

If you are unable to exercise for the test, your doctor may decide to use a drug, or pharmacologic stress agent. Such drugs are given via an IV line and simulate the effects of exercise.

The radioisotope will then be injected through the IV line following which a special camera that can detect radiation will take pictures of your heart. The camera will be placed close to your chest while you are lying flat on the imaging table.

### Precautionary Information

The radioisotope administered during this test contains a small amount of radioactivity. The amount of radiation you will be exposed to is similar to that from an X-ray or CT scan. If you are pregnant, suspect you may be pregnant, or are a nursing mother, discuss this with your doctor before undergoing the procedure. It is important that your doctor know all medicines that you are taking before you undergo the test. This includes any prescription medicines, over-the-counter drugs, or diet supplements. **It is most helpful if you bring your list of medications with you. In addition, to better interpret your results, it is useful if you bring any relevant medical records of previous cardiac treatment with you so that they may be noted down.**

### Is it Safe?

All stress tests are, in general, extremely safe and the risk of a serious problem is exceedingly low (less than 0.1%). At Aga Khan University Hospital all tests are closely supervised by experienced cardiology residents with residents who are able to pre-empt any problems and stop the test if necessary. Thus you can be assured that the test is safe and you have no reason to worry.

### Faculty

Our faculty is supported by high skilled and trained technologists. All stress test are supervised by cardiology with residents who are senior cardiology trainees. Our faculty are formally trained and certified in the field of nuclear cardiology. We thus compliment state-of-the-art equipment with world class interpretation of nuclear data.

### Location

The Nuclear Cardiology Services is located on the ground floor of Nazerali-Walji Building. Our working hours are 08:30 am to 05:00 pm from Monday to Saturday, except public holidays.

### Making an Appointment

Appointments need to be made in person at our reception desk.



For further information, please contact:

### Cardiopulmonary Diagnostic Services

**Aga Khan University Hospital**  
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## Information for Patients

# NUCLEAR CARDIOLOGY SERVICES



آغا خان یونیورسٹی ہسپتال، کراچی

The Aga Khan University Hospital, Karachi.



A Unit of The Aga Khan Hospital and Medical College Foundation; Licensed under Section 42 of the Companies Ordinance, 1984  
Registered Office: Stadium Road, P. O. Box 3500, Karachi 74800, Pakistan

## What is Nuclear Cardiology?

Nuclear cardiology is a special type of X-ray procedure that uses small amounts of radioactive material to diagnose heart diseases. Nuclear cardiology procedures are safe; the amount of radiation exposure is no greater than a CT scan. It is highly effective in determining the degree of blood flow to your heart muscle and in detecting the presence of arterial blockages in the heart. In addition this test also helps your doctor decide the extent of your risk and the best way to treat you.

## Nuclear Cardiology Services at AKUH

Nuclear cardiology services were first introduced at Aga Khan University Hospital in August 2001 when a gamma camera was installed in the Radiology Department. Since then the service has continued to grow, culminating in the installation of a Siemens gamma camera in the Nazerali-Walji Building dedicated to nuclear cardiology.

The establishment of a dedicated nuclear cardiology services at AKUH reflect the Institution's commitment towards providing state-of-the-art care in cardiology.

It is our goal to provide high-quality, cutting-edge services in the clinical arena and compliment this with an active research effort in the field.

### Services offered include:

- Exercise myocardial perfusion imaging with Tc-99m.
- Dipyridamole (Persantin) or dobutamine myocardial perfusion imaging with Tc-99m.
- Resting myocardial perfusion studies for chest pain evaluation.
- Viability assessment.
- Gated Imaging for assessment of left ventricular function.

## Why do I need the test?

Your doctor has asked for a stress test with nuclear imaging in order to get more accurate and complete information about how your heart is functioning. Your heart receives blood from vessels called coronary arteries. If these arteries become partially blocked your heart may not receive the blood it needs to function properly. This narrowing of coronary arteries is called coronary atherosclerosis or, more commonly, coronary artery disease (CAD).

While your heart may function normally at rest, your heart muscle may not receive enough blood when under stress (for example, when you are exercising). This often results in chest pain called angina. On the other hand, there may be no outward physical signs of the disease. A stress test with nuclear imaging is **more Sensitive** and **more specific** in detecting the presence of CAD when compared to the simple exercise tolerance test (ETT). Thus a negative nuclear stress test is much more reassuring than a simple ETT (which can miss disease) and a positive nuclear test is much more likely to represent true disease than a positive ETT alone (where false positives are more frequent).

## What is a Nuclear Stress Test?

The test carries the name "stress" because the heart is deliberately put in a state where the heart muscle requires more oxygen as a result of you exercising on a treadmill. If you are unable to exercise, you may be given a drug, by injection, intended to have a similar effect to that of exercise on the heart.



Following the stress test, a small amount of radioisotope is injected into your blood. A special camera is then able to take pictures of your heart. This will determine if your heart muscle is getting the blood supply it needs.

## What Should I do Before the Stress Test?

You may be asked not to eat or drink anything for 3-4 hours fasting prior to the test. This will prevent the possibility of an upset stomach, or nausea, which may accompany vigorous exercise after eating.

Your doctor may ask you to stop taking certain heart medicines prior to the stress test. Some heart medicines may interfere with the accuracy of the test and you will be told whether or not you need to stop certain medications.

If you will be exercising for the stress test, you should wear comfortable footwear for brisk exercise on a treadmill (a moving platform you walk on). You will work hard during the test and comfortable clothing will make it easier for you. A hospital gown will be provided on the day of the test.

**A COMPREHENSIVE INSTRUCTIONS SHEET WILL BE PROVIDED TO YOU AT THE TIME YOUR APPOINTMENT IS MADE.**

## What will Happen to Me During the Test?

A nuclear stress test usually consists of taking two sets of pictures of your heart one following stress (via exercise or injection) and the other during a resting phase. These two sets of pictures allow the doctor to compare the amount of blood flowing through your heart muscle during rest and under stress. In both portions of the test, the pictures are usually taken between 60 and 90 minutes after the isotope injection. Each set of pictures takes about 20 minutes. A certain time interval needs to be given between sets of images. **Thus, the entire test takes about 2.5-3 hours.**



During the test, several small pads called electrodes will be placed on your chest. These pads will be connected to an ECG monitor so that your heart rhythm can be watched closely throughout the stress portion of the test. An intravenous (IV) line will be placed in your arm. This line will be used to inject the radioisotope (and drugs if needed) into your bloodstream during stress activity. The IV line will be removed soon after the test is completed.



If your doctor has specified an exercise test, you will begin by walking on a treadmill. The treadmill will move very slowly at first, then increase in speed. As you exercise longer and harder, your heart rate and blood pressure will rise. This is a normal response and will be monitored along with your ECG.

You will be asked to exercise during the entire stress test. Expect to exercise to your maximum ability, which may take 5-10 minutes or more. If you experience any symptoms at any time, such as feeling lightheaded with feeling of lightheadedness chest pain or shortness of breath, immediately tell the doctor performing the test, Adjustments will be made to the exercise test depending on your symptoms, blood pressure, ECG, or degree of fatigue. **To increase the effectiveness of the test, it is important to exercise as long as you are able to.**