

What is PET scanning?

Positron Emission Tomography is a technology that combines medicine, physiology, chemistry, physics and computers and allows us to image the "working" part of the brain as well as other organs of the body.

At the MNIH, PET is used to look at cerebral blood flow, to identify and monitor neurological disorders such as Parkinson's disease, and for pre-surgical evaluation of patients with epilepsy and brain tumours.

The PET scanner utilizes radiation emitted as positrons in a conscious patient's brain to create images or pictures of distinct areas.

Unlike MRI or CT, PET does not show the body's anatomy but rather the chemical function or metabolism of an organ.

The dose of radiation received from a PET scan is approximately twice the annual amount you can expect to receive from natural sources.

Pregnant and nursing women should speak to staff and children under the age of 18 should be accompanied by an adult.

Preparation

You may be asked not to eat or drink for a few hours before the scan. If this is not required, please eat and drink moderately on the day of your test.

If you have any questions prior to your appointment you should feel free to call the Brain Imaging Centre.

When you arrive at the Centre, the staff will explain the PET procedure to you. It is important to inform the staff of your current medical status, such as whether you are diabetic or are taking any medication.

Please take your medications on the day of the test.

You should wear warm, comfortable clothing, as the room can be cold at times. Your clothes should allow the rolling up of sleeves and not restrict circulation. If possible, before coming to the hospital, remove hairpins, earrings, and any metal that may show on the scan. For your comfort you will be asked to go to the bathroom before starting your scan.

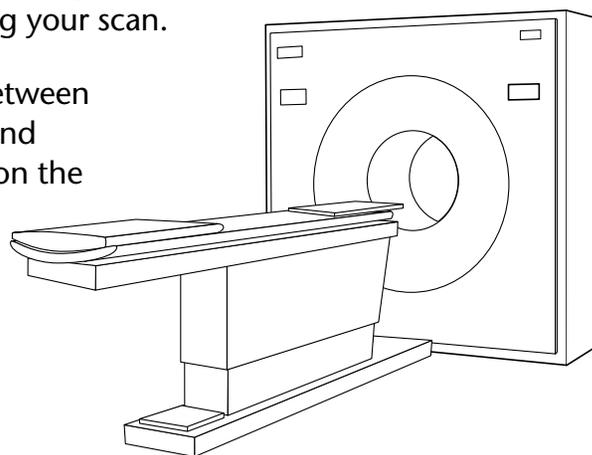
Scan duration ranges between 20 minutes to 2 hours and 30 minutes depending on the type of examination.

What happens during a PET scan?

You will be asked to lie down and place your head in a cradle-like apparatus similar to what you would find in a CT or MRI scanner. Please try to be as still as possible. To assist in this, there is a bag filled with polyester beads which conforms to the shape of your head. This also provides support and comfort. You will have a Velcro strap around your forehead and it is important to note that only part of your head will be inserted into the scanner. The scanner is relatively quiet. During the scan please close your eyes, limit your movement as much as possible, and speak only in response to questions.

As the scan starts, a small amount of a radioactive compound will be injected into a vein of the arm or an intravenous site. The substance is not a dye, but a compound your body uses like water or sugar that has a small radioactive tag. This allows the imaging of specific parts of the brain.

Throughout the scan, qualified personnel will be present.



After the scan

There should be no side effects, and you should be able to go about your normal activities after the scan. In some instances you may be asked to drink extra fluids.

PET scanning does not interfere with other tests or treatments.

How do I get the results of my PET scan?

The scan will be read by a qualified physician at the hospital. The results will be sent to the physician who ordered the scan and will take approximately one week.

What is the difference between a CT scan, an MRI scan and a PET scan?

PET, CT, and MRI use scanning devices and computers to construct images of the brain and other major organs in the body. The CT scan uses x-rays, while MRI uses magnetic and electrical fields to show the structures of the brain. In contrast, PET shows how the brain cells are working in relationship to the functions they perform. Hence, PET maps brain function.

DEFINITION OF TERMS

PET (Positron Emission Tomography)

A technique that allows the measurement of distinct areas of brain function. The PET scanner utilizes radiation emitted from the patient to create images or pictures of brain function.

MRI (Magnetic Resonance Imaging)

A technique that uses electromagnetic fields to create an image of the structure of the brain or other organs.

CT (Computerized Tomography)

The utilization of x-rays to create images of the structure of the brain or other organs.

Radioactive Compound

Materials that have been produced and made radioactive in a medical cyclotron and are injected prior to the test. They are similar to substances that are naturally produced or used by the body, such as sugar, water and oxygen.

Authors : R. Fukasawa, P. Del Mastro

Production: Neuro-Patient Resource Centre
Montreal Neurological Hospital Room 354

Tel: (514) 398-5358

infoeuro@muhc.mcgill.ca

<http://www.mcgill.ca/mni/neuropatient/index.html>



InfoNEURO

INFORMATION FOR PATIENTS

Positron Emission Tomography (PET)

McConnell Brain Imaging Centre
Montreal Neurological Institute
and Hospital

Tel. 514-398-1996

**Webster 2B (second basement level)
Room 206**

