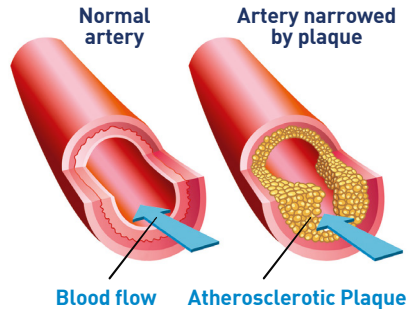




# Exercise Stress Myocardial Perfusion Imaging Test (MIBI)

# Why do I need to undergo the Exercise Stress Myocardial Perfusion Imaging Test?

Blood vessels supplying the heart with blood can be abnormally narrowed by a process called atherosclerosis. When this happens, the blood flow to the heart may be insufficient during physical exertion. The Exercise Stress Myocardial Perfusion Imaging Test assesses the blood flow (perfusion) to the heart muscles during exercise.



## How is the test carried out?

An Exercise Stress Myocardial Perfusion Imaging Test is a non-invasive heart imaging test that shows how well blood flows to your heart muscle and how well your heart muscle pumps blood to the rest of the body.

This test helps your doctor to discern the areas of your heart muscle that is not receiving enough blood flow. In order to detect any irregularities in blood flow, the scans are taken when your heart is under exercise stress - usually during a treadmill exercise - and when it is at rest.



During the treadmill exercise, the level of intensity gradually increases until your heart rate reaches a specific target. At this point, a small amount of radioactive chemical (sestamibi) is injected through your hand. The chemical substance is absorbed by the heart, providing valuable information to the doctor about the blood flow in your heart.

## What is the purpose of this test?

This test checks how well blood is flowing to your heart and how strong your heart is beating (also known as ejection fraction). These are the two most important information a doctor needs to know when evaluating a patient with heart disease. The Exercise Stress Myocardial Perfusion Imaging Test provides a more accurate and detailed information than just the treadmill exercise stress electrocardiography (ECG) test alone.

## What to expect during the test?

The Exercise Stress Myocardial Perfusion Imaging Test consists of two phases: the **stress phase** and the **rest phase**. Both are usually done on the same day.

Before the test, your height and weight will be measured, and a small plastic tube will be inserted into one of the veins in your hand for the injection of the radioactive chemical that helps find areas of poor blood flow or damage in the heart. Please wear sports attire, such as running shoes, shorts or pants, and a t-shirt, to facilitate the treadmill exercise.



First, we will record your blood pressure and perform an electrocardiogram (ECG) - a test that measures your heart's activity. Then, you will walk on a treadmill. The speed and incline of the treadmill machine will increase every three minutes. Throughout the test, your ECG and blood pressure will be monitored.

Please inform the medical technologist or supervising doctor if you experience any symptoms during this exercise treadmill test.

The doctor will inject the radioactive chemical into your vein once you reach your target heart rate. You will need to keep exercising on the treadmill for one to two minutes after the injection, so that the chemical can reach the heart arteries to allow for accurate imaging of blood flow at your heart. After the exercise, you will be monitored for a few more minutes while you recover.

Next, you will rest for about 30 to 45 minutes, during which you can have a drink. After resting, it will be time to take images of your heart. You will lie on your back while a gamma camera scans your heart. Try to relax and stay still so the pictures come out clear. The scan will take about 15 minutes to complete.

You will lie facing upwards while the gamma-camera scans your heart.







*Visuals showing two types of gamma-camera devices available to provide images of the heart. The medical technologist will advise accordingly on the device that is suitable for you.*

After the first scan, you will need to wait about two hours before starting the rest phase of the test. While you are waiting, you may leave the nuclear diagnostic lab to have some refreshments, but you are required to return at the scheduled time.

When you return, you will receive another injection of the radioactive chemical. You will lie on your back while the gamma camera scans your heart again. This second scan will be done about one hour after the injection. Once this second scan is complete, the test is completed.

If you weigh more than 85kg, the test may be done over two days instead.

# How should I prepare for the test?

1 Avoid consumption of food and drinks that contain caffeine (coffee, tea, chocolate, colas, etc.) for at least 12 hours before the test, as caffeine may reduce the effectiveness of the medication given during the test.



2 Do not take beta-blockers, nitrates, diltiazem and verapamil 48 hours prior to the test, unless instructed by your doctor. Do however bring your medication with you to the laboratory so that you may take them after the test. Examples of common types of beta-blockers are acebutolol, atenolol, bisoprolol, carvedilol, esmolol, metoprolol, sotalol, timolol and propranolol. **If you are unsure, please reach out to our enquiry hotline at 6772 5383 during our operating hours from 8am to 5pm on weekdays, excluding public holidays.**



3 This Exercise Stress Myocardial Perfusion Imaging Test should not be performed if you are unwell, have uncontrolled or excessively high blood pressure, or are diagnosed with any other acute illnesses.

4 Avoid smoking for at least 6 hours before the test.

5 Fasting is not required but do avoid taking a heavy meal before the test.

# What are the potential risks/complications with this test?

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The Exercise Stress Myocardial Perfusion Imaging Test is generally very safe. Most complications, if any, are minor and this includes the situation where one sustains injuries from falling from the treadmill machine. Very rarely will a heart rhythm abnormality or heart attack occur during the exercise that will necessitate resuscitation and hospitalisation. The radioactive chemical administered is safe and has no known immediate side effects. The amount of radioactivity given during the test is very low and has not been shown to cause cancer. Do inform your doctor and the medical technologist if you are pregnant or if you're unsure whether you may be **pregnant**.

# When will I know the results?

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You would be able to receive the final report at your next clinic appointment. However, you may be contacted earlier if there is a severe abnormality requiring urgent attention.



## Follow NUHCS:

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# National University Heart Centre, Singapore (NUHCS)



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- NUHCS at National University Hospital (NUH), Kent Ridge - Main Operations  
Main Building Zone F  
Operating Hours: 8:00am - 5:30pm (Monday - Friday)  
Closed on Weekends & Public Holidays
- NUHCS Heart Clinic @ Ng Teng Fong General Hospital (NTFGH)  
Tower A - Specialist Outpatient Clinics Level 3, Clinic A34  
Operating Hours: 8:00am - 5:30pm (Monday - Friday)  
8:30am - 12:30pm (Saturday)  
Closed on Sundays & Public Holidays
- NUHCS Heart Clinic @ Alexandra Hospital (AH)  
Operating Hours: 8:30 am - 5:30 pm (Monday - Friday)  
Closed on Weekends & Public Holidays
- NUHCS Heart Clinic @ Jurong Medical Centre (JMC)  
Operating Hours: 8:30 am - 5:30 pm (Monday - Friday)  
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