

# Heart Tests

Because the heart's electrical system is complicated, diagnosing abnormal heart rhythms (arrhythmias) can be difficult and requires heart rhythm experts who use special testing equipment.

To find the problem, a doctor will take a medical history, ask about symptoms, give a thorough physical exam, and order specific tests.

## Diagnostic Tests

### Electrocardiogram (ECG/EKG)

Electrodes leading to a special machine are attached to the legs, arms, and chest with sticky patches to record the electrical signals that create heart beats.

### Echocardiogram

A special imaging machine with a microphone-like attachment creates a videotaped image of the heart, showing the four chambers, valves, and movements.

### Holter Monitoring

To detect abnormal heart rhythms, patients wear a recorder about the

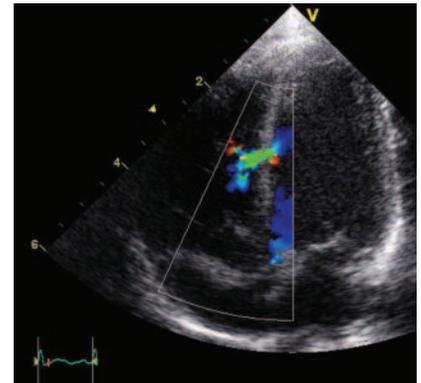
size of a deck of cards, with electrodes attached to their chest by sticky patches for 24-48 hours.

### Event Recorder

Patients carry an event recording box so they can make a 1-2 minute recording of their heart rhythms when they have symptoms. Also the size of a deck of cards, the recorder is helpful for patients with who have infrequent symptoms.

### Tilt Table Test

This test searches for reasons for fainting, or temporary passing out (syncope). Heart rhythm and blood pressure are carefully monitored while the patient rests on a special table. The table tilts the patient upright at a 70-80 degree angle for 30-45 minutes. If the patient faints, it usually means that he or she has



a condition called vasovagal or neurocardiogenic fainting, which is not life threatening.

### Electrophysiology Study (EPS)

Under safe conditions in the electrophysiology lab, thin tubes called electrode catheters are placed into veins in the groin or neck area and passed into the heart to record its electrical signals and pace the heart. An electrophysiologist (EP),

The heart pumps blood to almost all of the body's **75** trillion cells. Only the corneas receive no blood supply.

a heart rhythm specialist, studies the speed and flow of these signals to pinpoint areas in the heart's muscle or conduction system that cause rhythm problems. This study can diagnose potentially life-threatening slow and fast heart rates.

#### **Cardiac Catheterization**

A thin hollow tube called a catheter is placed into a blood vessel and, using an X-ray machine, passed into the heart. Special heart catheters measure the pressure in the heart and show blockages in the coronary blood vessels by injecting contrast dye.

#### **Diagnostic Difficulties**

Since many heart rhythm problems come and go, they may not show up during a test. Sometimes the heart needs to be monitored over time. To find the problem, specialists may also induce or cause abnormal heart rhythms in the electrophysiology lab, a safe and monitored environment.

Symptoms can be hard to identify. People with arrhythmias may not feel any symptoms, or they may have symptoms that seem unrelated to the heart, such as lightheadedness, fainting, or shortness of breath. Electrophysiologists, doctors who specialize in heart rhythm problems, run special tests to see if those symptoms are caused by problems in the heart's electrical system or by other types of heart disease.

Some arrhythmias are caused by factors unrelated to the heart. Medications, metabolic diseases, the environment, diet, and stress can cause abnormal heart rhythms in otherwise healthy people. Specialists take all of these factors into account as they choose tests to uncover the true cause of an arrhythmia.