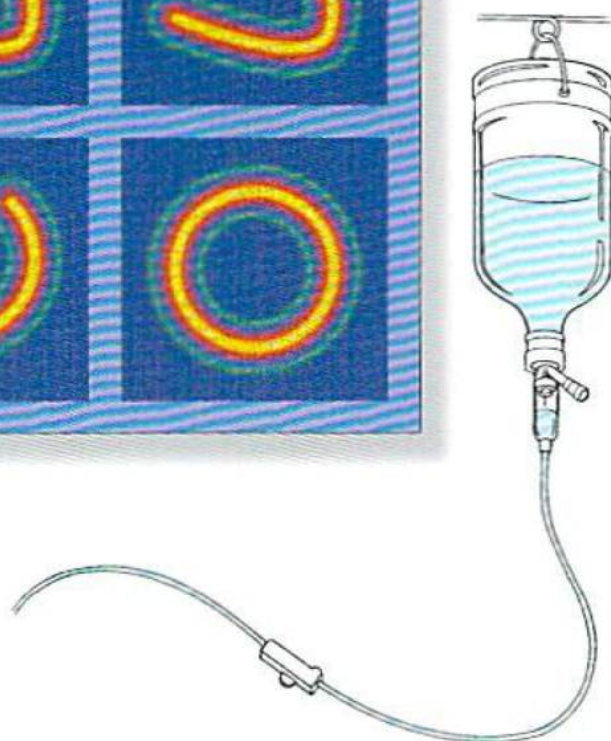
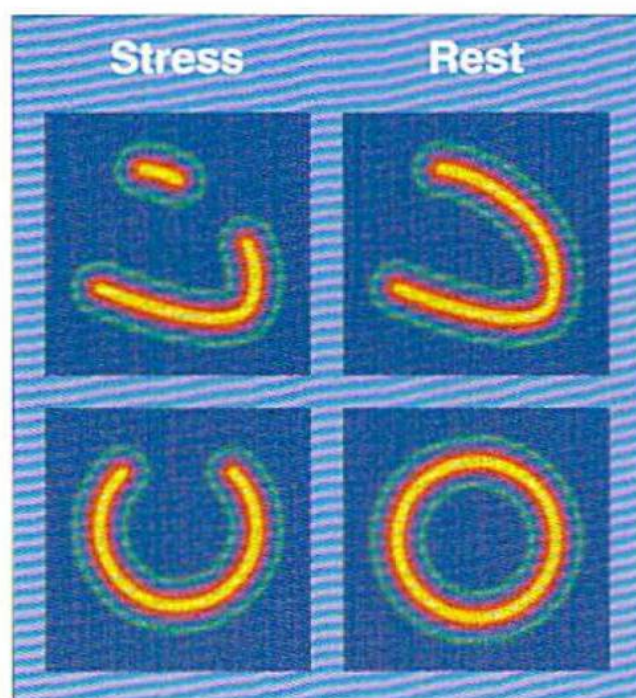


Dobutamine **Cardiac Perfusion** **Imaging**



A Patient's Guide

What Is Cardiac Perfusion Imaging?

Cardiac perfusion imaging is a medical test that uses a radioactive substance, known as a **tracer**, to assess the flow of blood to the heart muscle.

Generally, cardiac perfusion imaging is done after an exercise (stress) test. *For patients who are unable to exercise adequately*, it may be done after injection of a drug that mimics the effect of exercise on the heart. This is known as a pharmacologic stress test.

The drugs most often used for pharmacologic stress testing are adenosine and dipyridamole. Another drug, **dobutamine** (Dobutrex[®]), is used in patients who cannot take adenosine or dipyridamole, usually because they have asthma or chronic lung disease.

(Other terms often used to describe cardiac perfusion imaging include: myocardial perfusion scan, cardiac nuclear imaging, and radionuclide stress test. Based on the specific tracer that's used, it may also be called Thallium, Cardiolite, or Myoview scan.)

What Does It Show?

Cardiac perfusion imaging helps doctors diagnose coronary heart disease, which is caused by narrowed or blocked **coronary arteries** (the vessels that supply blood to the heart muscle).

