



Testing your lungs: spirometry



What is spirometry?

Spirometry is a test of how well you can breathe and can help in the diagnosis of different lung diseases. The test is painless and usually takes less than 10 minutes, but requires taking in a very deep breath and some hard blowing. You breathe into a device called a spirometer, which measures the amount of air in your lungs and how fast you can breathe out.

Should you take a test?

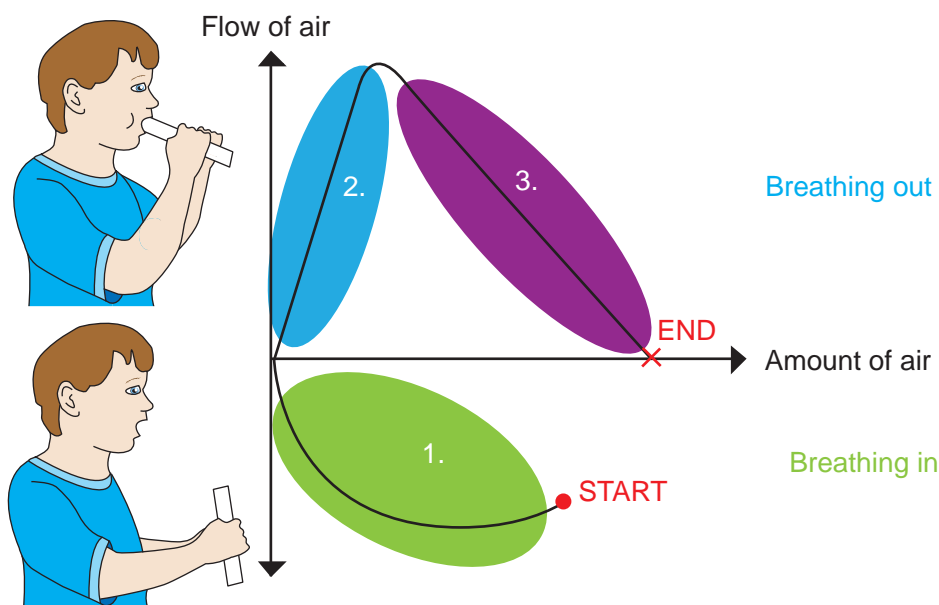
Yes, if:

- ✓ You cough a lot.
- ✓ You become short of breath when walking quickly.
- ✓ You are worried about the health of your lungs.
- ✓ You are already receiving treatment for a lung disease.
- ✓ You are over the age of 40 and have smoked cigarettes during the past 12 months.

What happens during the test?

The nurse or doctor will show you how to blow into the spirometer before you begin. It is important that you put as much effort into the test as you possibly can, otherwise the results will not be accurate. You will be asked to blow three or more times into the spirometer.

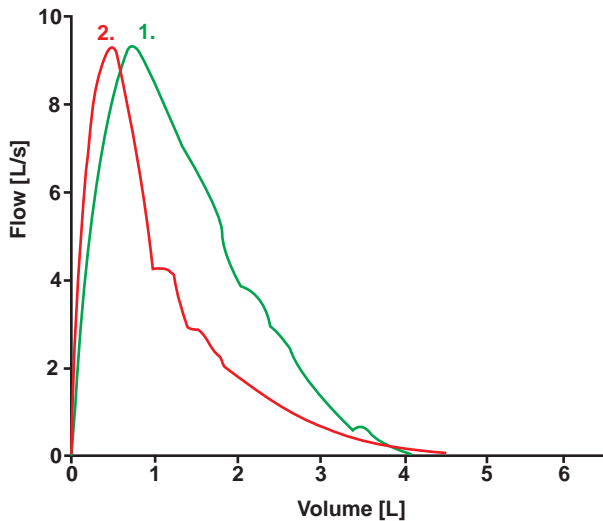
When holding the spirometer, you must:



1. Breathe in as deeply as you can and place your lips tightly around the mouthpiece.
2. Try your hardest and blast out your air as quickly as possible.
3. Keep blowing out until your lungs are empty and the doctor or nurse tells you to stop, usually after at least 6 seconds.

What will the results look like?

The spirometer is connected to a computer that makes flow-volume curves, like the two shown below. Number 1 is a graph from a 49 year old man with normal lung function and number 2 is from a 67 year old man with moderate obstruction in his airways.



If we look at number 1 the graph starts at zero and quickly peaks when the man blew out forcefully. He continued to blow out air for several seconds, for a total of 4 litres (seen at the lower right hand of the graph). This amount of air is called the forced vital capacity (abbreviated as FVC). Another important spirometry result is the FEV1, the amount of air which he blew out during the first second (about 3 litres, but not shown on this type of graph). If your lungs are healthy, you will breathe out most of the air during the first second of the test.

What do the results mean?

The doctor will use these measurements (FEV1 and FVC) to decide how well your lungs are working. If the amount of air you can blow out during the first second is low, you may have a narrowing of your airways, possibly because of asthma or chronic obstructive lung disease (COPD). If you are already receiving treatment for asthma or COPD (such as an inhaler), the spirometry test can be used to check that the treatment is helping your lungs to work as well as possible. The test may also be useful to rule out some other lung diseases.

Problems you might have during the test

The breathing is difficult for some people. Be sure to carefully watch the demonstration of the 3 steps before you try it yourself. This will save time and energy. If you become tired or lightheaded during the test, ask for a couple of minutes to quietly catch your breath before trying again. Some people may find that the test makes them want to cough. If this occurs try and clear your chest before you try again.

What happens if the test results look abnormal?

Your doctor may ask you to inhale a breathing medication, wait 10 to 15 minutes and then repeat the test. This helps the doctor to see whether any damage to the lungs is reversible and whether a prescription for an inhaler is likely to improve your breathing. The response to this medication, known as a bronchodilator, may also help the doctor to tell whether you have asthma (which will improve after the bronchodilator) or COPD (which shows less improvement).

If you have experienced asthma-like symptoms in the past but the spirometry test is normal, you may still have asthma. If you are a smoker and the spirometry test is normal, you remain at a high risk of developing COPD, heart disease, strokes, and lung cancer, so you should ask for help to stop smoking. If there is polluted air in your workplace, even if your spirometry test is currently normal, you should avoid breathing dusts, smoke, fumes, and chemicals.

Will I need any more tests?

The spirometry test is an important measure of lung function. If your symptoms vary (for example with asthma) you may be asked to repeat the test at different times, in which case you could take note of your results so you know what is a normal result for you. If you have an ongoing lung problem (for example COPD) regularly spirometry may help monitor your condition. In addition, you may be asked to carry out some more tests if the doctor needs to investigate further.