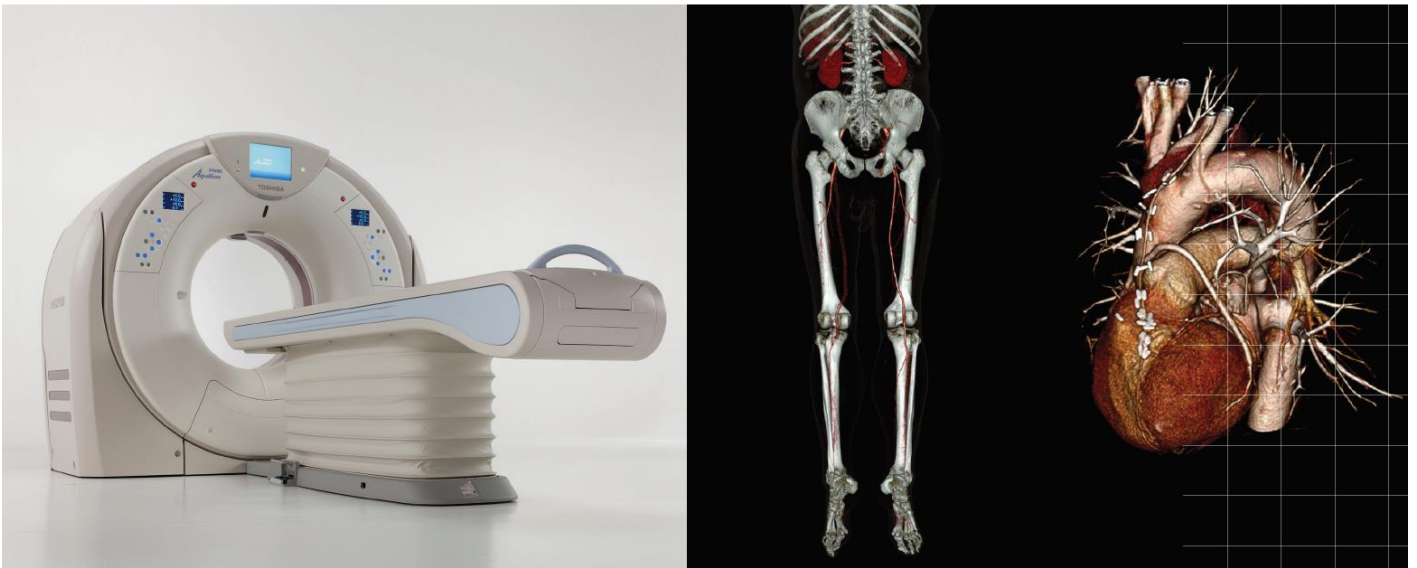


## SER Patient Information Sheet: **Low Dose CT**



### **What is a Low Dose CT?**

Computed tomography (CT) is a way of using X-rays to take pictures or images in very fine slices through the part of the body that the doctor has asked to be investigated.

Compared to older CT systems only a few years ago, most modern scanners now take either 16 through to 320 slices, and up to 640 slices per tube rotation for the most recent machines. This is referred to as “multi-slice” or “multi-detector” technology, and may be abbreviated as MSCT or MDCT.

This latest technology uses advanced software to further enhance the images, and the technological advancements also help reduce the amount of required x-rays to produce a CT image. The latest systems used by SER have reduced the required amounts of x-rays by up to 70%, compared to scanners from only 7 years ago.

The slices that are taken by an MSCT scanner are often less than 1 mm thick. Once the radiographer has taken the scan, these very thin slices can be put all together to reconstruct a volume of data, and create images of the area of the body that has been scanned.



Once they are put back together, the radiographer can cut the information into slices in any direction that will help the radiologist to see the parts of the body that are of interest, and in multiple planes.

Each scan is created specifically for the part of the body of interest and the condition that needs investigation. This will often involve creating several sets of pictures taken in different directions and some 3-dimensional (3D) pictures.

