Patient Education

BAPTIST MD Anderson Cancer Center
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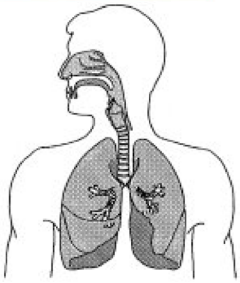
BMDA Pulmonary Function Test and Spirometry Test



What is a pulmonary function test?

Pulmonary function tests measure how well your lungs take in and exhale air. These tests also determine how well your lungs function, measure the amount of air contained in your lungs and how well your lungs transfer oxygen into the blood.

Pulmonary function tests help your doctor diagnose lung problems and plan the best treatment for you. These tests may be done before and during chemotherapy, before and during radiation therapy, and before surgery. They help establish a plan to reduce the risks of lung complications.
These tests may be repeated after treatment to tell how your treatment affected your breathing.

The tests take approximately one hour to complete.

What will happen before the tests?

Before the tests, you will fill out a questionnaire, and a technician will ask you about your breathing and the reasons why you are being tested. Questions will include whether you smoke or have ever smoked; if you have ever had asthma or other breathing problems; and if you ever feel short of breath or have a cough.

How should I prepare for the tests?

- **Do not** eat a heavy meal before the test.
- **Do not** smoke for 12 hours before the test.
- **Do not** wear tight clothing that makes it difficult to breathe deeply.

If you are taking medications to help you breathe – inhaled, pill or liquid – continue to take them as you normally do. Occasionally, you may receive specific instructions by your doctor or nurse to not take these medications before the test, particularly inhalers.

What will the tests be like?

Pulmonary function tests can be tiring but should not be painful. A technologist will be with you and guide you throughout the tests. If you have trouble breathing or feel discomfort at any time during the tests, let the technologist know right away.

You will be asked to do several types of breathing maneuvers while you have a mouthpiece in your mouth.

Spirometry Test

During the first test, the mouthpiece will be connected to an instrument called a spirometer. This instrument will record the amount of air and the rate of air that you breathe in and out. Some of the measurements will be obtained during normal, quiet breathing. At other times, you will be asked to take in as deep a breath as possible and blow it out as far and fast as possible. Each maneuver will be performed several times to ensure accurate results.

It is important that you keep your lips tightly sealed around the mouthpiece to avoid air leaks.
You will also be asked to wear clips on your nose to prevent air leaks. The air that leaks out of the system cannot be measured and will affect the results of the test.

The technologist will coach you to get the best, most consistent test results, and he or she may have to talk loudly to encourage you to do your best. Your cooperation while performing the test is crucial to provide accurate results. A poor seal around the mouthpiece or a less than best effort can give poor results.

Depending on the results of the first test, you may be given an aerosol medication to breathe.
This medicine relaxes the muscles surrounding the bronchial tubes in the lungs and helps the air flow through air passages more easily. After ten minutes, the test will be repeated to determine if your breathing improved.

Body Plethysmograph Test

You may be asked to perform another test to measure the lung volume (the total amount of air that is in your lungs). This test will be done while you sit inside a sealed, see-through box that looks like a telephone booth. This box is called a body plethysmograph. You will breathe in and out of a mouthpiece. Pressure changes inside the box will allow the technologist to measure your lung volume. Lung volume can also be measured by breathing a mixture of oxygen, nitrogen or helium gas through a tube for a specified period. The difference in the concentration of the gas in the chamber (attached to the tube) at the beginning and end of the test helps the technologist measure your lung volume.

Diffusion Capacity Test

A test to measure diffusion capacity is usually the last in these series of tests. Diffusion capacity is measured when a person breathes a mixture of gases that contain a small amount of carbon monoxide for a very short time - often one breath. The concentration of these gases in the exhaled air is measured. The difference in the amount of gas inhaled and the amount exhaled allows the technologist to estimate how rapidly gas can travel from your lungs into your blood.

Are there risks?

The risk of these tests is minimal for most people. There is a small risk, however, of a collapsed lung in people with certain types of lung disease. A new filter and housing are used each time, and other parts are chemically disinfected to ensure clean testing instruments.
If you have any questions, call the provider’s office who ordered the test.