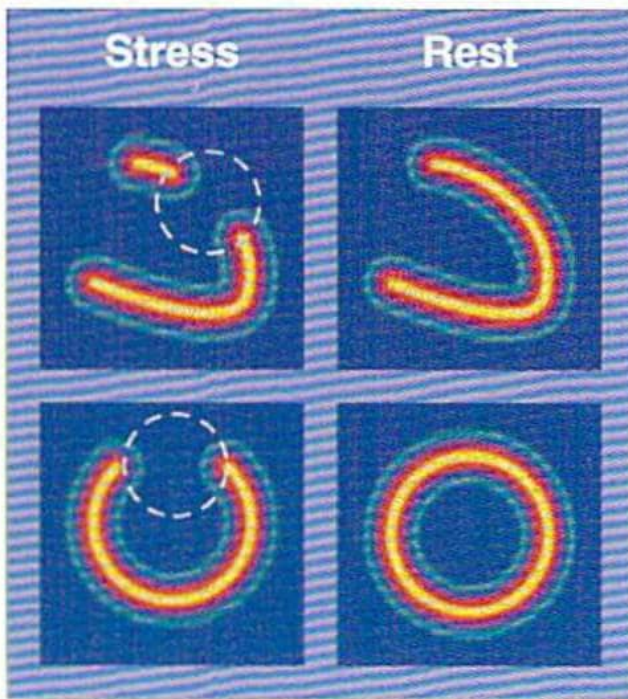
During the test, dobutamine is injected into a vein. The drug makes your heart beat faster and harder, as if you were exercising. As a result, it increases the flow of blood to the heart muscle.

Once dobutamine has been given, a small amount of radioactive tracer is injected into the vein. The tracer collects in those parts of the heart muscle that have good blood flow.

The tracer gives off a small amount of radiation that is detected with a **scanning camera**. A computer processes the information and produces images that show how radioactivity is distributed in the heart.

If an area of the heart receives less blood than the rest of the heart (because of a narrowed or blocked artery), it will pick up less radioactivity and will show up as a lighter area, called a “defect.”

Additional tracer is injected while you are at rest, and another set of images is taken. By comparing the stress and rest images, doctors can identify areas of the heart muscle with reduced blood flow as well as areas that are scarred from a previous heart attack.



Cardiac Perfusion Scan

The images show the heart from two different “angles” during stress and at rest. The stress images show a “defect,” which disappears at rest. This suggests a narrowing in the artery which supplies blood to that area of the heart muscle.

Why Is the Test Done?

Most often, cardiac perfusion imaging is performed to diagnose coronary heart disease. Your doctor may order this test if you have chest pain, shortness of breath, or any other symptoms that could be related to your heart.

The test may also be done to determine how severe coronary disease is, to estimate the risk of a future heart attack, and to assess the results of a coronary procedure (such as angioplasty or bypass surgery).

PREPARING FOR THE TEST

- **Generally, you will be instructed not to eat or drink for at least 4 hours before the test.** If you have diabetes and take medication for it, you will need special instructions.
- **If you take heart medications, check with your doctor** when you schedule the test. Some heart medications (especially beta blockers) can affect the results. You may be asked to stop such medications a day or two before the test.
- **Wear comfortable clothing and shoes** that are suitable for walking, as you may be asked to do low-level exercise.
- The procedure will be explained to you and you will be asked to sign a consent form. Feel free to ask any questions you may have.

What Happens During the Test?

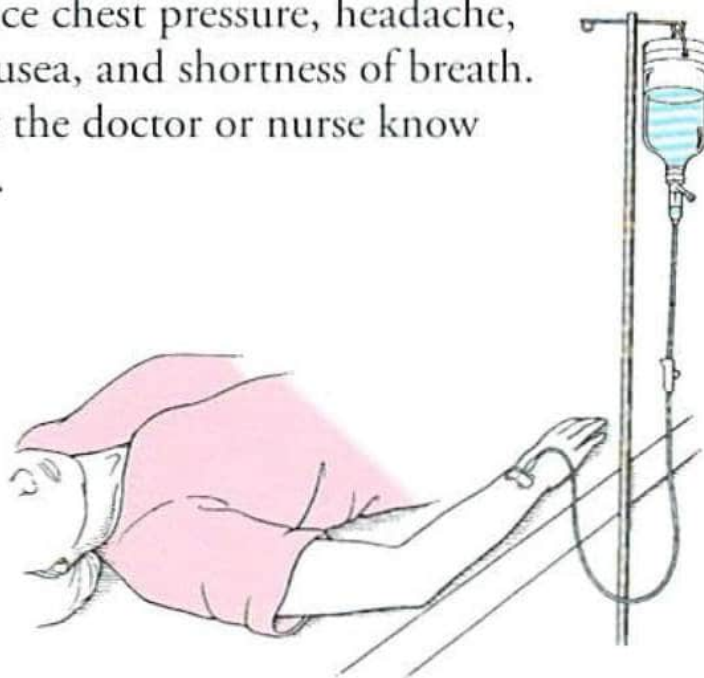
Cardiac perfusion imaging is generally performed at a hospital, test center, or clinic. It may be done *on a single day or on two separate days*.