With these different slices and 3D reconstructions, the radiologist will have a very detailed picture of the structures making up your body. This should help them to make a diagnosis, or rule out other possible causes, so that the right treatment can be planned as soon as possible.

### **What are the benefits of a Low Dose CT?**

CT scans are a fast, effective and accurate way of assisting your doctor to make a diagnosis and treat your condition. They are readily accessible throughout most of Australia and can usually be carried out quite soon after referral.

### **Why would my doctor refer me for a CT scan?**

Your doctor may refer you for a CT if they feel that this test would be the most useful to identify the site and cause of your symptoms.

### **How do I prepare for a Low Dose CT?**

You will receive instructions from our Reception staff when you are booking an appointment to have the CT scan.

These instructions are very important, as they may affect the accuracy of the test or require that the test be rebooked if you are not properly prepared for the CT scan.

Some tests require no preparation, these include: brain, sinus or facial bones, temporal bones (inner ear), spine, knee or wrist and CTs of the bones.

Many types of CT require an injection of an iodinated contrast material to show blood vessels and some organs. For these tests, we will ask you to fast (not eat or drink) for 4 hours before your appointment.



*You are permitted to drink water over this time to avoid dehydration.*

It is important that the need to fast does not make you unwell, particularly if you have other special dietary requirements (e.g. diabetes). Please check with your doctor or with our staff where you are having the CT if you have any concerns.

If you do require an iodinated contrast injection for your test, it is likely that you will be taken into an area where either the radiologist or the radiographer will discuss iodine contrast with you. A consent form will need to be completed for the study.

They will then use a needle to insert a cannula (a small plastic tube) into a vein in your arm or the back of your hand so that the iodine contrast can be inserted into the cannula during the test.

While the iodinated contrast used for injections is considered very safe, there are precautions that must be taken when using it, particularly if you have poor kidney function or diabetes. In this circumstance we will need to know your renal function. Please bring along the results of your most recent blood test creatinine level.

Tests investigating your abdomen may require you to drink a different kind of iodinated contrast solution, or water, to outline your digestive system. This will also require fasting. This drink may be given at different times depending on where you are having the CT done. You will usually be asked to drink part of the whole dose an hour before the scanning time, and the rest of it just before entering the scanning room.

Depending on the type of scan that you are having you may be asked to change into a gown to avoid parts of your clothing affecting the scan.

### **Who does the CT?**

A **radiographer** or medical imaging technologist is a trained health professional who carries out diagnostic radiography, including CT scanning.

The **radiologist** is a specialist medical doctor who reviews and interprets the images and provides a written report of the test to your referring doctor, specialist or allied health worker.



## **What happens during a Low Dose CT and how long will it take?**

CT scans are designed to look at specific parts of the body and are tailored for each person, and to investigate their particular condition. This means that all CT scans are slightly different. So the time it takes to complete the scan will vary depending on why you are having it and the type of exam required.

CT scans that do not require an injection or much preparation are usually quite quick, and may be completed within 5 minutes. Even when you are having a scan that requires an injection or a drink and other preparation, the length of the scan itself is usually under 10 minutes.

The CT scanner is a large system with a circular hole in the middle of the gantry, which looks a little like a 'donut'. The process involves you lying on a bed on the scanner (this may be feet first or head first, depending on the part of the body being looked at). The bed will then be raised up to a height level with the circular hole and the bed slides in and out several times while CT images are being taken. It is important to try not to move during the scan, as it will affect the quality of the pictures, possibly require them to be repeated, and make them harder for the radiologist to interpret.

The radiographer carrying out the scan may ask you to hold your breath for some scans. The length of time is usually under 10 seconds. Most scanners in use are able to give instructions in different languages. They will have ways of communicating with you if your hearing is poor. If you have concerns during the scan, you can speak in the scanner and the radiographer will be able to hear you.

If your test requires an iodinated contrast injection, the radiographer will come into the room to administer it using either a handheld syringe or a mechanical injector. The pump helps to put the iodinated contrast in at a set rate, and allows for the scanner to target specific areas of the body.

