



Heart Disease and the Echocardiogram

An echocardiogram is a test that uses ultrasound to evaluate your heart muscle and heart valves.

Why Do I Need an Echocardiogram?

Your doctor may perform an echocardiogram to:

- Assess the overall function of your heart
- Determine the presence of many types of heart disease
- Follow the progress of heart valve disease over time
- Evaluate the effectiveness of medical or surgical treatments

What Are the Types of Echocardiograms?

There are several types of echocardiograms. Your doctor will help determine which is best for you.

- **Transthoracic echocardiogram:** This is the standard echocardiogram. It is a painless test similar to X-ray, but without the radiation. The procedure uses the same technology used to evaluate a baby's health before birth. A hand-held device called a transducer is placed on the chest and transmits high frequency sound waves (ultrasound). These sound waves bounce off the heart structures, producing images and sounds that can be used by the doctor to detect heart damage and disease.
- **Transesophageal echocardiogram (TEE):** This test requires that the transducer be inserted down the throat into the esophagus (the swallowing tube that connects the mouth to the stomach). Because the esophagus is located close to the heart, clear images of the heart structures can be obtained without the interference of the lungs and chest.
- **Stress echocardiogram:** This is an echocardiogram that is performed while the person exercises on a treadmill or stationary bicycle. This test can be used to visualize the motion of the heart's walls and pumping action when the heart is stressed. It may reveal a lack of blood flow that isn't always apparent on other heart tests. The echocardiogram is performed just prior and just after the exercise.
- **Dobutamine stress echocardiogram:** This is another form of stress echocardiogram. However, instead of exercising to stress the heart, the stress is obtained by giving a drug that stimulates the heart and makes it "think" it is exercising. The test is used to evaluate your heart and valve function when you

are unable to exercise on a treadmill or stationary bike. It is also used to determine how well your heart tolerates activity and your likelihood of having coronary artery disease (blocked arteries), and evaluates the effectiveness of your cardiac treatment plan.

- **Intravascular ultrasound:** This is an ultrasound performed during cardiac catheterization. During this procedure, the transducer is threaded into the heart blood vessels via a catheter in the groin. It is often used to provide detailed information about the atherosclerosis (blockage) inside the blood vessels.

How Should I Prepare for the Echocardiogram?

On the day of the echocardiogram, eat and drink as you normally would. Take all of your medications at the usual times, as prescribed by your doctor.

What Happens During the Echocardiogram?

During an echocardiogram, you will be given a hospital gown to wear. You will be asked to remove your clothing from the waist up. A cardiac sonographer will place three electrodes (small, flat, sticky patches) on your chest. The electrodes are attached to an electrocardiograph monitor (ECG or EKG) that charts your heart's electrical activity.

The sonographer will ask you to lie on your left side on an exam table. He or she will place a wand (called a sound-wave transducer) on several areas of your chest. The wand will have a small amount of gel on the end, which will not harm your skin. The gel is used to help produce clearer pictures.

Sounds are part of the Doppler signal. You may or may not hear the sounds during the test. You may be asked to change positions several times during the exam in order for the sonographer to take pictures of different areas of your heart. You may also be asked to hold your breath at times during the exam.

You should feel no major discomfort during the test, although you may feel coolness from the gel on the transducer and a slight pressure of the transducer on your chest.

The test will take about 40 minutes. After the test, you can get dressed and go about your daily activities. Your doctor will discuss the test results with you.

What Should I Do to Prepare for a Stress Echocardiogram?

If you are scheduled for a dobutamine stress echo AND you have a pacemaker, please contact your doctor for specific instructions. Your device may need to be checked before the test.

On the day of the stress echocardiogram, do not eat or drink anything except water for four hours before the test. Do not drink or eat caffeinated products (cola, chocolate, coffee, tea) for 24 hours before the test. Caffeine will interfere with the results of your test. Do not take any over-the-counter medications that contain caffeine for 24 hours before the test. Ask your doctor, pharmacist, or nurse if you have questions about medications that may contain caffeine.

