

PET SCAN

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PET Scan

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A positron emission tomography (PET) scan is a unique type of imaging test that helps doctors see how the organs and tissues inside your body are actually functioning.

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The test involves injecting a very small dose of a radioactive chemical, called a radiotracer, into the vein of your arm. The tracer travels through the body and is absorbed by the organs and tissues being studied. Next, you will be asked to lie down on a flat examination table that is moved into the center of a PET scanner - a doughnut-like shaped machine. This machine detects and records the energy given off by the tracer substance and, with the aid of a computer, this energy is converted into three-dimensional pictures. A physician can then look at cross-sectional images of the body organ from any angle in order to detect any functional problems.

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A PET scan can measure such vital functions as blood flow, oxygen use, and glucose metabolism, which helps doctors identify abnormal from normal functioning organs and tissues. The scan can also be used to evaluate the effectiveness of a patient's treatment plan, allowing the course of care to be adjusted if necessary.

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How is a PET scan different from a CT or MRI scan?

One of the main differences between PET scans and other imaging tests like CT scan or magnetic resonance imaging (MRI) is that the PET scan reveals the cellular level metabolic changes occurring in an organ or tissue. This is important and unique because disease processes often begin with functional changes at the cellular level. A PET scan can often detect these very early changes whereas a CT or MRI detect changes a little later as the disease begins to cause changes in the structure of organs or tissues.

How should I prepare for a PET scan?

A PET scan is usually done on an outpatient basis. Your doctor will give you detailed instructions on how to prepare for your scan, including what you may or may not eat or drink before your exam. Before undergoing the scan, be sure to tell your doctor of any medication - prescription and over-the-counter - that you are taking as well as any herbal medications and vitamins. If you are taking certain medications or have certain diseases, such as diabetes, you will be given specific instructions regarding preparation for your scan. Generally, most patients are told not to eat anything for a minimum of 6 hours before the scan. Heart patients are also told to not take any product with caffeine for at least 24 hours. Be sure to wear comfortable clothes to your appointment. You may be asked to change into a hospital gown during the test. In those patients that need an assessment of the area near the bladder, a bladder catheter may need to be inserted.

It is essential to tell your doctor if you are pregnant or think you might be pregnant before undergoing a PET scan because of radiation exposure.

How long does the test take?

Once injected into a vein, the radiotracer typically takes from 45 minutes to 1 hour to travel throughout the body and be absorbed into the organs or tissues to be examined. The scan itself may take another 30 to 60 minutes. The heart and brain studies take less time for imaging. You will be asked to remain still for the entire length of the exam, since motion will reduce the quality of the images. Depending on which organ is being examined, there may be additional tests and additional dyes or chemicals used that may lengthen the total appointment time up to 2 to 3 hours. For example, patients being examined for heart disease may undergo a stress test in which PET scans are obtained while at rest followed by the administration of other drugs to examine blood flow to the heart under exercise conditions.

Does the PET scan pose any risks?

Although a radiotracer chemical is used in this test, the amount of radiation you are exposed to is low. The dose of tracer used is so small that it does not affect the normal processes of the body. However, the radiotracer may expose the fetus of patients who are pregnant or infants of women who breastfeed to the radiation. You and your doctor need to consider this risk compared with the need for and potential information to be gained from the PET scan.

How soon will the scan results be available?

A radiologist who has specialized training in PET scans will interpret the images, write a report, and deliver the results to your doctor. This process usually takes 24 hours.

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