PET/CT scan

A positron emission tomography (PET) scan is an imaging test that helps reveal how your tissues and organs are functioning. A PET scan uses a radioactive drug (tracer) to show this activity. This scan can sometimes detect disease before it shows up on other imaging tests.

The tracer may be injected, swallowed or inhaled, depending on which organ or tissue is being studied. The tracer collects in areas of your body that have higher levels of chemical activity, which often correspond to areas of disease. On a PET scan, these areas show up as bright spots.

A PET scan is useful in revealing or evaluating several conditions, including many cancers, heart disease and brain disorders. Often, PET images are combined with CT or MRI scans to create special views.

Why is it done ?

A PET scan is an effective way to examine the chemical activity in parts of your body. It may help identify a variety of conditions, including many cancers, heart disease and brain disorders. The pictures from a PET scan provide information different from that uncovered by other types of scans, such as computerized tomography (CT) or magnetic resonance imaging (MRI). A PET scan or a combined CT-PET scan enables your doctor to better diagnose illness and assess your condition.

Cancer

Cancer cells show up as bright spots on PET scans because they have a higher metabolic rate than do normal cells. PET scans may be useful in:

- Detecting cancer
- Revealing whether your cancer has spread
- Checking whether a cancer treatment is working
- Finding a cancer recurrence

PET scans must be interpreted carefully because noncancerous conditions can look like cancer, and some cancers do not appear on PET scans. Many types of solid tumors do appear on PET scans, including:

- Brain
- Cervical
- Colorectal
- Esophageal

- Head and neck
- Lung
- Lymphoma
- Melanoma
- Pancreatic
- Prostate
- Thyroid

Heart disease

PET scans can reveal areas of decreased blood flow in the heart. This information can help you and your doctor decide, for example, whether you might benefit from a procedure to open clogged heart arteries (angioplasty) or coronary artery bypass surgery.

Brain disorders

PET scans can be used to evaluate certain brain disorders, such as tumors, Alzheimer's disease and seizures.

How to prepare:

Please tell the technologist if you have an insulin pump.

Tell your doctor:

- If you've ever had a bad allergic reaction
- If you've been sick recently or you have another medical condition, such as diabetes
- If you're taking any medications, vitamins or herbal supplements
- If you're pregnant or you think you might be pregnant
- If you're breast-feeding
- If you're afraid of enclosed spaces (claustrophobic)

Your doctor will give you detailed instructions on how to prepare for your scan. A general rule is to avoid strenuous exercise for a couple of days before the study and to stop eating a few hours before the scan.

What to expect during the test:

The PET scanner is a large machine that looks a little like a giant doughnut standing upright, similar to a computerized tomography (CT) machine. In some medical institutions, a combined CT-PET scanner is used.

You'll need about two hours for the procedure, which may be done on an outpatient basis (no overnight hospital stay). When you arrive for your scan, you may be asked to:

- Change into a hospital gown
- Empty your bladder

Then you will be given a radioactive drug (tracer). You will receive the drug by injection, you may briefly feel a cold sensation moving up your arm. You'll need to wait 30 to 60 minutes for the tracer to be absorbed by your body.

During the procedure

When you are ready, you'll lie on a narrow, padded table that slides into the scanner. During the scan you'll need to lie very still so that the images aren't blurred. It takes about 30 minutes to complete the test. The machine makes buzzing and clicking sounds.

The test is painless. If you're afraid of enclosed spaces, you may feel some anxiety while in the scanner. Be sure to tell the nurse or technologist about any anxiety causing you discomfort. In some cases you may have a CT and PET scan in the same machine during the same appointment. The CT scan will be done first and take about 10 minutes.

What to expect after the test:

- you can resume your usual activities and normal diet immediately.

After the test you can carry on with your day as usual, unless your doctor tells you otherwise. You'll need to drink plenty of fluids to help flush the tracer from your body.

Pictures from a PET scan display bright spots where the radioactive tracer collected. These spots reveal higher levels of chemical activity and details about how your tissues and organs are functioning. A doctor specially trained to interpret scan images (radiologist) will report the findings to your doctor.

The radiologist may also compare your PET images with images from other tests you've undergone recently, such as computerized tomography (CT) or magnetic resonance imaging (MRI). Or the pictures may be combined to provide more detail about your condition.

- The results of your exam should be available to your physician within 24-48 hours after the test, Monday through Friday.
- Your physician will discuss the test results with you.