

HEART TEST OPTIONS

Electrocardiogram (ECG)

An electrocardiogram is the most common test for heart rhythm conditions. It can also be used to diagnose a heart attack in a person with suggestive symptoms. An electrocardiogram machine records your heart's rhythm onto paper through sticky electrodes which are placed on your chest, arms and legs. The recording will show if the heart muscle is damaged or short of oxygen is the setting of a heart attack, and detect any irregularities of the heart rhythm.

Holter Monitor

The Holter monitor is a portable device used to make a continuous recording of your heart rate and rhythm as you go about your daily routine. Information from the device is used to detect any heart rhythm abnormalities, to help determine whether your medications need adjusting, or to match your symptoms with the heart's electrical activity.

If you have signs and symptoms of an arrhythmia such as palpitations (episodes of rapid or irregular heartbeats) or unexplained fainting or dizziness, your doctor may recommend wearing a Holter monitor for 48 hours. Over that period of time, abnormalities in your heart rate and rhythm can be recorded. Additionally, you can press the Event Button whenever you feel a specific symptom which helps to document how your symptoms might be related to any abnormal electrical activity in your heart.

Blood Tests

Blood tests can help to diagnose a heart condition or to monitor someone who has already been diagnosed with a heart condition. Blood tests can also be taken to monitor the effects of medication as well as the levels of minerals in the blood, and to quantify cardiovascular risk factors such as cholesterol and blood sugar.

There is a highly sensitive blood test that measures your levels of a protein known as troponin . Troponin is released when your heart faces significant stress or gets damaged. This test is commonly used to diagnose a heart attack, but Troponin can also be elevated in other conditions.

Echocardiogram (ECHO)

This test uses sound waves to study the structure and function of your heart, and how the heart and valves are working. A probe sends out and records these sound waves, producing a moving image of your heart on a screen. Echocardiogram is typically done to evaluate the heart's function, the valves, the aorta, the sac that surrounds the heart (pericardium), or as part of a stress test.

Coronary Computed Tomography Angiogram (Coronary CTA)

This is a type of computed tomography (CT) scan that can help diagnose coronary artery disease. It gives a 3-dimensional image of the heart chambers and coronary arteries supplying blood to the heart. Coronary CTA is most useful in younger individuals (younger than ~65 years of age) and in those without previous coronary artery stents.

Magnetic Resonance Imaging (MRI)

An MRI uses magnets to create detailed images of your heart on a computer. It can take still or moving pictures of your heart. It does not involve radiation. Sometimes a special dye is used to make parts of the heart and blood vessels easier to see. This test shows your doctor the structure of your heart and how well it is working, so they can decide the best treatment for you. It is also used to evaluate the aorta, the body's biggest blood vessel.

Coronary Angiography or Coronary Catheterization (CATH)

Coronary angiography involves a small tube being inserted into an artery in the arm or leg and threaded through the aorta to reach the coronary arteries in your heart. A special dye is injected through the catheter into your bloodstream. Using the dye as a highlight, X-ray pictures of the heart and coronary arteries are taken. This is the gold-standard test to evaluate for coronary artery blockage; but because it is invasive, it is reserved for special situations such as heart attacks, unstable angina, pre-heart surgery, or any other situation when your doctor has a strong suspicion for coronary artery blockages as a cause for symptoms.

Stress Tests

Stress tests help your doctor find out how well your heart works when you're physically active, using either exercise machines (e.g. a treadmill or bike) or a medication to “stress” the heart (such as dobutamine, dipyridamole, adenosine or regadenoson).

- **Exercise Stress Test**

This is an electrocardiogram (ECG) done while you exercise on a bike or treadmill. The technician checks your heart rate, heart rhythm, ECG tracings and blood pressure. This test can help your doctor determine whether the heart is a cause for your symptoms.

- **Nuclear Cardiac Stress Test/ Myocardial Perfusion Scan/ Persantine Myoview/ Single Photon Emission Computed Tomography (SPECT)**

All of the above names can be used to describe the same test. This is a type of stress test that can be done with either exercise or a medication to stress the heart. A tiny dose of a radioactive substance called a 'tracer' is injected into your bloodstream before and after the “stress” part of the test. The tracer goes to your heart and releases energy. Special cameras take a picture of this energy from outside your body, at rest and after the stress. Your doctor uses this picture to see how much blood flows to your heart muscle during resting and stress conditions. This information helps your doctor determine This test also helps your doctor to see if your heart muscle is damaged.

- **Stress Echocardiogram (STRESS ECHO)**

A stress echocardiogram (stress echo) is an imaging test that uses ultrasound to show how well your heart works during stress (induced by exercise or medication). Based on how the different parts of your heart move during stress conditions, the doctor can determine whether your heart may be suffering from poor blood flow (due to blockages of the coronary arteries). This test can also be used for other indications, such as determining severity of valve disease.

Cardiac Positron emission tomography (PET)

Cardiac PET can be used for 3 main reasons: (1) as another type of nuclear stress test (as described above), (2) as viability imaging to assess how much heart muscle has been damaged by a heart attack, and how

much heart muscle is still “alive” and would benefit from improvements in blood flow, and (3) to detect inflammation in the heart, such as in cardiac sarcoidosis or myocarditis, for example. A different type of nuclear tracer is used for the different indications.