

# Positron Emission Tomography (PET)

## What is a PET-CT scan?

Positron Emission Tomography (PET) is a subtype of nuclear medicine that uses a PET-CT scanner to detect cell activity within your body. The scanner is very similar in size and appearance to a normal CT scanner.

PET-CT scans provide information on how the tissues and organs in your body are working. This means they are often used to find, diagnose, and stage many disorders, including cancer. PET-CT scans are also effective in assisting with treatment plans for surgery and radiotherapy, and in evaluating the efficacy of such treatment.

PET-CT scans are conducted with the help of a radioactive tracer. In Australia, the most commonly used tracer is 18-FDG (fluoro-deoxyglucose). Before your scan, you will be injected with a tracer, which will gradually disperse throughout your body. It will accumulate in some of your body's cells and will highlight areas where abnormal cells may be located.

A PET-CT scanner can then determine the location and intensity of the disease process and generate a whole-body image for analysis. A CT scan is conducted at the same time to provide precise information on structural changes to the affected tissues.

## Do I need to prepare for my PET-CT scan?

### When you are booking your PET-CT scan, please notify staff if you:

- think you may be pregnant
- are breast feeding
- have kidney failure
- have diabetes
- have had a previous adverse reaction to intravenous contrast for CT scans
- are severely claustrophobic
- have any allergies
- are taking any medications

Having accurate dates of your most recent therapies, including surgery, radiotherapy, and chemotherapy, will also help in the booking process.

Please ensure you are on time for your scan. Tracers decay rapidly after production, and your administered dose has been calculated based on your body weight and to align with your appointment time. Our outstanding PET-CT scanners can detect even the lowest levels of radioactivity, but it is best to conduct a PET-CT scan 60 minutes after an optimised dose has been injected.

### Prior to your scan, please refrain from the following:

- Strenuous exercise (including jogging, swimming, and cycling) for 24 hours
- Eating or drinking fluids other than water for 6 hours

On the day of your scan, please bring all relevant imaging, especially if you have had scans conducted elsewhere, so it can be uploaded onto our system for comparison.

## What happens during a PET-CT scan?

Before you have the scan, a cannula will be placed into one of your veins. You will then proceed to an uptake room, where the tracer will be administered. It takes 60 minutes for the tracer to disperse throughout your body. During this time, you will rest in one of our recliners. It is very important that you completely relax your body – we recommend keeping movement to a minimum, and avoiding reading, speaking, eating, and drinking if possible.

After 60 minutes, you will be taken to our PET-CT scanner. You will lie on a table, which will move you through the scanner. It is very important that you lie as still as possible while the scanner is operating.

After your scan, a PET-CT technician will generate the images and upload them onto our private electronic database. Our highly trained subspecialist PET radiologists will interpret the images, produce a report, and send it to your referring doctor.

Our radiologists have very close working relationships with many of the referring doctors and will contact them urgently if appropriate.

## Are there any risks associated with a PET-CT scan?

<sup>18</sup>F-FDG has a half-life of just under 2 hours. This means less than 10% of the radioactivity generated by the tracer is left in your body after 8 hours, and it will clear your body within 24 hours.

Typically, a patient receives 5mSv of radiation from the tracer and approximately 9mSv from the CT component of the test. A total dose of 14mSv is a very safe level of radiation exposure, even if multiple scans are required over a period of time.

## How long will my PET-CT scan take?

Depending on what type of scan you are having, your PET-CT scan will take around two to three hours.

Our customer service team will let you know how long your appointment is scheduled for at the time of booking.

## How much will my PET-CT scan cost?

All Medicare eligible PET-CT scans are bulk billed if you have a referral from a specialist doctor. A referral received from a general practitioner or another non-specialist health care provider will incur a gap payment. Some cancers and inflammatory disorders are not covered by a Medicare rebate, even if referred by a specialist, and these referrals will also incur a gap payment.

Our customer service team will be able to advise you of any costs that may be involved with your PET-CT scan.