

# Exercise Studies & Challenge Testing



The Pulmonary Function Laboratory provides a comprehensive range of diagnostic investigations to help doctors in the evaluation, diagnosis and treatment of asthma, breathing disorders and pulmonary diseases. Pulmonary Function Laboratory services are available at the Specialist Outpatient Clinic and as an inpatient service.

# Cardiopulmonary Exercise Test (CPET) and Exercise Induced Asthma Test (EIA)

- **Cardiopulmonary Exercise Test (CPET)**

CPET is a non-invasive test which evaluates your heart, lungs and vascular functions by simultaneously monitoring your body's response to exercise.

The purpose of this test is to evaluate the cause of decreased exercise capacity, exercise intolerance or unexplained shortness of breath encountered during exercise. It is also used as an index for general cardio-respiratory health for patients scheduled for a surgery or undergoing rehabilitation after an illness.



- **Exercise Induced Asthma Test (EIA)**

Exercise Induced Asthma Test is also a non-invasive test that involves the measurement of pulmonary function before exercise, followed by a maximum exercise challenge on a treadmill. During exercise, the body's cardiovascular response is recorded and pulmonary function tests are repeated.

The aim of this test is to evaluate the cause of decreased exercise capacity and shortness of breath experienced during exercise. The test can establish the diagnosis of exercise induced asthma or point to a cardiac or respiratory limitation of exercise.

- **What can I expect during the test?**

Both CPET and EIA tests are performed under the supervision of a physician and guided by a pulmonary function technologist. Monitoring devices such as ECG electrodes and a BP monitoring cuff will be attached to the body during exercise tests.

During CPET test, a patient will be required to exercise on an upright bicycle while breathing through a mouthpiece. The capacity and strength of the lungs and heart tracings (ECG) will be measured and recorded before and during the exercise.

For EIA, the patient will run on the treadmill for approximately 6-8 minutes and a series of spirometry tests will be performed at several intervals after the exercise. A bronchodilator will be administered to reverse the effects of the exercise.

The test will be terminated upon a patient's request or physician's clinical decision / judgment.



## Six Minutes' Walk Test (6MWT)

Six Minutes' Walk test is a self-paced walking test that evaluates a patient's exercise capacity or tolerance level for daily activities. The patient is encouraged to walk as far as possible during the test with the distance recorded for evaluation.



The purpose of this test is to evaluate the exercise tolerance of patients with chronic respiratory disease and heart failure. It is a performance-based measure of functional exercise capacity.

### What can I expect during the test?

A pre-assessment will be performed before the test and a technologist will explain how the test will be conducted. During the test, you will walk back and forth within an assigned walkway for 6 minutes as your vital signs, i.e. heart rate and oxygen levels are recorded.

The test will be terminated upon patient's request or technologist's clinical judgment.

## Methacholine Challenge Test

Methacholine Challenge Test (MCT) is a test that assesses the airway's responsiveness and reactivity to the increasing dose of methacholine, a drug which can trigger an asthmatic response. MCT is commonly done to assist in the diagnosis of asthma or to determine the risk of developing one.



## **What can I expect during the test?**

In MCT, you will be guided by a technologist to breathe in small incremental doses of methacholine via a nebulizer. You will perform spirometry tests after the administration of the drug and your vital signs and symptoms will be recorded by the technologist throughout.

The test will terminate once a positive response has been captured. Bronchodilator will be administered to reverse the effects of methacholine.

## **How should I prepare for these tests?**

- You do not need to fast and can take a light meal.
- Continue with your current medication unless otherwise instructed.
- You may be advised to omit inhaler / bronchodilator (Ventolin / Salbutamol) for at least 6-8 hours before the test and long acting beta agonist for at least 12 hours before the test.
- As part of the test preparation, please refrain from strenuous exercise 1 day before the test.
- For exercise-related tests, please come in sports attire or loose-fitting clothes and running shoes.

## **Are these tests safe? Will there be any side effects?**

These tests are generally safe and no known side effects have been reported.

## **When will I know the results?**

A team of respiratory specialists will review and interpret your test results. Your referring physician will inform you of your test results at the next review appointment.

**Notes:**

## For more information

### Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

[www.ntfgh.com.sg](http://www.ntfgh.com.sg) | [www.jch.com.sg](http://www.jch.com.sg)

### Clinic opening hours

Monday – Friday: 8.30am – 5.30pm

Saturday: 8.30am – 12.30pm (Selected clinics only\*)

Dental Clinic: Monday – Thursday: 8.00am – 5.30pm, Friday: 8.00am – 5.00pm

\*Please refer to our websites for more details.

### General enquiries & appointments

General enquiries line: 6908 2222 (24-hr)

Fax: 6716 5500 | Email: [contactus@nuhs.edu.sg](mailto:contactus@nuhs.edu.sg)

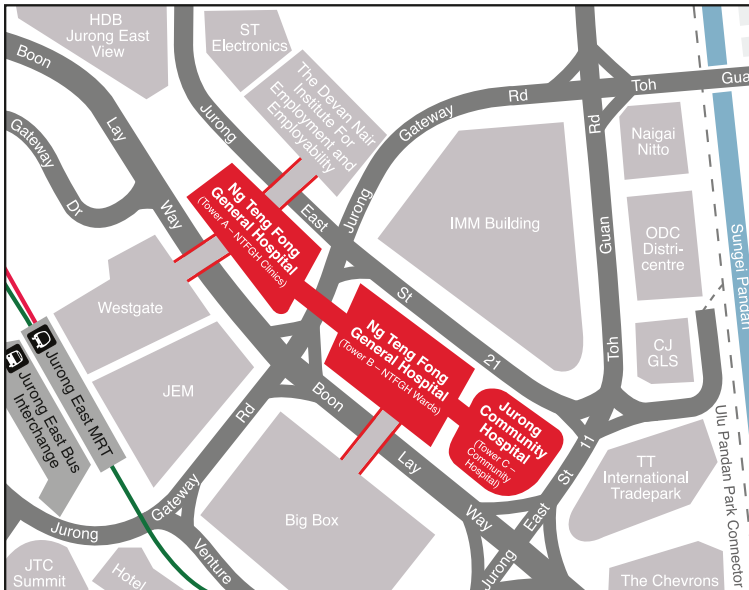
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: [appointment@nuhs.edu.sg](mailto:appointment@nuhs.edu.sg)

Dental appointment line: 6716 2233 (Monday – Friday: 8.00am – 5.30pm)

Fax: 6716 2200 | Email: [JHCampus\\_Dental@nuhs.edu.sg](mailto:JHCampus_Dental@nuhs.edu.sg)

## Getting there



### By train

Alight at Jurong East MRT Station

### By bus

#### Jurong East Bus Interchange

41, 49, 51, 52, 66, 66B, 78, 78A, 79, 79A, 97, 97E, 98, 98M, 105, 143, 143M, 160, 160A, 160M, 183, 183B, 197, 333, 334, 335, 506

#### Along Boon Lay Way

49, 99, 333, Private bus service 625, 990

### Disclaimer:

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment or if you have any questions related to your health, physical fitness or medical condition. Information is accurate at the time of printing.