Pulmonary Function Tests

Pulmonary function tests (also called lung function tests) help measure how well your lungs are working. The tests measure the amount of air you breathe out (exhale) and how long it takes for you to exhale completely. These tests are done to diagnose lung conditions such as asthma and COPD. They may be done before and after you take certain medications. They may also be used to find out whether your shortness of breath gets worse with exercise. Over time, pulmonary function tests can help you and your healthcare providers see how well your treatment is working.

Your Experience

A complete pulmonary function test has 3 parts. You may be given the entire test or only certain parts. The entire test is painless and can last 45–90 minutes. If you get tired, you can take a break between test sections.

Before Your Test

Follow any instructions you are given to prepare for the test. Otherwise, your test may be canceled.

- Avoid smoking for 12–24 hours before the test or stop as directed.
- Stop taking your breathing medication 6 hours before the test.
- Avoid caffeine and eat only a light meal. Also, limit the amount of fluids you drink.
- Wear loose clothes that don’t restrict your breathing.

Tell the healthcare provider if you have any of these symptoms during the test:

- Sore mouth
- Chest, arm, or jaw pain
- Fatigue or dizziness
- Severe shortness of breath

During Your Test

The healthcare provider will coach you during your test. Depending on how many parts of the test you have, you may sit in a chair and breathe through a mouthpiece. Or you may sit in a clear plastic box that looks like a phone booth. You will wear nose clips so you only breathe through your mouth.

- During spirometry, you hold your breath and blow it out fast. Spirometry is repeated at least 3 times to measure your best effort.
- During diffusion, you hold your breath for 10 seconds. The test measures how well your lungs move air into your blood.
- During lung volume, you breathe in different mixtures of air. How much air you inhale and exhale is measured. The amount of air that stays in your lungs is also measured.

After Your Test

After the test, you can return to your normal diet, activity, and medications. If you were asked to skip medications before the test, ask if you should take them now. Your doctor will discuss the test results with you at your next visit.

Words You May Hear

Spirometry measures how much air you can take into your lungs and how fast you can blow the air out.
Pulmonary function tests measure how much air you can exhale, and how quickly. There are several types of pulmonary function graphs that show data from the tests. Some of the things that tests measure include:

- **FVC (forced vital capacity).** This is the total amount of air you can exhale in a single, prolonged breath.
- **FEV1 (forced expiratory volume in one second).** This is the amount of air you exhale in the first second. FEV1 is often expressed as a percentage of FVC.
- **FEV1/FVC.** This is the amount of air exhaled in the first second compared to the total amount of air exhaled. It’s given as a ratio (fraction) or a percentage. In general, the higher the FEV1/FVC, the better.
- **PEF (peak expiratory flow).** This is a measure of how fast you can exhale. It can be tested with spirometry or a peak flow meter.