

**Patient
Information**

Lung function tests

Introduction

The aim of this leaflet is to give you a brief understanding of what to expect when you have lung function test.

There are a number of different tests carried out in the Lung Function department. All of the tests are designed to measure lung capacity, efficiency and airflow through the bronchi (main airways to the lungs).

The results of these tests combined with results from other tests, such as a chest X-ray, medical examination and clinical history, may indicate whether any abnormality is present.

The approximate length of time for your test will be shown on your appointment letter.

What is a lung function test?

A lung function test involves you breathing into different pieces of equipment in order to test how well your lungs are working.

There are several different lung function tests that your doctor may refer you for, these include:

- Spirometry
- Bronchodilator reversibility test
- Gas transfer measurement
- Body plethysmography
- Exhaled nitric oxide measurement

Your doctor may also refer you for additional tests in the Lung Function department, including:

- Respiratory muscle tests
- Pulse oximetry spot check
- Capillary blood gases tests

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Lung Function

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**Patient
Information****What is spirometry?**

This test measures the volumes and speed of the air you can blow out from your lungs. It will give an indication of the capacity of your lungs and how clear your airways are. For example, the airways may be narrower in conditions such as COPD (chronic obstructive pulmonary disease) or asthma.

What is bronchodilator reversibility?

After you have performed the spirometry test, you may be given a bronchodilator. This is a medication that will help to relax your airways. You will be asked to breathe the medication in through a nebuliser.

A nebuliser is a device that uses room air mixed with the medication to create a fine mist. You will be asked to breathe this in then wait 20 to 40 minutes for it to take effect.

A repeat test is then done to check whether there has been any improvement.

What is a gas transfer measurement?

The main job of the lungs is to bring oxygen into your bloodstream and to remove carbon dioxide. The gas transfer test estimates how well your lungs work to take oxygen from the air you breathe and put into your bloodstream using a special gas mixture.

We may also take a small amount of blood from a finger to measure your haemoglobin. This will make the test as accurate as possible.

What is body plethysmography?

Body plethysmography, or lung volumes, measures the total amount of air within your lungs and gives us more detailed information about the size of your lungs.

**Patient
Information**

What is an exhaled nitric oxide measurement? (FeNO)

A Fractional exhaled Nitric Oxide test measures how much nitric oxide is in your breath. A higher FeNO result may indicate airway inflammation, this can be a sign of asthma.

What are respiratory muscle tests?

Respiratory muscle tests measure how much pressure your breathing muscles can generate when you breathe in or out. This test will check for muscle weakness. There are 2 types of respiratory muscle tests; mouth pressure and sniff (SNIP) pressure tests.

What is pulse oximetry spot check?

Pulse oximetry spot check is a non-invasive measurement of your oxygen saturation and pulse rate. It involves placing a small infrared probe on your finger nail.

What are capillary blood gas tests?

A capillary blood gas test will give us measurements of the amount of oxygen and carbon dioxide you are carrying in your blood. A small sample of blood will be taken from your earlobe.

Why do I need this test?

There are different reasons why your doctor may have referred you for a lung function test:

- To help determine if the breathing concern you have is due to a lung condition.
- To help decide if you are fit for surgery and to help the anaesthetist decide if your lungs can cope with any anaesthesia you may be given.
- To monitor the progression of any existing lung conditions.
- To monitor the effects of any medication or treatments that may affect your lungs. You may be asked to have a lung function test before and after starting treatment. This is so that the health of your lungs can be monitored.

**Patient
Information**

What are the risks of lung function tests?

All procedures have some risks, but lung function tests are safe for most people.

The risks of this procedure may include:

- Dizziness
- Breathlessness
- Coughing
- Fainting
- Palpitations or fast heart rate (when taking salbutamol for bronchodilator reversibility testing)

Please complete the enclosed questionnaire before attending for the test.

If you are thought to be at a high risk, then your tests may be postponed or the procedure modified. If you have any concerns, please speak to your physiologist before starting the test.

Are there any alternatives?

Chest X-rays and scans can give some information about your lungs, but not the same information that the lung function tests can provide.

How do I prepare for my lung function test?

- Do not smoke or vape for 1 hour before your test.
- Do not drink alcohol for at least 8 hours before your test.
- Avoid vigorous exercise for at least 1 hour before your test.
- You can eat and drink before your appointment but please avoid eating a large meal within 2 hours. You should also avoid foods high in nitrates such as green leafy vegetables and beetroot.
- Wear comfortable clothing which does not restrict your full chest and abdominal expansion.

Patient Information

You may be asked to stop taking some inhaler medications before having a bronchodilator test (please refer to your letter). Below are examples of the times to avoid using the inhaler(s).

Short acting bronchodilator (avoid for 4 hours)	Long-acting bronchodilator (avoid for 12 hours)	Combination inhalers (avoid 24 hours before your test)
Ventolin	Fostair	Spiriva
Bricanyl	Seretide	Respimat
Atrovent	Serevent	Duaklir Genuair
Airomir	Symbicort	Flutiform
Salbutamol	DuaResp	Onbrez
	Foradil	Relvar Ellipta
	Oxis	Seebri
		Trimbow
		Trelegy

However, if you are feeling very breathless or tight and require your inhaled therapy for relief, please do take your inhalers as normal and inform the physiologist before the test.

What happens before my lung function test?

Before your test, the physiologist will measure your height and weight, as well as asking you to confirm your ethnicity. This is so that we can calculate the predicted values for your lung function test results.

The physiologist will review your pre-test information to make sure it is safe for you to take the lung function tests.

What happens during my lung function test?

Most of the tests are performed with you seated and your nose sealed with a nose peg.

Patient Information

Contact information

Lung Function Department
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Further information

Website: www.gloshospitals.nhs.uk/our-services/services-we-offer/lung-function/

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Making a choice

Shared Decision Making

If you are asked to make a choice, you may have lots of questions that you want to ask. You may also want to talk over your options with your family or friends. It can help to write a list of the questions you want answered and take it to your appointment.



Ask 3 Questions

To begin with, try to make sure you get the answers to three key questions if you are asked to make a choice about your healthcare.

1. What are my options?
2. What are the pros and cons of each option for me?
3. How do I get support to help me make a decision that is right for me?

These resources have been adapted with kind permission from the MAGIC Programme, supported by the Health Foundation

* Ask 3 Questions is based on Shepherd HL, et al. Three questions that patients can ask to improve the quality of information physicians give about treatment options: A cross-over trial. Patient Education and Counselling, 2011;84: 379-85



<https://aqua.nhs.uk/resources/shared-decision-making-case-studies/>