Your Test: Lung Function Tests

Lung function tests check how well your lungs work. They may also be called pulmonary function tests, or PFTs.

Spirometry is the first lung function test done. It measures how much air you can expel from your lungs and how quickly your lungs can move the air in and out. You may also have other tests, such as gas diffusion tests, body plethysmography, inhalation challenge tests, and exercise stress tests.

**Why they are done**
You may have lung function tests to:

- Find the cause of breathing problems and diagnose lung diseases like asthma or emphysema.
- Check your lung function before surgery.
- Find out how well treatment for a lung problem is working.

**How to prepare**
Lung function tests pose little or no risk to a healthy person. If you have a serious heart or lung problem, discuss the risks with your doctor.

Before the test, tell your doctor if you have had recent chest pains or a heart attack or if you are allergic to any medicines. Also let your doctor know if you take medicines for a lung problem. You may need to stop some of these before the tests.

On the day of the tests:

- Wear loose clothing that does not restrict your breathing.
- If you have dentures, wear them during the test to help you form a tight seal around the spirometer's mouthpiece.
- Do not eat a large meal just before the test. A full stomach may keep your lungs from fully expanding.
- If you smoke, do not do so for 6 hours before the test.
- Do not exercise hard for 6 hours before the test.

**How they are done**
The way the test is done depends on the test.

A respiratory therapist or technician will do the lung function tests. The testing may take from 5 to 30 minutes, depending on how many tests you have.

For most tests, you will wear a nose clip. This is to make sure that no air passes in or out of your nose during the test. You then breathe into a mouthpiece attached to a recording device.

- For some tests, you breathe in and out as deeply and quickly as you can.
- You may repeat some tests after you inhale a medicine that expands your airways.
- You may breathe certain gases, such as 100% oxygen or a mixture of helium and air.
• For body plethysmography, you sit inside a small booth with windows. The booth measures pressure changes that occur as you breathe.

The therapist may urge you to breathe deeply during some of the tests to get the best results.

You may have a blood test to check oxygen and carbon dioxide in your blood before, during, or after your lung function tests.

**How they feel**

Lung function tests are usually painless.

• You may find it uncomfortable to wear the nose clip or breathe through the mouthpiece for a long time.
• Some of the tests may be tiring if you have a lung problem.
• You may cough or feel lightheaded after breathing in or out quickly. You will get to rest between tests.
• If you have body plethysmography, the therapist will be nearby to open the door if you feel uncomfortable in the small space.
• If you are given breathing medicine, it may increase your heart rate or make you shake. If you have chest pain or discomfort, tell the therapist right away.
• If you have a blood test, you may feel brief pain when the needle is put in your arm.

**Results**

Results are considered normal if they are within healthy ranges. Abnormal results may be found with:

• **Obstructive lung disease.** This means the airways are narrowed. It can be caused by diseases like emphysema, bronchitis, infection, and asthma.
• **Restrictive lung disease.** This means there is a loss of lung tissue or a decrease in how the lungs expand. It can be caused by many conditions, such as obesity and pulmonary fibrosis.

You may not get accurate test results if:

• You use medicine that expands your airways within 4 hours of the test, or you take a sedative before the test.
• You are pregnant or you eat a large meal before the test.
• You are not able to follow instructions or give some effort to the test, or you are not able to breathe normally because of pain.

**What to think about**

• Some lung function tests can be done at home. Talk to your doctor to see if this is an option for you.
• If your spirometry results are normal but your doctor suspects asthma, you may have a test after you inhale a substance that narrows your airways. This test may take as long as 2 hours.