



## Nuclear Stress Tests

At the Sparrow Heart Center, four types of Nuclear stress tests are performed:

1. Exercise
2. Persantine
3. Adenosine
4. Dobutamine

### What is a Nuclear stress test and what does it show?

A Nuclear stress test is a diagnostic nuclear imaging study that uses a radioactive tracer to produce images of the heart muscle. The tracer is injected while you are at rest and while your heart is under stress. Rest and stress images are taken to allow doctors to compare how much blood flows through the heart muscle during stress and at rest. When combined with stress either through exercise or the use of a pharmacological agent, the Cardiolite scan helps determine if the heart muscle is getting the blood supply it needs.

As coronary artery disease (CAD) progresses, the heart muscle may not receive enough blood when under stress (for example, when exercising). This often results in chest pain called angina pectoris. On the other hand, there may be no outward physical signs of the disease. If CAD is limiting blood flow to part of your heart, the stress test may be useful in detecting the presence and significance of CAD.

A Nuclear stress test consists of two parts, rest and stress:

- The tracer will be administered by injection through your IV while you are at rest and a gamma camera will take pictures of your heart.
- The tracer will be administered to you one other time by an IV injection during the stress portion of the test and additional pictures will be taken of your heart.

This allows the doctor to compare the amount of blood flowing through your heart muscle during stress and at rest.

The amount of radiation you will be exposed to is comparable to that from an x-ray or CAT (CT) scan. The half-life of the radioactive tracer is 6 hours. This means that half of the dose you are given will decay or leave your body every 6 hours. Generally, Cardiolite is cleared from your body in 24 hours by natural processes. You won't feel any different after you are injected with the tracer and will be able to drive yourself home.

## How do I prepare for the test?

Do not eat or drink for 4 hours prior to the test. This includes caffeine as well as decaffeinated beverages. If you are having a Persantine test you will be asked to avoid caffeinated and decaffeinated products for 24 hours prior to your test. The pictures of your heart are clearer when the stomach is not full. If you are diabetic or need to eat/drink with your medication please get special instructions from your doctor. If you do not follow the specific prep your procedure may need to be rescheduled.

- Avoid any strenuous physical activity on the day of the test because you will need to exert yourself maximally if you are going to be doing a treadmill exercise test.
- Bring busy material. You will have periods of waiting throughout the test so bring a book, newspaper, knitting, etc. to keep you busy.
- No smoking 4 hours prior to the test. Smoking interferes with the test results.
- Wear a comfortable two-piece outfit and comfortable shoes. A hospital gown may be provided and men may be asked to remove their shirts. Slacks or shorts are preferred if you are exercising.
- Do not wear oils or lotions before your test. Small sticky patches (electrodes) will need to stick to your chest.
- Your doctor may ask you to stop taking heart medications on the day of your test. If you have any questions about your medications ask your doctor. **DO NOT DISCONTINUE ANY MEDICATION WITHOUT FIRST TALKING WITH YOUR DOCTOR.**

## What happens during the test?

When you enter the stress testing room, the cardiology tech/nurse will have you sign a consent form and he/she will make sure you understand the test. An IV will be started in the vein of your arm. The nuclear medicine tech will put your first injection of the radioactive tracer through the IV. You will wait in the waiting room for at least 45 minutes to let the tracer circulate to your heart.

Once your waiting period is over the nuclear medicine tech will put you under a gamma camera for about 15 minutes. You will lay on your back on a table with your arms above your head. It is important for you to remain very still while the images are being taken. The camera will move over your chest but will never come in contact with you during the scan.

Following completion of the scan you will be escorted to a stress testing room. The cardio tech/nurse will have you lay on a stretcher while he/she prepares you for the stress portion of the exam. A bag of normal saline will be attached to your IV. The chest will be cleaned with alcohol and a cloth. Ten electrode patches are placed on your chest and torso. Wires will be attached to the electrodes in order to monitor your heart rate and EKG. A resting EKG and blood pressure are recorded. Once the Cardiologist arrives in the room your test will begin.

You will either exercise on a treadmill or receive a pharmacological agent to “exercise” your heart. During this portion of the test you will receive another injection of the radioactive tracer while your heart is at stress. You will be monitored after the stress test and then will return to the waiting room for 30 – 90 minutes to allow time for the tracer to circulate.

After the appropriate wait you will return for another set of images. They will again last 15 minutes but this time you will be hooked up to 3 electrode patches so that information about how well the left ventricle of the heart is working can be given to the doctor.

Please note that the entire test including rest and stress could last for up to 4 hours.