

CT SIMULATION SCAN

Radiotherapy requires precise planning so a customised plan is designed for each patient by carrying out a CT Simulation Scan. Computed Tomography scanning emits an x-ray beam and uses a computer to generate images of the body. A CT Simulation Scan does not deliver Radiotherapy.

The scan starts when you are in the correct position. This is the same as an ordinary CT Scan. Afterwards the doctor can see the images of your body to visualise the tumour or area that needs treatment and the normal healthy tissues. There are no 'Results', this CT Scan is used only for the planning of your Radiotherapy. The oncologist, the radiation therapist and the physicist may attend the scan.

PATIENT POSITION

The Radiation Therapists will ensure you are in the correct position and as comfortable as

The air is removed from the pillow so that it holds onto the shape of your body. This pillow will then be used each day for your treatment.

TATTOOS

Three small permanent reference marks or tattoos, resembling small black freckles, will be made on your body. This allows the Radiation Therapists to set you up in exactly the same position for each Radiotherapy treatment.

4DCT SCAN

A "4DCT Scan" is sometimes requested by your doctor because some tumours move a lot while others don't have very much movement at all. A 4DCT Scan is carried out on the same CT Scanner. This normally occurs when the area to be treated is located on or near organs that move such as areas in the chest or abdomen that move due to breathing.

It is important to be as relaxed as possible so that your breathing pattern is regular. To assist you the Radiation Therapists and the physicist may use voice prompting or video goggles. Voice prompting involves following instructions delivered through audio speakers and video goggles involves following visual instructions which you can see by wearing video goggles. (picture below)



The 4DCT Scan allows your doctor to evaluate how much the area to be treated moves when you're breathing. Your team will use this information to decide if Radiotherapy should be delivered at specific phases of your breathing pattern.

possible. This is very important because the Radiotherapy has to be given to the exact same area in the body for each treatment. You will have to maintain this position for the scan and also for the delivery of each Radiotherapy treatment.

To ensure the position is correct a Vac-Bag or personal pillow may be used. It is like a bean bag, filled with air and polystyrene beads. You will lie on your back with your arms above your head and this pillow underneath you. The Radiation Therapists will mould the pillow around you, this will help to keep you steady and comfortable, while supporting your arms.

The 4DCT Scan captures the movement of the area to be treated and the movement of the organs while you are breathing. The same position as the CT Sim Scan is used for the 4DCT Scan. A small plastic box with reflective markers is placed on your abdomen. This box moves when you breathe and a special camera will capture the movement of the box. This allows your breathing to be monitored on the computer by your Physicist and Radiation Therapist.

If the tumour moves a lot respiratory gating can be used to deliver the Radiotherapy.

images from the CT Sim Scan. Some tumours have minimal movement and do not require respiratory gating.

USEFUL INFORMATION

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