

Lung Function Testing Patient Information Respiratory & Sleep Physiology Service



James Paget
University Hospitals
NHS Foundation Trust

Author: Kim Wilkins, Chief Respiratory Physiologist

Your doctor has recommended that you have a lung function test. This leaflet will explain about the test and how our lung function clinic works.

What can lung function testing tell us?

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

- To help determine if the breathing concern you may 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 the lungs – you may be asked to have a lung function test before and after starting treatment, so that the health of your lungs can be monitored

What is involved?

A **standard 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. These will require you to be in the department for approximately one hour, the tests include:

- Spirometry
- Gas transfer measurement
- Body plethysmography – static lung volumes
- Nitrogen washout – static lung volumes

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 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 it into your bloodstream. Lung conditions can affect how these gases transfer. For example, gas transfer will be reduced in emphysema and pulmonary fibrosis.

What is static lung volumes?

Static lung volumes tests, measure the total amount of air within your lungs and gives us more detailed information about the size of your lungs. We measure this using body plethysmography or Nitrogen washout methods.

Additional Tests

Your doctor may also refer you **for additional / specialist tests** in the Lung Function Unit. The time required in the department will vary for these tests, the type and approximate time required is as follows:

- Bronchodilator reversibility (One hour)
- FeNO tests – Fractional exhaled Nitric Oxide (20 minutes)
- Exhaled carbon monoxide test (20 minutes)
- Respiratory muscle tests (45 minutes)
- Capillary blood gases tests (20 minutes)
- 6MWT – 6-minute walk test (45 minutes)
- Mannitol – bronchial challenge (One hour 15 minutes)
- CPET - Cardio-Pulmonary exercise test (One hour 45 minutes)

What is bronchodilator reversibility?

After you have performed spirometry, it may be repeated after you have been given an inhaler. This will see if there is any improvement in your airways as a result of taking this medication. You will be asked to **'Withhold your inhaler use at home'** prior to attending for this test – please check your letter for duration of time to withhold for.

What is a FeNO (fractional exhaled nitric oxide) test?

A fractional exhaled nitric oxide test measures how much nitric oxide is in your breath. A higher level of nitric oxide measured may indicate inflammation which may be a sign of asthma.

What is an exhaled carbon monoxide test?

An exhaled carbon monoxide test measures how much carbon monoxide is in your body. Most people with high levels of carbon monoxide are smokers.

What are respiratory muscle tests?

Respiratory muscle tests measure how much pressure / force your breathing muscles can generate when you breathe in or out to check for muscle weakness.

What are capillary blood gas tests?

A capillary blood gas test is used to check how well your lungs are working and whether they're able to exchange oxygen and carbon dioxide efficiently. A small sample of blood is taken from your earlobe to measure this.

What is a six minute walk test (6MWT)?

A six minute walk test is used to assess your exercise capacity whilst monitoring your heart rate and oxygen levels. It is a shuttle walk between two points at your own pace to cover as much distance as possibly can.

What is a Mannitol bronchial challenge test?

A bronchial challenge test may be used to assess for asthma. A type of inhaler, containing increasing dosages of dry powder, will be administered over a course of stages. The inhaled powder may cause irritation and narrowing to your airways. You will be asked to perform spirometry at each stage of this test. You may also be given a bronchodilator at end of test to reverse effects of Mannitol, if required. You will be asked to **'Withhold your inhaler use at home, plus avoid caffeine and antihistamines'** prior to attending for this test – please check your letter for duration of time to withhold for.

What is a Cardio-Pulmonary Exercise Test (CPET)?

A CPET is used to check how your heart and lungs respond to exercise. The test will involve being attached to equipment to monitor your ECG (heart), oxygen levels, blood pressure and breathing through a mask whilst cycling on a stationary bicycle. Please wear sensible footwear for this test. You will be offered a gown to wear.

Are there any risks?

All procedures have some risks, but lung function tests are safe for most people. You will be asked by clinical staff if you have any specific reasons why we cannot perform the test when you arrive.

The possible side-effects you may experience during these procedures may include:

- Dizziness
- Breathlessness
- Chest Tightness
- Coughing
- Fainting
- Palpitations Or Fast Heart Rate
- Fatigue

What do I need to do?

On the day of your lung function test, please:

- Do not smoke or vape at least one hour prior to test
- Avoid eating a HEAVY meal (light meal is acceptable)
- Avoid having caffeine on day of test
- Avoid vigorous exercise one hour prior to test
- Avoid alcohol eight hours prior to test
- Do wear non-restrictive clothing (around chest & stomach)
- Do wear sensible footwear for exercise/walking test
- Do bring a list of your medication
- Do make a note of when you last used each of your inhalers

Consent

We must by law obtain your verbal consent to this test beforehand. Staff will explain the risks, benefits and alternatives to you. If you are unsure of any aspect of the test proposed, please do not hesitate to ask.

After the test

The results of your lung function test will not be discussed with you at your lung function appointment. The results be sent to the referring clinician (GP or respiratory consultant) who will notify you of results in due course. If you have any further questions please telephone the Sleep & Lung Physiology department on: 01493 453055. For reception at The Oulton Suite CDC: 01493 452701 or 452702 during the hours of 09:00 and 16:30 Monday to Friday.

Your Feedback

We want your visit to be as comfortable as possible - talk to the person in charge if you have any concerns. If the ward/department staff are unable to resolve it, then ask for our Patient Advice and Liaison (PALS) information. Please be assured that raising a concern will not impact on your care.

Before leaving please complete a Friends and Family Test feedback card.

Help us transform NHS services and to support patient choice.

OUR VALUES

Collaboration

We work positively with others to achieve shared aims

Accountability

We act with professionalism and integrity, delivering what we commit to, embedding learning when things do not go to plan

Respect

We are anti-discriminatory, treating people fairly and creating a sense of belonging and pride

Empowerment

We speak out when things don't feel right, we are innovative and make changes to support continuous improvement

Support

We are compassionate, listen attentively and are kind to ourselves and each other



The hospital can arrange for an interpreter or person to sign to assist you in communicating effectively with staff during your stay. Please let us know.

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01493 453240**