

Spirometry

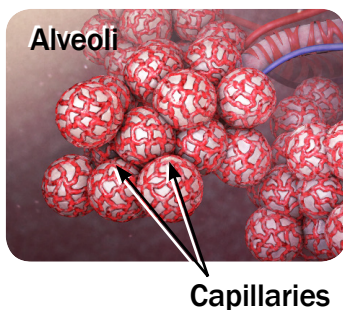
WATCH THE VIDEO ONLINE!

www.healthjourneysupport.com/respiratory/spirometry

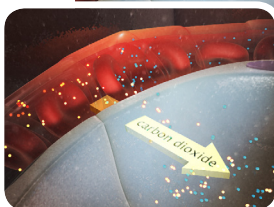
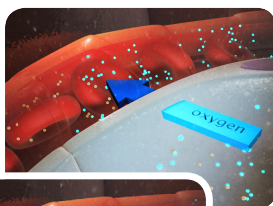
Spirometry is a test of how well your lungs are working by measuring how fast and how much air you can breathe in and out.

How Your Lungs Work

Normally, as you breathe in, or inhale, air moves freely through your trachea, or windpipe, then through large tubes called bronchi, smaller tubes called bronchioles, and finally into tiny sacs, called alveoli.



Small blood vessels called capillaries surround your alveoli. Oxygen from the air you breathe passes into your capillaries, then carbon dioxide from your body passes out of your capillaries into your alveoli. Then, you get rid of the carbon dioxide when you breathe out, or exhale.



Reasons for Spirometry

Diseases such as chronic obstructive pulmonary disease (COPD) and asthma constrict your bronchioles, reducing the amount of air going into your lungs. COPD also damages your alveoli, reducing the amount of oxygen in your blood. These diseases can make it hard for you to breathe.

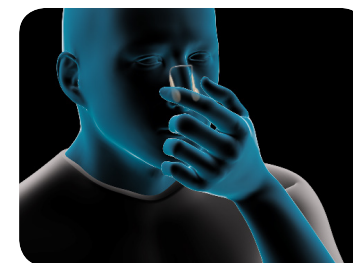
Your doctor may recommend a spirometry test to identify a disease in your lungs or check the severity of your existing lung disease.

The Spirometry Test

During the test, your caregiver will use a device called a spirometer. A spirometer is a machine that measures exhaled air.

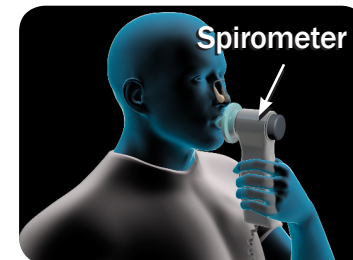
Before you take the spirometry test, you will sit in a comfortable chair with your feet flat on the floor. If you have dentures, you may be asked to remove them. For best results, you will be advised to follow your caregiver's instructions exactly.

To start, you will raise your head and chin so that you can breathe easily. Next, you will place a clip on your nose to prevent air from coming out of your nostrils.

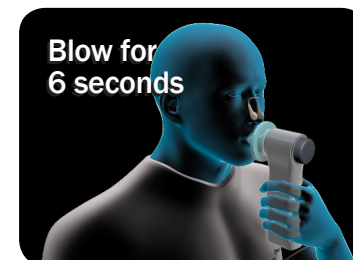


Then, you'll take a deep breath, filling your lungs completely with air, and hold it.

You will place the spirometer's mouthpiece between your teeth, and tightly seal your lips around it.



Finally, you will blast the air out of your lungs as hard and as fast as you can. Your caregiver will tell you when to stop. Adults typically blow for at least six seconds.



You will need to perform the spirometry test correctly three times to get accurate results. Your doctor will discuss the results with you, and let you know if you have any breathing problems.

Spirometry

Understanding Spirometry Test Results

Spirometry measures the amount and speed of the air that can be inhaled and exhaled from your lungs. Your healthcare provider can use your spirometry test results to diagnose lung conditions such as COPD or asthma.

Spirometry test results include measurements called Forced expiratory volume (FEV_1), Forced vital capacity (FVC), and FEV_1/FVC ratio (FEV_1/FVC).

