

## Exercise Treadmill Test



### Why

The purpose of the test is to see how your heart responds to exertion and assess your cardiovascular response.

### How

You will be asked to exercise on a treadmill and try to reach your "target" heart rate based on your age.

During the treadmill test, you will be continuously monitored so we can see if there are any blood pressure, heart rate, heart rhythm and ECG changes.

The exercise portion of the test usually lasts for 6 to 15 minutes.

### Then what

Once the test is completed you can go home. The results are sent to your cardiologist who will read the test and then write to your GP with the results.

Your doctor will inform you of the test results or your consultant will see you in his/her outpatient clinic.



# Echocardiogram

# Cardiology Department



## Why

An echocardiogram is an ultrasound or sound wave test of the heart. It is used to evaluate the size, thickness, and pumping action of the heart.

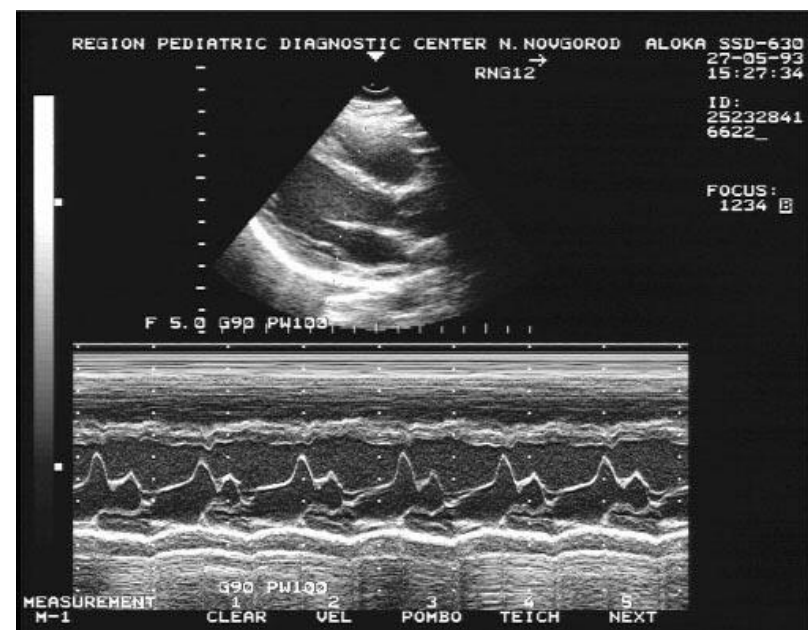
It can also help evaluate murmurs, valve problems, or fluid around the heart.

## How

The test is non-invasive, which means no needles, catheters, or dyes are used. Ultrasound is used to create a picture of the heart, including the blood vessels, valves, atria and ventricles. Gel is placed on the skin over the area to be studied. An instrument, called a transducer, is placed on your skin. Sound waves are transmitted from the transducer. The sound waves reflect off the tissues and organs to create a picture that can be seen on a screen. Blood flow through the blood vessels can be heard as the test is being completed.

## Then what

The result will be sent back to your consultant who will discuss it with you in his/her outpatient clinic.





Hypertension is high blood pressure and is one of several 'risk factors' that can increase your chance of developing heart disease, a stroke or other serious conditions. Generally the higher the blood pressure, the greater the risk.

## What is blood pressure?

Blood pressure is the pressure of blood in your arteries (blood vessels). It is measured in millimeters of mercury (mmHg). Your blood pressure is recorded as two figures. For example, 150/95 mmHg. This is said as '150 over 95'.

- **The top (first) number is the systolic pressure.** This is the pressure in the arteries when the heart contracts.
- **The bottom (second) number is the diastolic pressure.** This is the pressure in the arteries when the heart rests between each heartbeat.



## What causes high blood pressure and how common is it?

The cause is not known in most cases. Various factors probably contribute. In the UK, about half of people over 65, and about 1 in 4 middle aged adults have high blood pressure.

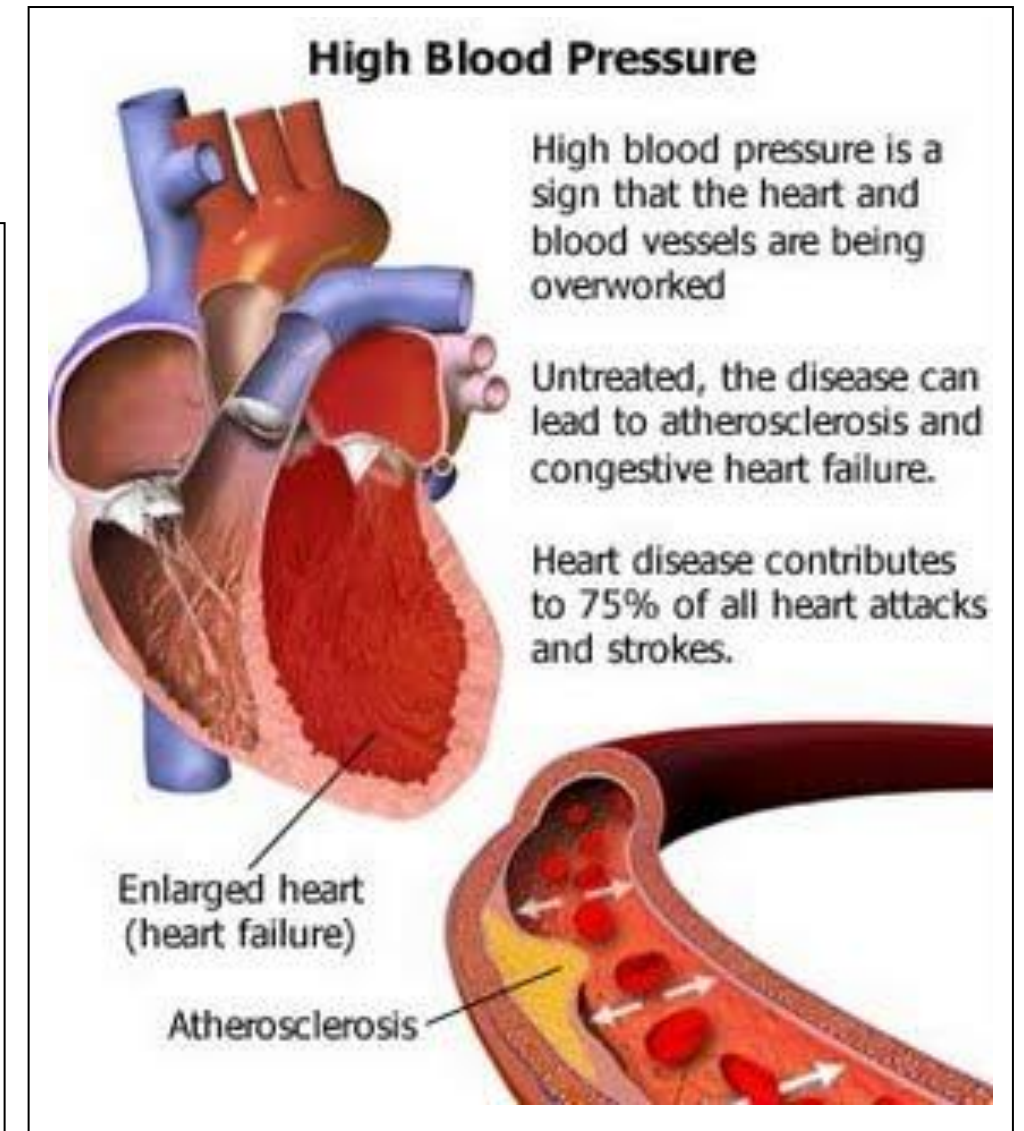
High blood pressure is more common in people:

- With diabetes. About 3 in 10 people with Type 1 diabetes and more than half of people with Type 2 diabetes eventually develop high blood pressure.
- From African-Caribbean origin.
- From the Indian sub-continent.
- With a family history of high blood pressure.
- With certain lifestyle factors.

## Why is high blood pressure a problem if it causes no symptoms?

High blood pressure is one of the 'risk factors' for developing cardiovascular disease (such as a heart attack or stroke), and kidney damage, sometime in the future. If you have high blood pressure, over the years it may damage your arteries which can put a strain on your heart.

Treatment includes changes in lifestyle - losing weight if you are overweight, regular physical activity, a healthy diet, reducing alcohol intake, stopping smoking, decrease salt and caffeine intake and if needed- medication.





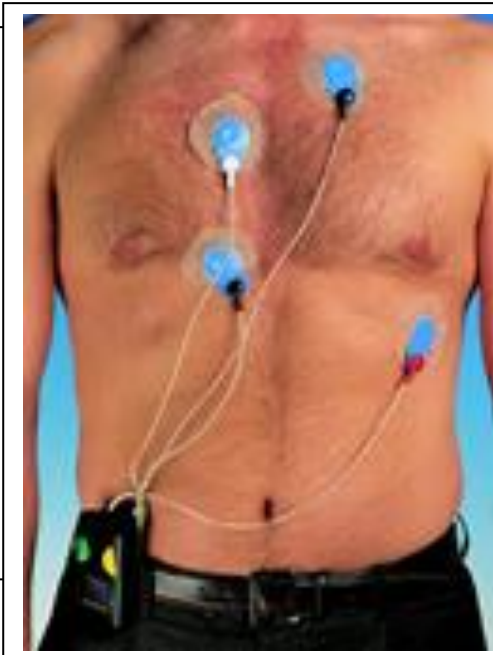
# Ambulatory Monitoring

## Cardiology Department

### What is an ambulatory ECG / BP?

This test records the electrical activity of your heart when you are walking about (ambulatory) and doing your normal activities. Small metal electrodes are stuck on to your chest. Wires from the electrodes are connected to a small lightweight recorder (often called a Holter monitor). The recorder is attached to a belt which you wear round your waist. (It is like wearing an mp3 player.) The electrical activity is usually recorded for 24-48 hours. But can be for as long as 7 days.

The BP monitor is where you have a cuff around your arm and it records your blood pressure every so often throughout 24 hours.



### Why is an ambulatory monitoring test done?

Your doctor may advise this test if he or she suspects that you are having bouts of an abnormal heart rate or rhythm (arrhythmia) or high / low blood pressure. For example, if you have palpitations or episodes of collapse / dizziness / headaches. Some arrhythmias 'come and go', or may only last seconds / minutes. They may never be found when you are examined by a doctor. So, this test is used to try to catch them. They can also be used to correlate your symptoms with your heart rhythm / BP, see how long they last, and what may cause them. It will then guide treatment.

### How is the test done?

It takes about 10 minutes for the electrodes / blood pressure cuff and recorder to be fitted. You then go and do what you normally do over the next 24-48 hours. You wear the recorder when asleep in bed too. (However, you should not have a bath or shower, as the recorder should not get wet.)

You will be given a diary to record the times when you develop any symptoms (such as palpitations, dizziness). On some recorders, you press a button to mark the time whenever symptoms occur. A doctor may ask you to do some activities which have previously brought on symptoms to try to provoke the same symptoms.

The ECG tracing or BP readings are analysed by a Cardiac Physiologist at the end of the test. But, any times you record when you had symptoms will be most carefully analysed to see if you had an arrhythmia or significant BP changes to account for the symptoms.

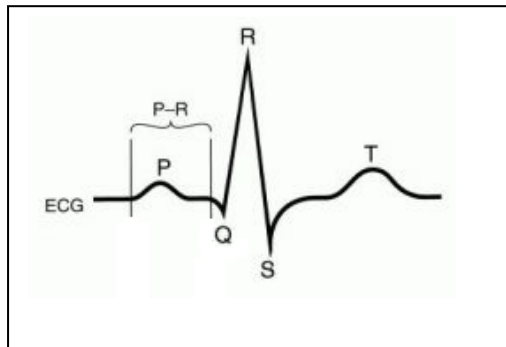
### Event Recorder

This device, similar to a Holter monitor, is worn during normal daily activities including sleeping; however, it is worn for a longer period of time. You will learn how to take the device off during showers and baths. It is used for arrhythmias that occur less frequently.

Small electrodes are attached to your chest. Wires are attached from the electrodes to a box about the size of a MP3 player and worn on a belt or shoulder strap. When you feel symptoms, you depress a button and the recorder is activated. The monitor records the event for about 60 seconds prior to your pushing the button and up to 1 minute after the button is pressed. The event monitor can store up to ten events. Some recorders activate automatically only if your heart rate or rhythm is abnormal.

The rhythm is saved and downloaded onto a computer when you return it. The Cardiac Physiologist will give the report on your recordings to your doctor for review

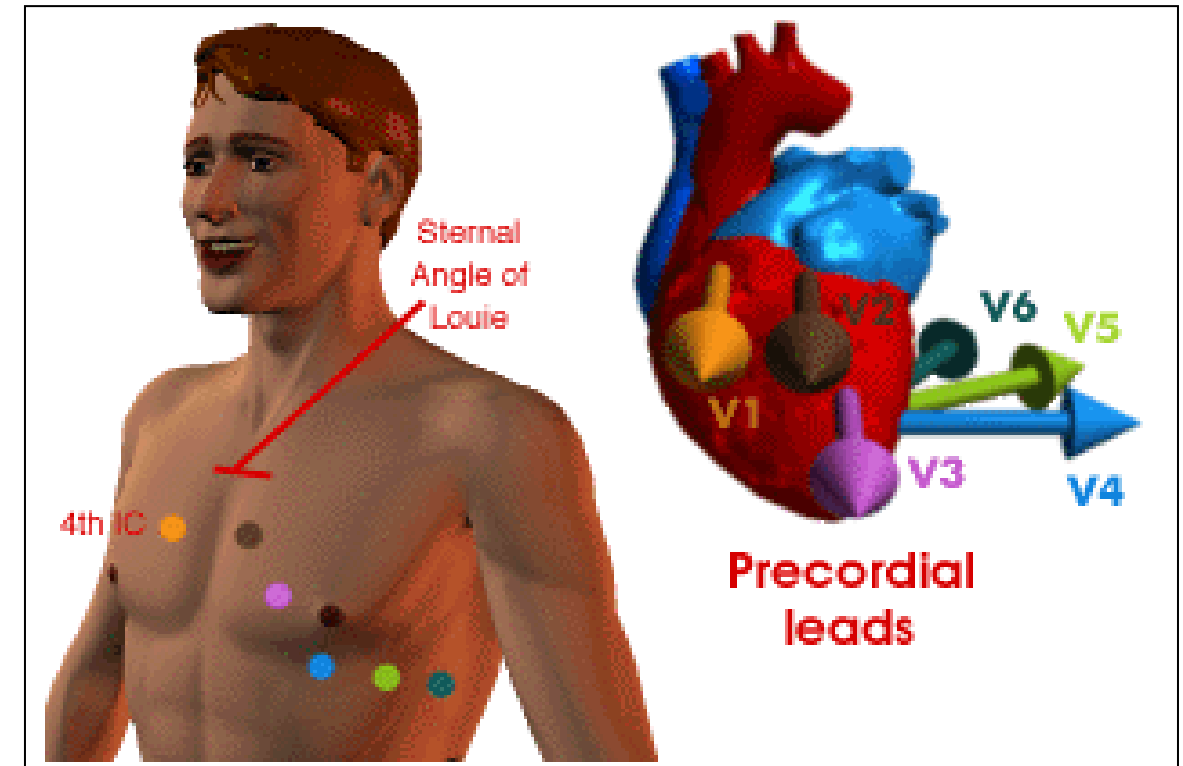
# 12 Lead ECG (Electrocardiogram)



ECG (electrocardiogram) is a test that measures the electrical activity of the heart. The heart is a muscular organ that beats in rhythm to pump the blood through the body.

