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## Exercise Stress Echocardiogram

### Definition

A stress test assesses your heart when exercising and your heart rate and blood pressure, when the demand on blood flow and oxygen consumption, go up.

### Why the Test is Performed

This test is performed to assess the performance of your heart during exercise. This may be compromised due to partially blocked arteries of your heart, heart valve issues or rhythm problems.

- To see if you are at risk of having a heart attack. If all parts of the muscle of your heart contract more vigorously when exercising. Different parts of the muscle of your heart are supplied by different arteries (coronary arteries) and if one or more artery is blocked, the muscle will appear weaker and not move as vigorously.
- If you have a problem with one of the valves of your heart, the exercise stress test assesses how your heart muscle copes with a leaky or blocked valve.
- To see if you have an abnormal heart rhythm during exercise
- To see if your heart is healthy for you to have any kind of surgery

### How the Test is Conducted

You will be asked to remove your clothes from the waist up. A nurse or technician will place ECG electrodes (sticky patches) on to your chest and shoulders. The skin may need to be prepared with a very soft sandpaper or chest hair may need to be shaved in small areas to improve the connection between the skin and the electrode. Wires connect the electrodes to an ECG computer. This will monitor the electrical activity during the stress test.

You will then have an echocardiogram (ultrasound of your heart) looking at the function of your heart at rest. This is performed by a doctor or specially trained sonographer. An instrument called a transducer that transmits sound waves is placed on your ribs near the breast bone. A transducer gel will also be used to obtain the images. This may be cold and is water based. It washes off easily at the end of the test.

Additional images will be taken at the left lower chest. The transducer picks up the echoes of the sound waves and transmits them as electrical impulses. The echocardiography machine converts these impulses into moving pictures of the heart. The Doppler probe records the motion of the blood through the heart. An echocardiogram allows doctors to see the heart beating, and to see many of the structures of the heart. You will then be asked to step onto the treadmill or stationary exercise bicycle.

On the treadmill, the speed and incline increase every three minutes following a protocol. Your blood pressure will be checked regularly. The test will end at the doctor's discretion when you have reached a certain heart rate, blood pressure or concerning changes. You may choose to end the test if you get short of breath, if your legs feel weak or if you feel unwell for another reason.

You will be asked to very quickly lie back on the bed for more ultrasound scanning to assess the function of the muscle of your heart at peak exercise. These pictures will be compared to the resting images to see if all parts of the muscle work well or if there is a part that appears weaker indicating reduced blood supply to that segment.

Your blood pressure will be monitored.

On the stationary bicycle, the resistance increases every 2 minutes while you pedal to a certain speed. You may have some ultrasound images taken during the stress test. The test will end at the doctor's discretion when you have reached a certain heart rate, blood pressure or concerning changes. You may choose to end the test if you get short of breath, if your legs feel weak or if you feel unwell for another reason. At peak exercise, you will have ultrasound scanning to assess the function of the muscle of your heart at peak exercise. These pictures will be compared to the resting images to see if all parts of the muscle work well or if there is a part that appears weaker indicating reduced blood supply to that segment.

Your blood pressure will be monitored.

The result of the test will be discussed with you straight after the test.

### **How to Prepare for the Test**

- You should not eat for 2 hours before the test. Diabetic patients will receive specific instructions prior to the test. You should hydrate up to 2 hours before the test, then only sips of water.
- No alcohol for 24 hours before the test, no caffeine for 4 hours before the test.
- Wear comfortable clothing e.g shorts, T shirt, track suit pants, closed in shoes or sneakers.
- Do not apply lotions, oils or powder to chest area
- Please advise us what medication you are taking. Some of your medication may be withheld before the stress test.

If you are asthmatic, please bring your inhalers to the stress test.

### **Risks**

Complication like a heart attack or abnormal rhythm may occur but are minimized by prior scanning and continuous monitoring. Emergency equipment and trained personnel are immediately available.

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