- **FEV_1 :** The amount of air you are able to blow out into the spirometer within one second
- **FVC:** The total amount of air you are able to exhale in one deep breath
- **FEV_1/FVC :** The ratio of total air you are able to exhale in one breath, within one second

You may be given medication, such as a bronchodilator, and you may be asked to repeat the spirometry test one or more times. If medications are given during the test and your test results show improvement, your healthcare provider may prescribe ongoing treatment with medication.



- Take your medicine exactly as your doctor has instructed.
- Do not stop taking your medicine or change the amount you take without first talking to your doctor.

What You Can Do to Breathe Better

If your spirometry test showed that your breathing is affected by COPD, changes in your lifestyle habits, as well as medication, may improve your ability to breathe.

An important first step your doctor takes to help manage COPD is to prescribe effective medication.

An important first step *you* must take is to use your medicine as prescribed. Together, you and your doctor should build an action plan. In addition to taking your medication, there are many other things you can do to help manage your COPD.

Stop Smoking

If you are a smoker, the most important thing you can do is to stop smoking. Quitting now can slow the progressive decline in lung function that comes with COPD.

If you are not able to stop smoking on your own, ask your doctor for help. Support and information about smoking cessation are also available from the American Lung Association (www.lungusa.org).

Break the Vicious Cycle of Inactivity

As COPD progresses, your symptoms may keep you from doing the things you need to do. When it is difficult to breathe, being active can be difficult and you might start to avoid physical activity.

Breaking the cycle of inactivity starts with exercise. Regular exercise can raise your energy level, reduce your symptoms of COPD, and improve your circulation. Talk to your doctor about how much physical activity and what kinds of activities are best for you.

Avoid Exposure to Infections

Colds, flu, and other respiratory infections cause problems for people with COPD. Do your best to avoid exposure to these infections.

- Talk with your doctor about getting a yearly flu shot and being vaccinated against pneumonia
- Try to stay away from people who have the flu

It is critical that you contact your doctor at the first sign of a cold, the flu, or other respiratory infection.

Avoid Respiratory Irritants

Many people with COPD are sensitive to irritants in the air.

These include:

- Smoke
- Exhaust fumes
- Strong perfumes
- Cleaning products
- Paint/varnish
- Dust
- Pollen
- Pet dander
- Air pollution

Extreme cold or hot weather can also irritate the respiratory tract. Try to avoid exposure to these irritants.



Call 911 if:

- You are feeling discomfort, pressure, or pain in your chest that lasts for more than a few minutes or keeps returning or feel any discomfort in your upper body
- You cannot breathe
- You feel like you will pass out

Eat a Healthy Diet

Good nutrition is important for everyone, including people with COPD. Being overweight or underweight can cause problems. Your doctor can help you plan a healthy diet. Here are a few tips:

- Eat a balanced diet consisting of foods from all of the basic food groups—fruits and vegetables, dairy products, cereal and grains, and proteins

- Limit your intake of salt and caffeinated beverages, such as coffee and colas
- Eat your main meal early, so you have energy to carry you through the day
- If you become breathless while eating, try several small meals throughout the day rather than three large ones

Get Enough Rest

COPD can often affect a person's sleep. Like everyone else, people with COPD need enough rest to stay as healthy and active as they can. Here are some tips:

- Avoid staying in bed when you can't sleep. Get up and read a magazine or watch TV in another room for a while
- Don't take naps during the day
- Exercise
- Keep to a regular schedule of going to bed at night and getting up in the morning
- Make sure the bedroom is cool, dark, and quiet when you're trying to sleep

If you still have trouble sleeping, ask your doctor for help.

You Are On Your Way to Breathing Better!

When taking your medicine as prescribed, you may:

- Start and end your day breathing better by improving your lung function
- Use less rescue medicine

The information in this handout has been created and peer reviewed by graduate-level medical illustrators, followed by reviews from medical subject experts, either physicians or PhDs on the Nucleus Medical Review Board, to ensure medical accuracy and audience level appropriateness.

The handout is intended to supplement the information you receive from your healthcare provider and should never be considered personal medical advice. Always contact your healthcare provider with health questions and concerns.