***When the iodinated contrast is injected, most people will get a strange metallic taste in the mouth and feel a warm sensation through the body. This warm sensation may concentrate around the groin or buttock region and can feel like you may have wet yourself, even though you have not. Do not be concerned if this happens, it is a common sensation and usually goes away within a couple of minutes.***

Once the radiographer has reviewed the images briefly to check that the appropriate areas have been shown and of the required quality, they will come into the room to help you off the bed. The radiographer will check to make sure that you are feeling OK after the scan. They will then remove the cannula so that you can go home.



The radiographer will not be able to give you any results after the scan; this is the responsibility of your doctor and the radiologist who interprets the pictures from the scan and provides a report to your doctor.

### **Are there any after effects of a Low Dose CT?**

The vast majority of people who have a CT scan have no after effects at all. After the test, you should be able to eat and drink as normal and resume regular activities.

If you have an injection of iodinated contrast, the sensations of warmth and the strange taste usually experienced should go away within a few minutes. In very uncommon cases, some people may be allergic to the iodinated contrast given.

It is not possible to predict if a person will be allergic to the iodinated contrast, though the staff at our radiology practice are well trained to deal with allergic reactions should they arise. It is important to make the radiographer aware of any other allergies that you may have, before having the injection (see below: Risks of computed tomography).

### **What are the risks of a Low Dose CT?**

#### **Radiation exposure:**

As is the case with most tests and medications prescribed by your doctor, CT does have risks that cannot be avoided. These risks, however, will be minimised by the highly trained staff at our practice.

A CT scanner uses X-rays to obtain the pictures required for the radiologist to make a diagnosis. As is commonly known, X-rays are a form of radiation and must be used carefully by trained professionals to decrease the risks involved.

Our modern CT scanners can provide many images at dosages smaller than having a single X-ray test. In summary, the risks of radiation exposure are;

- A very small increase in the risk of developing cancer later in life. This low risk is considered to be outweighed by the benefits provided by the scan.
- Risk to an unborn child if you are pregnant. This risk could take the form of a very small increase in the risk of cancer or a malformation if you are exposed to radiation during the first months of your pregnancy.

Every CT scanner in use is regularly maintained and calibrated (tested and set to ensure accuracy) by specialised technicians. This is required by State and Federal laws. In addition, radiographers are trained to use the lowest possible radiation dose to achieve quality images. The radiographer will only scan the part(s) of the body required.



They will also do their best to avoid scanning areas that are particularly sensitive to radiation, and this may involve the use of shields made of lead or bismuth (a type of metallic substance).

Radiation is only on while the scan is being carried out, and there is no radiation remaining in the room or in your body after the test.

**Contrast Medium:**

There is also a small risk of an allergic reaction to iodinated contrast when it is injected. This is not a risk for contrast that is swallowed. It is not possible to predict whether you will be allergic to iodinated contrast. , Our staff are well trained to deal with allergic reactions should they arise.

It is important to make the radiographer or nurse aware of any other allergies that you may have before having the injection. If you are allergic to other foods or drugs, it increases the chance that you will have an allergic reaction to iodinated contrast.

People who are allergic to the iodinated contrast used in CT may have some of the following symptoms:

- nausea and/or vomiting;
- a skin rash or hives;
- itching;
- sneezing or watering eyes;
- dizziness and/or headache;
- gagging or feeling of suffocation, or swelling of the inside of the throat or mouth;
- change in blood pressure.

After the test, you should be able to eat and drink as normal and resume regular activities. If you do feel any of these symptoms during or after your scan, it is important to tell the radiographer immediately. If these feelings come on after leaving the radiology practice, you should return there immediately (if the department is open and is close by), or attend the nearest doctor or emergency department.

**South East Radiology has invested in the latest low dose CT technology which greatly reduces the amount of radiation required to produce a high-quality examination.**

**When can I expect the results of my Low Dose CT?**

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 specialist;
- whether you have had previous X-rays that need to be compared with this new test or procedure
- SER will have x-ray results to your referring doctor within 24 hours of examination.

**South East Radiology**  
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