

# Patient information

## Lung Function Tests

***This leaflet only gives you general information about the lung function (breathing) tests. However, it does not replace the need for the personal advice from the health care professional. Please contact us if you require more information.***

### What are Lung Function (Breathing) Tests?

Lung function tests are breathing tests that provide the doctor/nurse with a detailed assessment of how well your lungs are working. The lung function tests assess your airway function, size of your lungs and efficiency of gas exchange i.e. oxygen movement in your lungs. Routine lung function tests usually take about 45 minutes to complete and include Spirometry, Lung Volume and Diffusion/Gas Transfer assessments.

These lung function tests involve you being seated and breathing into specialist equipment (like that shown below), via a filter and a mouthpiece.

### Spirometry

Spirometry is a test that measures the amount of air that you can breathe in and out of your lungs, as well as how fast you can breathe out. You will be asked to breathe normally and then breathe in fully and breathe out until your lungs are completely empty. You will also be asked to blow out as hard and as fast as you can. You are required to peg your nose with a nose clip to ensure you breathe through your mouth and no air escapes from your nose. You may have to repeat the test a number of times to obtain accurate results. This test normally takes around 15 minutes to complete.



Sometimes you may also be asked to perform spirometry before and 10-20 minutes after taking an inhaler, this test is called a reversibility test. This test helps the doctor to identify whether taking the inhaler makes any improvement to your breathing. Often you have to undertake this test if you are performing the breathing tests for the first time and it will add approximately an extra 15 minutes to your testing time. If you have to undertake this test, then you will need to withhold the following medications but continue to take all other

medications normally unless advised otherwise.

**Please do not use the following medication for the appropriate time before your appointment:**

Salbutamol and Terbutaline - e.g. Salamol, Bricanyl, Airomir, Ventolin	4 hours prior
Ipratropium bromide – Atrovent, Respontin	6 hours prior
Salmeterol - Serevent, Neovent, Vertine Formoterol – Oxis, Foradil, Atimos, Formoterol	12 hours prior
Indacaterol - Onbrez, Olodaterol - Striverdi	24 hours prior
Aclidinium – Eklira Genuair Formoterol/Aclidinium – Duaklir Genuair	12 hours prior
Tiotropium - Spiriva, Glycopyrronium - Seebri, Umeclidinium – Incruse Ellipta, Vilanterol/Fluticasone – Relvar Vilanterol/Umeclidinium – Anoro Ellipta Olodaterol/Tiotropium – Spiolto Respimat Indacaterol/Glycopyrronium – Ultibro Breezhaler	24 hours prior
Salmeterol/Fluticasone - Seretide, Sirdupla, AirFluSal Formoterol/Budesonide - Symbicort, DuoResp Formoterol/Fluticasone - Flutiform Formoterol/Beclomethasone – Fostair	12 hours prior
Theophylline, Phyllocontin, Uniphyllin, Bambuterol (tablets)	24 hours prior

## Lung Volumes

These tests measure the total size of your lungs and also the amount of air remaining in the lungs after a complete breath out; this provides the doctors with more detailed information about your lungs and how they function.

- **Dilution Method:** In this test you will breathe harmless gas from the machine and we analyse this gas to measure the lung volumes. You will be asked to breathe normally (between 2-3 minutes up to a maximum of 10 minutes) on the mouthpiece with a clip

on your nose as with spirometry. At the end of the test you will also be asked to breathe out fully and then take a full breath back in.

- **Body Plethysmography:** This involves the patient performing a test in a sealed unit; the walls of the unit are clear so that you and the technician can see each other. In this test you will be asked to breathe against a mouthpiece in both the open and closed positions; the positions give different pieces of information. As the chest moves while you breathe, it changes the pressure in the cabin and against the mouthpiece. This allows accurate measurement of the total volume of gas in the thorax, including any air that may be trapped behind collapsed airways, and gives information about how difficult it is to move air in and out of the lungs.

These tests take approximately 10 minutes to complete.

## **Diffusion or Gas Transfer**

This test assesses the ability of the lungs to transfer gases from the air breathed in, into the blood stream. Like the lung volume test you will be breathing a harmless gas from the machine and we analyse this gas to measure the gas exchanging capacity of your lungs. For this test you are required to breathe out as far as possible, then take a full breath in and hold the breath for about 9 seconds and then breathe out steadily. Nose clips are used again and you have to repeat the test between two to five times to ensure the accuracy of the results. This test takes less than a minute to perform, however, the whole test: preparation, manoeuvres and analysis takes about 15 minutes.

The technician will work with you to learn how to do the test correctly. If you do not understand any instructions ask the technician to repeat them.

## **Why are Lung Function Tests performed?**

There are several reasons for performing these tests, which include the following:

- To help make a diagnosis and to quantify the degree of lung damage.
- To assess the progress of your existing breathing condition by comparing these tests with previous results.
- To see how your breathing condition improves with different treatments.
- To help assess fitness before surgery.

## Before the procedure

In order to achieve the most accurate results please note the following requests:

- Avoid smoking for at least 24 hours (if possible) prior to your lung function test.
- Avoid alcohol for 4 hours prior to your lung function test.
- Avoid vigorous exercise 30 minutes prior to your lung function test.
- Avoid tight clothing and eating a substantial meal for at least 2 hours prior to the lung function test (a light meal is fine).
- Follow the instructions given in your appointment letter regarding the use of respiratory medications.

***If you have to take any of your medication (that you have been asked to withhold) because you are too breathless, please record when you take it and inform the Physiologist when you arrive for your appointment.***

## What are the risks?

There are no risks associated with these procedures. Some of the tests are tiring, but you will be given time to recover between tests. However if you find the tests too difficult or uncomfortable they can be stopped at any time.

## Test Results

The results are usually available immediately after testing. If you have a clinic appointment on the same day you might be given the results to take with you to your appointment. Otherwise the results will be sent to your doctor.

## Further Important Information

Please inform the Lung Function Department on **01284 713509** if any of the following apply to you:

- If you have had any thoracic (chest), abdominal or eye surgery in the last month.
- If you have had a heart attack or stroke in the last month.
- If you have been told by a Doctor that you have a collapsed lung.

- If you have a current chest infection requiring antibiotic treatment or if you are coughing up blood.
- If you are suffering from illness like diarrhoea and vomiting.

## How to get to the Lung Function Department

These tests are performed in the Lung Function Department which is situated on the ground floor in the Therapy Services area of the hospital. Please enter via the Therapy Services entrance which is to the right of the Main Outpatients entrance at the front of the hospital. Please report to the reception desk on arrival.

Instructions on how to get to the hospital are available in the Trust website or you can follow link below: <http://www.wsh.nhs.uk/Howtogettothehospital/GettingHere.aspx>

Please allow extra time for parking if you are coming by car. A Pay and Display system is in operation.

Disabled parking is allocated opposite the front, and at the side and rear of the hospital.

## Cancellations

As we have a waiting list for appointments (*cancellations are reallocated*), early notice of cancellation is appreciated. Please contact **01284 713509** ASAP if you are unable to attend your appointment.

## Who can I contact for more information?

If you are unsure why you have been asked to attend for the tests then please do not hesitate to contact the Lung Function Department on **01284 713509** (direct line), and the Physiologist will assist you.

*If you would like any information regarding access to the West Suffolk Hospital and its facilities please visit the disabledgo website link below:*

<http://www.disabledgo.com/organisations/west-suffolk-nhs-foundation-trust/main>