Usually, two sets of images are taken. One set is taken after dobutamine has been given (the stress portion), another set is taken after a period of rest. Depending on the department's routine, *either the stress or the rest part may be done first*.

■ *Stress Portion*

Several electrodes (small sticky patches) will be placed on your chest to obtain an ECG and monitor your heartbeat. An **intravenous (IV) line** will be inserted into a vein in your arm.

Dobutamine is then injected slowly through the IV into the vein. As the drug is given, it is normal to feel your heart pound for a few minutes. You may also experience chest pressure, headache, dizziness, nausea, and shortness of breath. Be sure to let the doctor or nurse know how you feel.



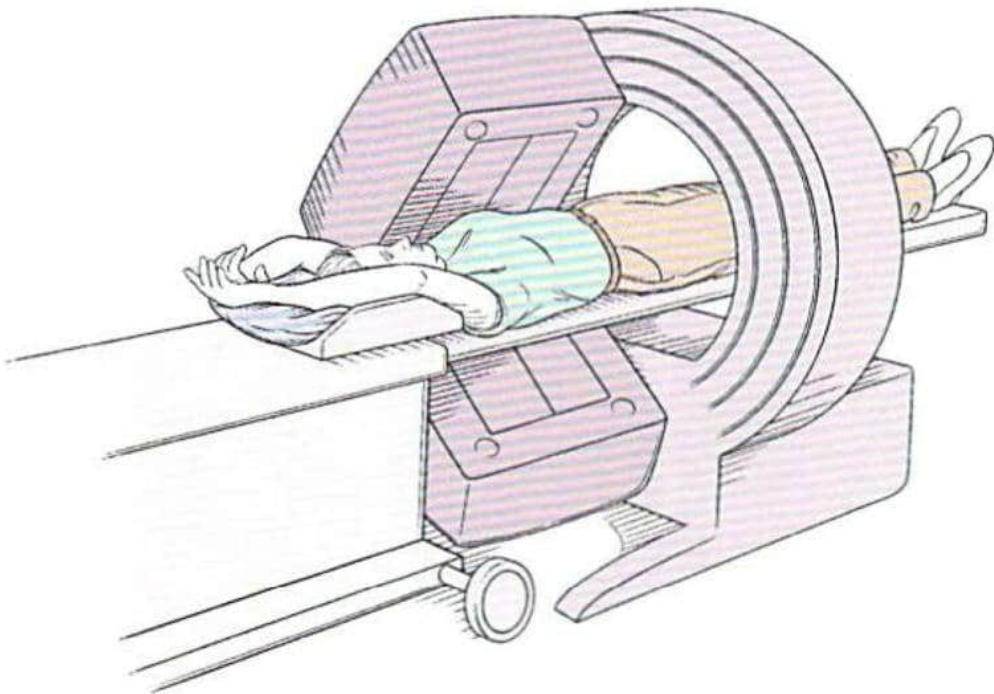
In some cases, *you may be asked to perform low-level exercise* after dobutamine has been injected. This helps to improve the quality of the test and lessen side effects from the drug.

Once dobutamine has been given, or soon after, the radioactive tracer is injected into the vein.

Next, you lie flat on a special table under a large scanning camera. During **imaging**, the camera moves slowly in an arc over the front of your chest, taking pictures of your heart from different angles. *Remain still while the pictures are being taken.* The imaging part of the test takes about 20 to 30 minutes.

■ *Rest Portion*

A tracer will be injected one other time, and another set of pictures will be taken while you are at rest. These images are then compared to the images taken during the exercise portion of the test.





How Long Does It Take?

Cardiac perfusion imaging can take *from 2 to 5 hours*. If you are an outpatient, you may be allowed to leave the test area between the two parts of the test. Or, you may be asked to return the next day for more imaging.

Is the Test Safe?

The radiation exposure during perfusion imaging is small, and the doses used are safe. However, if you are pregnant, suspect you may be, or are a nursing mother, be sure to let your doctor know.

The injection of dobutamine is also safe. A small amount of risk does exist, however, because the heart is stressed. Possible *rare* complications include low blood pressure and abnormal heart rhythms. Trained personnel are there to handle any emergency.

Your Test Results

Your doctor will discuss the results of the test with you during a future office visit. The results help the doctor accurately diagnose your condition and develop a treatment plan that's best for you.

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