Do not take the following heart medications for 24 hours before your test unless your doctor tells you otherwise, or unless the medication is needed to treat chest discomfort:

- Beta-blockers (for example, Tenormin, Lopressor, Toprol, or Inderal)
- Isosorbide dinitrate (for example, Isordil, Sorbitrate)
- Isosorbide mononitrate (for example, Ismo, Indur, Monoket)
- Nitroglycerin (for example, Deponit, Nitrostat, Nitropatches)

Your doctor may also ask you to stop taking other heart medications on the day of your test. If you have any questions about your medications, ask your doctor. Do not discontinue any medication without first talking with your doctor.

If you use an inhaler for your breathing, please bring it with you.

What Happens During the Dobutamine-Induced Stress Echocardiogram?

When getting a dobutamine-induced stress test, a technician will place electrodes (small, flat, sticky patches) on your chest. The electrodes are attached to an electrocardiograph monitor (ECG or EKG) that charts your heart's electrical activity during the test.

An intravenous line (IV) will be inserted into a vein in your arm so the dobutamine medication can be delivered directly into your bloodstream. The technician will perform a resting echocardiogram, measure your resting heart rate, and take your blood pressure. The doctor or nurse will administer the dobutamine into the IV while the technician continues to obtain echo images. The medication will cause your heart to react as if you were exercising: your heart rate will rise and you may feel it beating more strongly. It may cause a warm, flushing feeling and in some cases, a mild headache.

At regular intervals, the lab personnel will ask how you are feeling. Please tell them if you feel chest, arm, or jaw pain or discomfort, shortness of breath, dizziness or lightheadedness, or any other unusual symptoms.

The lab personnel will watch for any changes on the ECG monitor that suggest the test should be stopped. The IV will be removed from your arm once all of the medication has entered your bloodstream.

The appointment will take about 60 minutes. The actual infusion time is usually about 15 minutes. After the test, plan to stay in the waiting room until all of the symptoms you may have experienced during the test have passed.

Your doctor will discuss the test results with you.

What Should I Do to Prepare for a Transesophageal Echocardiogram?

Before a transesophageal echocardiogram, tell your doctor if you have any problems with your esophagus, such as hiatal hernia, swallowing problems, or cancer.

On the day of a transesophageal echocardiogram, do not eat or drink anything for six hours before the test. Take all of your medications at the usual times, as prescribed by your doctor. If you must take medication before the test, take it with a small sip of water.

If you have diabetes and take medication or insulin to manage your blood sugar, please ask your doctor or the testing center for specific guidelines about taking your diabetes medications before the test.

Someone should come with you to your appointment to take you home, as you should not drive until the day after the test. The sedation given during the test causes drowsiness, dizziness, and impairs your judgment, making it unsafe for you to drive or operate machinery.

What Happens During the Transesophageal Echocardiogram?

Before the transesophageal echocardiogram, you will be asked to remove dentures. An intravenous line (IV) will be inserted into a vein in your arm or hand so that medications can be delivered during the test.

A technician will gently rub three small areas on your chest and place electrodes (small, flat, sticky patches) on these areas. The electrodes are attached to an electrocardiograph monitor (ECG or EKG) that charts your heart's electrical activity during the test.

A blood pressure cuff will be placed on your arm to monitor your blood pressure during the test. A small clip, attached to a pulse oximeter, will be placed on your finger to monitor the oxygen level of your blood during the test.

A mild sedative (medicine to help you relax) will be given through your IV. Because of the sedative, you may not be entirely awake for the test.

An ultrasound probe (viewing instrument) will be inserted into your mouth, down your throat, and into your esophagus. This won't affect your breathing. You may be asked to swallow at certain times to help the ultrasound probe pass into your esophagus. This part of the test lasts a few seconds and may be uncomfortable. Once the probe is positioned, pictures of the heart are obtained at various angles. You will not feel this part of the test.

When completed, the probe is withdrawn. You will be monitored for about 20-30 minutes after the test, which takes about 10-30 minutes to perform.

Someone will need to drive you home after the test. You should not eat or drink until the anesthetic wears off -- about an hour after the test. Your doctor will discuss the test results with you.

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[Sources](#) ^

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