

# UNDERSTANDING YOUR **Nuclear Medicine** OR **PET Scan**

This leaflet  
answers general  
questions you may  
have when your  
doctor suggests  
you have a nuclear  
medicine or PET scan.  
The nuclear medicine  
service will give  
you more detailed  
information about  
your scan.



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## **What is nuclear medicine?**

Nuclear medicine uses very small amounts of radioactive material to diagnose or treat some diseases in a safe and painless way. These materials are called radiotracers and they collect in certain parts of the body for a short time. While the tracer stays in the body, it can be used to show parts of the body – a nuclear medicine scan – or to treat certain conditions.

## **Is nuclear medicine safe?**

Yes, nuclear medicine is very safe. The amount of tracer used is very small and it quickly loses radioactivity. It leaves your body in the first few hours or days following the test.

## **What is radiation?**

Radiation is a type of energy that exists in our environment in many forms. It comes from both natural sources – the warmth and light from the sun – and man-made sources like microwave ovens.

Ionising radiation is a form of radiation that also comes from both natural and man-made sources. It comes from the sun, the earth, the air, and our food and drink, and from building materials such as bricks. This is the natural background radiation to which everyone is exposed. Nuclear medicine scans use ionising radiation, as do x-rays.

## **How does a nuclear medicine scan work?**

The tracer collects in parts of the body for a short time and gives off a small amount of energy in the form of gamma rays. This energy is picked up by a special camera, and with the help of a computer makes pictures that help your doctor to diagnose conditions such as cancer, heart disease, thyroid disease, bone disease and fractures.

## **Why nuclear medicine scans?**

Nuclear medicine scans show both the structure of your body and how some parts are working - their function.

Because nuclear medicine scans give information about the function of your body, medical conditions can show up earlier than with other tests. This means the most suitable treatment can begin as soon as possible and is more likely to work.

## **Are there different types of scans?**

Yes, there are scans done with a gamma camera and scans done with a PET or positron emission tomography camera.

Only a few nuclear medicine services in Australia can do PET scans at the moment. Both PET AND gamma cameras can detect a tracer but they work in different ways and use different tracers.

## **Do nuclear medicine scans hurt?**

There is no pain or side effects for most nuclear medicine tests. If the tracer is injected you may feel some discomfort, like having a blood test, and a cold sensation in your arm.

For some tests, you breathe in the tracer, but it should feel no differently from breathing room air or holding your breath. For other tests it may be given in a drink or in food and has little or no taste. For some procedures, a catheter may be placed into your bladder, which may cause some temporary discomfort.

It is important that you remain still while the pictures are being taken. Though the scan itself causes no pain, some people find it uncomfortable to stay in one position for a period of time.

## **Will I have to stay in hospital?**

No, usually you only have to stay at the nuclear medicine service while the scan is done. In some cases you may need to return for repeat scans. Very occasionally people are asked to stay in hospital for a short time.

## **Should I prepare for a scan?**

Some scans require special preparation, such as not eating or drinking anything for some time before the scan, or not taking certain medications for one or two days before the scan.

**Your doctor or the nuclear medicine service where you are to have the scan will tell you about any special preparation needed.**

If you have **diabetes** and you are told not to eat or drink for some time before the scan, please be sure to tell the nuclear medicine staff and ask for special instructions.

**If you are pregnant or think you could be pregnant or you are breastfeeding it is very important that you tell the nuclear medicine service staff before they give you the tracer.**

Please read the information given to you before your appointment. If there is anything you don't understand, the nuclear medicine staff will be happy to answer your questions.

## What happens when I have the scan?

Firstly, you will be given the tracer. This is usually injected into a vein in your arm, but sometimes you breathe it in, or perhaps take it in a drink or in food.

You may be asked to wear a hospital gown but usually you can wear your own clothes.

You will have to remove any metal objects from your pockets and any jewellery because these interfere with the scan. If possible, leave any unnecessary jewellery at home.

For some scans you may need more than one injection so a very thin plastic tube may be put into a vein so that other tracers or medication can be given during the procedure.

The pictures may be taken immediately after the tracer is given or a few hours later, the next day or even two or more days later. This is because it takes different lengths of time for the tracer to reach the part of your body to be examined.

In the time between receiving the tracer and your scan, you may be able to go away. Staff will tell you what time to come back. They will also tell you what you can or can't do while you are away.

For PET scans, after the injection you will be asked to rest quietly, avoiding moving or talking, for up to one hour before you have your scan.

The scan is usually done with you lying down on a scanning couch. The couch then moves the area of your body to be scanned under the camera. This may come very close to you but will not touch you and you will not feel anything.

Staff will regularly check that you are OK.

If you are claustrophobic, please tell the staff before you are given the tracer.

## What happens after the scan?

After the scan, you may be asked to wait while the pictures are checked. Sometimes, more pictures are needed to see certain areas better or to be sure that the area being scanned is fully covered.

Generally, you can go back to your normal activities after your nuclear medicine scan, including going to work. If there are any special instructions, you will be told before you leave.

The results of your scan will be sent to the doctor who asked for the scan to be done. He or she will tell you the results at your next appointment.

## What is nuclear medicine therapy?

Nuclear medicine is most commonly used to diagnose various diseases. However, it can also be used to treat some conditions like joint pain, or cancer pain in your bones or an overactive thyroid gland. This is called nuclear medicine therapy.

There is more information about nuclear medicine and links to other helpful information websites on our website: [www.anzapnm.org.au](http://www.anzapnm.org.au)

If you have any other concerns or questions about your scan or therapy, please ask your doctor, your nuclear medicine specialist or the staff at the nuclear medicine service. They will be pleased to answer your questions.

YOUR APPOINTMENT IS AT:

ON:

ADDITIONAL NOTES: