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## ABOUT STRESS TESTS

### WHAT IS AN EXERCISE STRESS TEST?

The exercise stress test – also called a stress test, exercise electrocardiogram, graded exercise test or stress ECG, is a test used to provide information about how the heart responds to exertion. It involves walking on a treadmill at increasing levels of difficulty, while your electrocardiogram, heart rate and blood pressure are monitored.

### WHY DO I NEED A STRESS TEST?

Your doctor uses the stress test to:

- Determine if there is adequate blood flow to your heart during increasing levels of activity.
- Evaluate the effectiveness of your heart medications to control angina and ischemia.
- Determine the likelihood of having coronary heart disease and the need for further evaluation.
- Check the effectiveness of procedures needed to improve blood flow within the heart vessels in people with coronary heart disease.
- Identify abnormal heart rhythms.
- Help you develop a safe exercise program.

### WHAT ARE THE TYPES OF STRESS TEST?

There are many different types of stress tests, including:

**Treadmill Stress Test:** As long as you can walk and have normal ECG, this is normally the first stress test performed. You walk on a treadmill while being monitored to see how far you walk and if you develop chest pain or changes in your ECG that suggest that your heart is not getting enough blood.

**Nuclear Stress Test:** This test helps to determine which parts of the heart are healthy and function normally and which are not. A small amount of radioactive tracer is injected into the patient. Then the doctor uses a special camera to identify the rays emitted from the substance within the body; this produces clear pictures of the heart tissue on a monitor. These pictures are done both at rest and after exercise. Using this technique, a less than normal amount of tracer will be seen in those areas of the heart that have a decreased blood supply.

**Pharmacologic Stress Test:** This test is used in people who are unable to exercise. A drug is given to make the heart respond as if the person were exercising. This way the doctor can still determine how the heart responds to stress with little or no exercise required.

### HOW SHOULD I PREPARE FOR A STRESS TEST?

Before your stress test:

- Do not eat or drink anything except water or juice for three hours before the test.
- Do not drink or eat coffee, tea, chocolate or soda, inclusive of decaffeinated coffee, tea, chocolate and soda for 24 hours before the test. Caffeine will interfere with the results of your test.
- If you use an inhaler for your breathing, bring it to the test.
- Do not use lotions.

### WHAT IF I HAVE DIABETES?

If you have diabetes and are scheduled for a stress test:

- If you take insulin to control your blood sugar, ask your doctor what amount of medication you should take the day of the test. If you take pills to control your blood sugar, do not take your medication until after the test is complete.

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- Do not take your diabetes medication and skip a meal before the test.
- If you own a glucose monitor, bring it with you to check your blood sugar levels before and after your exercise stress test. If you think that your blood sugar is low, tell the lab personnel immediately.
- Plan to eat and take your blood sugar medication following your stress test.

### **WHAT SHOULD I WEAR THE DAY OF THE STRESS TEST?**

- Where comfortable sneakers.
- Women should wear slacks/pants.

### **WHAT HAPPENS DURING THE EXERCISE STRESS TEST?**

- First, during the stress test, a technician will gently clean 10 small areas on your chest and place electrodes (small, flat, sticky patches) on these areas. The electrodes are attached to an electrocardiograph monitor (ECG or EKG) that charts your heart's electrical activity during the test.
- Before you start exercising, the technician will perform an ECG, to measure your heart rate at rest and will take your blood pressure.
- You will begin to exercise by walking on a treadmill. The rate of exercise or degree of difficulty will gradually increase. You will be asked to exercise until you feel exhausted.
- At regular intervals, the lab personnel will ask how you are feeling. Please tell them if you feel chest, arm or jaw pain or discomfort, short of breath, dizzy, lightheaded, or any other unusual symptoms. It is normal for your heart rate, blood pressure, breathing rate or perspiration to increase during the test. The lab personnel will watch for any symptoms or changes on the ECG monitor that suggest the test should be stopped.
- After the test your heart rate, blood pressure or ECG will continue to be monitored until the levels begin returning to normal.

### **WHAT HAPPENS DURING A NUCLEAR STRESS TEST?**

- A technician will place a catheter (small needle) in a vein in your arm.
- A tracer will be injected through the IV into your bloodstream. The tracer contains a small amount of radiation similar to that found in an ordinary x-ray.
- The tracer is absorbed and distributed through your arteries. Once that occurs, a specialized camera will take a detailed image of your heart when it is at rest.
- A technician or nurse will complete the other preparations listed above for a traditional exercise stress test, including connecting you to an EKG machine and putting a blood pressure cuff on your arm.
- You'll be asked to exercise on a treadmill. The rate of exercise or degree of difficulty will gradually increase until a target heart rate is reached. The heart rate is based on your age.
- The tracer will again be injected through the IV into your bloodstream, after which you'll be asked to continue to exercise for one more minute.
- The tracer is absorbed and distributed through your arteries. Once that occurs, a specialized camera will take detailed images of your heart when the heart is stressed.
- The pictures are then compared to see how well blood flows into your heart. If there are any blockages, you may have CAD or coronary heart disease.

### **WHO IS A PHARMACOLOGIC NUCLEAR STRESS TEST FOR?**

Because of physical limitations, some people are unable to exercise enough to raise their heart rate. This type of stress test may be used for people with an injury, severe arthritis, fatigue, back trouble, debilitating illness, or other condition that prevents them from exercising.

### **HOW DOES IT WORK?**

A medicine is used that makes the heart respond as if it were exercising.

### **WHAT HAPPENS DURING A PHARMACOLOGIC NUCLEAR STRESS TEST?**

- A technician will place a small catheter (small needle) in a vein in your arm.
- A tracer will be injected through the IV into your bloodstream. The tracer contains a small amount of radiation similar to that found in an ordinary x-ray.
- The tracer is absorbed and distributed through your arteries. Once that occurs, a specialized camera will take a detailed image of your heart when it is at rest.

- A technician or nurse will complete the other preparations listed above for a traditional exercise stress test, including connecting you to an EKG machine and putting a blood pressure cuff on your arm.
- A pharmacologic agent will be injected through the catheter into your bloodstream. The effects of the pharmacologic agent may be felt quickly. You may experience a warm or flushed sensation, mild chest pressure, or shortness of breath. Remember, these are normal reactions.
- The tracer will again be injected through the IV into your bloodstream.
- The tracer is absorbed and distributed through your arteries. Once that occurs, a specialized camera will take detailed images of your heart when the heart is stressed.
- The pictures are then compared to see how well blood flows into your heart. If there are any blockages, you may have CAD or coronary artery disease.