The signals that make the heart's muscle fibres contract come from the sinoatrial node, which is the natural pacemaker of the heart.

In an ECG test, the electrical impulses made while the heart is beating are recorded and usually shown on a piece of paper. This is known as an electrocardiogram, and records any problems with the heart's rhythm, and the conduction of the heart beat through the heart which may be affected by underlying heart disease.



## What is the resting ECG used for?

The information obtained from an electrocardiogram can be used to discover different types of heart disease. It may also be useful for seeing how well you are responding to treatment.

It is a good idea to have an ECG in the case of symptoms such as dyspnoea (difficulty in breathing), [chest pain \(angina\)](#), [fainting](#), palpitations or when someone can feel that their own heart beat is abnormal.

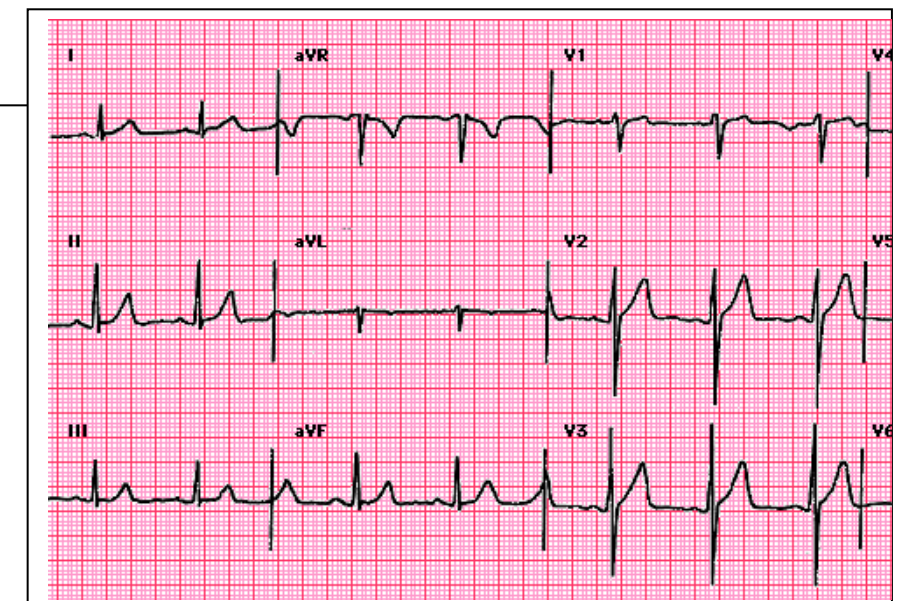
The test can show evidence of disease in the coronary arteries. Unfortunately, in many people who have significant narrowing of the arteries supplying the heart muscle, the ECG recording made at rest is often normal. Therefore, if a significant narrowing is suspected, an ECG recording is often made when the patient is exercising (an exercise stress test) as this is more likely to reveal the problem.

- An ECG can be used to assess if the patient has had a heart attack or evidence of a previous heart attack.
- Monitor the effect of medicines used for coronary artery disease.
- Reveals rhythm problems such as the cause of a slow or fast heart beat.
- To demonstrate thickening of a heart muscle (left ventricular hypertrophy), for example due to long-standing [high blood pressure](#).
- To see if there are too few minerals in the blood.

An ECG may appear normal even in the presence of significant heart disease. Thus, for a full assessment of the heart, other tests may be needed.

## How is an ECG performed?

Up to 12 self-adhesive electrodes will be attached to select locations of the skin on the arms, legs and chest. Areas such as the chest where the electrodes will be placed



may need to be shaved. First, the skin is cleaned.

The test is completely painless and takes less than a minute to perform once the leads are in position. After the test, the electrodes are removed.

The doctor will review the paper print-out of the ECG.