

Computed Tomography (CT Scan)

Patient Information

What is computed tomography?

Computed tomography (CT) is a way of using X-rays to take pictures in very fine slices through the part of the body that the doctor has asked to be investigated. One way to think of it is of taking slices through a loaf of bread.

Modern CT machines are “multi-slice” (MSCT) scanners and take between 16 and 320 slices (less than 1mm thick) at once.

Once the scan is complete, these very thin slices can be put all together and the radiographer can then cut the loaf in any direction that will help see the parts of the body that are of interest.

With multiple slices and 3D reconstructions, a very detailed picture of the structures making up your body is produced. This should help make a diagnosis so that the right treatment can be planned as soon as possible.

How do I prepare for CT Scan?

The Medical Imaging Department will provide you with instructions for your CT scan before your appointment. If you are an inpatient in hospital, the nurses caring for you will ensure that the appropriate preparations are carried out. These instructions are very important, as they may affect the accuracy of the test.

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) before your appointment. Fasting for 2–4 hours is common, you are usually 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 special dietary requirements (e.g. diabetes). Please check with the Medical Imaging Department, if you have any concerns.

If you do require a contrast injection for your test, the radiologist or radiographer will discuss iodine contrast with you. 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.

Tests investigating your abdomen may require you to drink water to outline your intestine (part of your digestive system). This will also require fasting. This drink may be given at different times. You will usually be asked to drink part of the water 1 hour before the scanning time, and the rest of it just before entering the scanning room.

You may also be asked to change into a gown to avoid parts of your clothing affecting the scan.

If you have any concerns regarding fasting, the iodinated contrast injection or your medication, you should contact your own doctor or the Medical Imaging Department at GSHS before your appointment.

It is important to follow the instructions you are given to ensure that the test is done safely, accurately and efficiently, and so that you do not need to have the scan rescheduled or repeated.



What happens during computed tomography?

CT scans are designed to look at specific parts of the body and are tailored for each person, to investigate your condition. This means that all CT scans are slightly different.

The CT scan equipment is a large square machine with a circular hole or gantry, sometimes described as looking like a ‘donut’. The general process involves you lying on a bed attached to 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 in the scanner, and the bed slides in and out of the hole several times while pictures are being taken. It is important to try not to move during the scan, as it will affect the quality of the pictures and make them harder to interpret.

The radiographer carrying out the scan may ask you to hold your breath for some scans. The length of

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time for each breath hold is usually under 10 seconds.

The first few scans are usually done to set up the machine ready for the test. When the test is programmed into the computer by the radiographer and the scan is ready to go, they may remind you to keep still. If your test requires a contrast injection, the radiographer will come into the room to administer it using either a handheld syringe or a mechanical pump. 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, they will come into the room to help you off the bed. The radiographer will not be able to give you any results after the scan; the radiologist will report the scan and the results will be sent to your doctor.

Once the scan is completed, you will have the cannula removed so you can go home.



Are there any after-effects of a CT?

Most 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.

What are the risks of CT?

Radiation exposure:

As is the case with most tests and medications prescribed by your doctor, CT does have risks that cannot be avoided.

Our staff are highly trained to minimise these risks by using the lowest possible radiation dose to achieve quality images that allow the radiologist to make an accurate diagnosis. The radiographer will only scan the part(s) of the body required and do their best to avoid scanning areas that are particularly sensitive to radiation - this may involve the use of shields made of lead or bismuth (a type of metallic substance).

A CT scanner uses X-rays to obtain the pictures required for 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.

The risks of radiation exposure during a CT are:

- A very small increase in the risk of developing cancer later in life. This is a low risk, 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.

Minimising risks from radiation include making sure that 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.

Contrast Medium:

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. There is a small risk of an allergic reaction to iodinated contrast when it is injected.

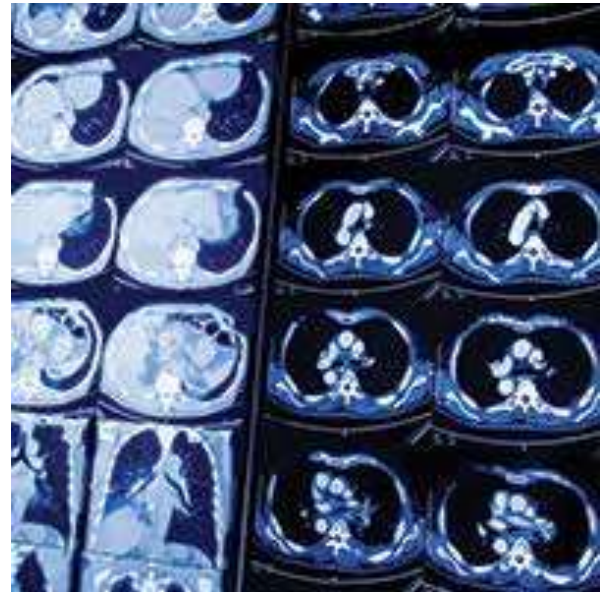
It is not possible to predict who will be allergic to iodinated contrast, though our staff are well trained to deal with allergic reactions should they arise. It is important to make the radiographer aware of any allergies you may have before having the injection.

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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.

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 hospital, you should return there immediately, or attend the nearest doctor or emergency department.



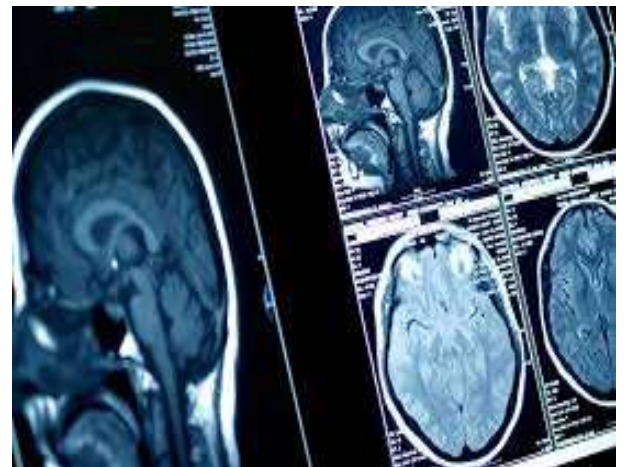
What are the benefits of CT?

CT scans are a fast, effective and accurate way of assisting your doctor to make a diagnosis and treat your condition.

How do I get my results?

Your doctor will receive a written report on your test as soon as is practicable.

It is very important that you discuss the results with the doctor who referred you so that they can explain what the results mean for you.



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