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Electrocardiogram

An electrocardiogram (ECG) is a test that records the electrical activity of the heart.

See also:

- Holter monitoring
- Stress test

How the Test is Performed

You will be asked to lie down. The health care provider will clean several areas on your arms, legs, and chest, and then attach small patches called electrodes to the areas. It may be necessary to shave or clip some hair so the patches stick to the skin. The number of patches used may vary.

The patches are connected by wires to a machine that turns the heart's electrical signals into wavy lines, which are often printed on paper. The test results are reviewed by the doctor.

You usually need to remain still during the procedure. The health care provider may also ask you to hold your breath for a few seconds as the test is being done. Any movement, including muscle tremors such as shivering, can alter the results. So it is important to be relaxed and relatively warm during an ECG recording.

Sometimes this test is done while you are exercising or under minimal stress to monitor changes in the heart. This type of ECG is often called a stress test.

How to Prepare for the Test

Make sure your health care provider knows about all the medications you are taking, as some can interfere with test results.

Exercising or drinking cold water immediately before an ECG may cause false results.

How the Test Will Feel

An ECG is painless. No electricity is sent through the body. The electrodes may feel cold when first applied. In rare cases, some people may develop a rash or irritation where the patches were placed.

Why the Test is Performed

An ECG is used to measure:

- Any damage to the heart
- How fast your heart is beating and whether it is beating normally
- The effects of drugs or devices used to control the heart (such as a pacemaker)
- The size and position of your heart chambers

An ECG is usually the first test done to determine whether a person has heart disease. Your doctor may order this test

if:

- You have chest pain or palpitations
- You are scheduled for surgery
- You have had heart problems in the past
- You have a strong history of heart disease in the family

There is no reason for healthy people to have yearly ECG tests.

Normal Results

- Heart rate: 60 to 100 beats per minute
- Heart rhythm: consistent and even

What Abnormal Results Mean

Abnormal ECG results may be a sign of

- Abnormal heart rhythms (arrhythmias)
- Damage or changes to the heart muscle
- Changes in the amount of sodium or potassium in the blood
- Congenital heart defect
- Enlargement of the heart
- Fluid or swelling in the sac around the heart
- Inflammation of the heart (myocarditis)
- Past or current heart attack
- Poor blood supply to the heart arteries

Some heart problems that can lead to changes on an ECG test include:

- Atrial fibrillation/flutter
- Heart failure
- Multifocal atrial tachycardia
- Paroxysmal supraventricular tachycardia
- Sick sinus syndrome
- Wolff-Parkinson-White syndrome

Risks

There are no risks. No electricity is sent through the body, so there is no risk of shock.

Considerations

The accuracy of the ECG depends on the condition being tested. A heart problem may not always show up on the ECG. Some heart conditions never produce any specific ECG changes.

Alternative Names

ECG; EKG

References

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Update Date: 6/3/2012

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