images taken by the technologist are reviewed by a nuclear medicine specialist doctor who provides a written report to the doctor who referred you for the bone scan.



What happens during a bone scan and how long will it take?

There are two parts to a bone scan – an injection of radiopharmaceutical into a vein (sometimes accompanied by ‘early’ imaging) and then ‘delayed’ imaging between 1–4 hours later.

Part 1

You will receive an injection of a small amount of radiopharmaceutical into a vein in the arm, which usually takes **15–30 minutes**. This includes time to explain the procedure and take any ‘early’ images, if required.

Sometimes images are taken with the gamma camera immediately after the injection to look at the blood flow to the area being scanned. These images are referred to as ‘early’ (blood flow or blood pool) imaging.

Whether you have ‘early’ imaging will depend on why your doctor has requested the scan.

Part 2

After 2–4 hours for adults and 1–3 hours for children, you return to have the ‘delayed’ images. These can take between 15 and 60 minutes, depending on the area/s of interest and any specific images that have been requested, such as single-photon emission computed tomography (SPECT; images taken in 3-D showing the height, width and depth of the part of the body being scanned) or [SPECT-CT](#) (a combination of SPECT and CT), which can take slightly longer.

These images show how the bones are working. The reason for the length of time between the injection and the ‘delayed’ images is to give the radiopharmaceutical time to be absorbed into the bones.

Occasionally, the doctor will ask the patient to return for delayed images the next day, particularly if there is a need to see the hips or pelvis in patients who are unable to completely empty their bladder.

Are there any after effects of a bone scan?

Normally, there are no after effects of a nuclear medicine bone scan. The radiopharmaceutical used in a bone scan is not known to have any adverse interaction



with food or medication you might be taking. You can carry out normal activities between the injection and the delayed images, and after the scan.

The radiopharmaceutical you receive for the bone scan is eliminated from your body through the urine. For that reason, you should drink plenty of fluids and urinate frequently after the injection. How much fluid will depend on each individual, but you should be well hydrated, and for an adult this could be three to four glasses of water. Your urine will not change colour. Your urine will contain the radioactive material, so 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 bone scan, there will be a small amount of radioactivity in the urine and therefore in the child's nappy. The radioactive material will not affect the child's skin, but carers should wash the child's bottom and wash their own hands thoroughly. Cloth nappies need to be washed thoroughly and disposable nappies tied in a plastic bag before binning.

What are the risks of a bone scan?

There are minimal risks involved in the nuclear medicine bone scan procedure. The scan involves a small dose of radiation from the radiopharmaceutical injected into your vein. The dose is similar to CT and fluoroscopy procedures.

If you are breast-feeding or caring for young children, see the 'how do I prepare' section for more information about special precautions you might need to take.

Rarely, allergic reactions have been associated with bone scan agents.