

Nuclear Stress Test

What is a nuclear stress test?

A nuclear stress test uses a radioactive tracer and an imaging machine to create pictures showing the blood flow to your heart. The test measures blood flow while you are at rest and are exerting yourself, showing areas with poor blood flow or damage in your heart, so two sets of images of your heart are taken.

Why is a nuclear stress test performed?

A nuclear stress test can help better determine your risk of a heart attack or other cardiac event if your doctor knows or suspects that you have coronary artery disease.

How do I prepare for a nuclear stress test?

No eating, drinking, or smoking 4 hours prior to the test.

No caffeine 24 hours prior to the test.

Ask your doctor if it's safe for you to continue taking all of your prescription and over-the-counter medications before the test, because they might interfere with certain stress tests.

If you use an inhaler for asthma or other breathing problems, bring it to the test. Make sure your doctor and the health care team member monitoring your stress test know that you use an inhaler.

Wear or bring comfortable clothes and walking shoes. Don't apply oil, lotion or cream to your skin on the day of your nuclear stress test.

Metal buttons and zippers are not permitted on top garments due to interfere with images. A gown can be provided if necessary. Otherwise it is not necessary to remove clothing when taking images.

What should I expect during a nuclear stress test?

A nuclear stress test may be performed in combination with an exercise stress test, in which you walk on a treadmill. If you aren't able to exercise, you'll receive a drug through an IV that mimics exercise.

When you arrive the nuclear technologist will insert an IV and inject a radioactive tracer. You will then wait approximately 45 mins for the heart to circulate and absorb the tracer. Then you will lie still on a flat table with your arms resting above your head and have the 1st set of resting images of your heart taken.

Once those are taken the exercise stress test can be performed.

The nurse will listen to your heart and lungs prior to testing as well as check your blood pressure and heart rate.

You will be asked to remove any top garments, with the exception of a bra, to place the electrodes on the necessary chest areas.

Sticky electrode patches are placed on your chest to detect your heart's rhythm, so the nurse can monitor your heart's electrical activity during stress. Some areas may need to be shaved to help them stick and decrease artifact interference during testing.

After confirming connectivity, your shirt can be put back on.

Your heart beat, blood pressure, and exertion level will be monitored periodically during and after the stress test.

For an exercise stress test, you'll start by walking on a stationary treadmill and it will increase in speed and incline every 3 minutes until your minimum target heart rate is reached or you develop symptoms that don't allow you to continue. You can use the railing on the treadmill for balance. Once the minimum target heart rate is reached, the radioactive tracer will be injected and exercise will continue for 1 minute longer to help circulate the dose. Then a recovery period will begin for approximately 5 minutes or until you return to baseline.

If you can't exercise, you will sit in a chair and a drug that mimics exercise by dilating the blood vessels and increasing blood flow to the heart will be injected into the IV. Possible side effects may be similar to those caused by exercise, such as flushing, stomach cramping, shortness of breath, or a headache. The medication is very short acting, lasting only a couple minutes. Caffeine is the natural antidote and is recommended immediately after testing to help resolve any lingering symptoms. A reversal drug is also available should the side effects last longer than expected.

After the stress test, the 2nd set of images will be taken. At times a wait period is necessary to obtain optimal images.

The radioactive tracer is naturally filtered out of your body through urine. You can help facilitate flushing out of system by drinking plenty of water. Please alert the technologist if you work at a facility in which you go through security or are planning on travelling 2-3 days following nuclear procedure. Documentation can be provided if necessary.

How long will a nuclear stress test take?

A nuclear stress test can take up to 4 hours to allow for required time between injection of radioactive tracer, imaging, and exercise stress testing.

Are there any risks or side effects with a nuclear stress test?

A nuclear stress test is generally safe, and complications are rare. As with any medical procedure, there is a risk of complications, including:

- Abnormal heart rhythms (arrhythmias). Arrhythmias brought on during a stress test usually go away shortly after you stop exercising or the medication wears off. Life-threatening arrhythmias are rare.

- Heart attack (myocardial infarction). Although extremely rare, it's possible that a nuclear stress test could cause a heart attack.
- Dizziness or chest pain. These symptoms can occur during a stress test. Other possible signs and symptoms include nausea, shakiness, headache, flushing, shortness of breath and anxiety. These signs and symptoms are usually mild and brief.
- Low or high blood pressure. Blood pressure may drop during or immediately after exercise, possibly causing you to feel dizzy or faint. The problem should go away after you stop exercising.

There is a small risk of exposure to radiation which may damage DNA and lead to cancer. Radiation effects add up over time and with multiple exposures. The amount of radiation is greater than you would get during a plain X-ray because the nuclear imaging gathers more-detailed information. Generally, however, radiation exposure from nuclear imaging is low, and the benefits from these tests far outweigh the risks.

How will my results be communicated?

After the cardiologist has reviewed and interpreted your nuclear stress images, a report will be sent to the ordering physician.

Your doctor will discuss your nuclear stress test results with you. Your results could show:

- Normal blood flow during exercise and rest. You may not need further tests.
- Normal blood flow during rest, but not during exercise. Part of your heart isn't receiving enough blood when you're exerting yourself. This might mean that you have one or more blocked arteries (coronary artery disease).
- Low blood flow during rest and exercise. Part of your heart isn't getting enough blood at all times, which could be due to severe coronary artery disease or a previous heart attack.
- Lack of radioactive tracer in parts of your heart. Areas of your heart that don't show the radioactive tracer have tissue damage from a previous heart attack.

If you don't have enough blood flow through your heart, you may need to undergo coronary angiography. This test looks directly at the blood vessels supplying your heart.

Your physician will explain the meaning of your test results with you and next steps for your treatment and care plan. A referral to a Cardiologist may be necessary.

How can I get a copy of my results?

Imaging reports can be made available for you to keep or share with other physicians. Please allow 24 hours for record requests. Contact the Cardiology department for all cardiac record requests 540-368-5384. Records can be picked up at the Cardiology department.