

[Home](#) > [Navigating Cancer Care](#) > [Diagnosing Cancer](#) > [Tests and Procedures](#) > [Positron Emission Tomography \(PET\) Scan](#)

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## **Positron Emission Tomography (PET) Scan** [1]



*Listen to the Cancer.Net Podcast: [PET Scan - €"What to Expect](#)[2], adapted from this content*

A positron emission tomography (PET) scan is a diagnostic tool used to detect cancer and find out the cancer's stage (a way of describing where the cancer is located, if or where it has spread, and whether it is affecting the functions of other organs in the body). Knowing the cancer's stage helps you and your doctor decide what kind of treatment is best and helps predict prognosis (a patient's chance of recovery). The scan can also be used to evaluate the effectiveness of cancer treatments, such as chemotherapy or radiation therapy. A PET scan is often used to complement information gathered from a [computed tomography \(CT\) scan](#) [3], [magnetic resonance imaging \(MRI\)](#) [4], or a physical examination.

For the scan, a small amount of a radioactive substance is injected into a vein. This substance is absorbed mainly by organs and tissues that use the most energy. Because cancer cells tend to use more energy than healthy cells, they absorb more of the radioactive substance. A scanner then detects this substance to produce images of organs and tissues inside the body.

The radioactive substance only stays in your body for a short time. Although there is a small risk of exposure to radiation from a PET scan, these risks are usually outweighed by the benefits of having the scan.

In many cases, the doctor will recommend an integrated PET-CT scan. This combines the images from a PET scan and a computed tomography (CT) scan that have been performed at the same time using the same machine. Together, these two scans create a more accurate picture of what is going on in the body than either test can offer alone. Learn more about [what to expect with an integrated PET-CT scan](#) [5].

### **The medical team**

A PET scan is given at the radiology or nuclear medicine department of a hospital or at an imaging center. It is performed by a nuclear medicine or radiologic technologist (health care professionals who are specially trained and certified to operate PET scanners) and interpreted by a nuclear medicine physician or a radiologist (doctors who perform and interpret imaging tests to identify problems in the body).

### **Preparing for the procedure**

When you schedule your test, you will receive detailed instructions about how to prepare. For example, you may be told to drink only clear liquids beginning at midnight the night before your examination and instructed to not eat or drink anything for at least four hours before your scan begins. However, talk with a member of your health care team about restrictions on eating and drinking because they may not be necessary for scans of some parts of the body.

You should also tell your doctor or nurse about all of the medications you are taking and ask whether you should take them on the day of the test. In addition, discuss any drug allergies or other medical conditions you have. For example, women should tell their doctors if they are breastfeeding or if there is any chance they may be pregnant because a PET scan could put the baby at risk.

You will be asked to sign a consent form that states you understand the benefits and risks of the PET scan and agree to undergo the test. Talk with your doctor about any concerns you have about the scan. You may also want to ask whether you can bring your own music at this time because some facilities allow patients to listen to music during their scan to make them more comfortable.

Finally, check with your insurance provider to find out whether the PET scan will be covered and whether you will have to pay any out-of-pocket costs.

### **During the procedure**

When you arrive for your PET scan, you may need to change into a hospital gown or remove clothing or jewelry that could interfere with the scan. A technologist or a nurse will then deliver the radioactive substance into your vein through an intravenous (IV) injection. The IV line will feel like a pinprick when it is inserted, but the radioactive material will not cause any sensation in your body.

After the injection, the radioactive substance will take 30 to 90 minutes to reach the tissues that will be scanned. During that time, you will need to lie quietly without moving or talking because too much movement can interfere with the normal distribution of the radioactive material and make interpretation of the study more difficult.

When it is time for the test to begin, a technologist will help position you on a padded exam table outside of the PET scanner, which resembles a large donut. The scanning process will take approximately 30 to 60 minutes, during which the table will slowly slide back and forth through the large hole in the center of the machine about six times while you lie still. The PET scanner does not make a lot of noise.

### **After the procedure**

You can expect to return to your normal activities immediately after the PET scan, including driving. You will be advised to drink several glasses of water to flush the radioactive material out of your body.

### **Questions to ask your doctor**

Before having a PET scan, consider asking your doctor the following questions:

- Who will perform the PET scan?
- What will happen during the PET scan?
- How long will the procedure take?
- What are the benefits and risks of having a PET scan?
- What are the restrictions on what I may eat or drink before the examination?
- If I am pregnant or breastfeeding, should I have this test?
- Will I need to avoid any activities after the PET scan?
- Do I need to bring any other radiologic images (such as MRI or CT) to my appointment?
- When will I learn the test results? How will the results be communicated to me?
- Who will explain the results to me?
- Will I need any additional tests?

### **More Information**

Tests and Procedures [6]

### **Additional Resources**

*RadiologyInfo.org: Positron Emission Tomography - Computed Tomography[7].*

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#### **Links:**

[1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/positron-emission-tomography-pet-scan>

[2] [http://www.cancer.net/sites/cancer.net/files/PET\\_Scan\\_What\\_to\\_Expect.mp3](http://www.cancer.net/sites/cancer.net/files/PET_Scan_What_to_Expect.mp3)

[3] <http://www.cancer.net/node/24486>

[4] <http://www.cancer.net/node/24578>

[5] <http://www.cancer.net/node/24565>

[6] <http://www.cancer.net/node/24959>

[7] <http://www.radiologyinfo.org/en/info.cfm?PG=p&bhcp=1>