COPD

Chronic obstructive pulmonary disease or COPD refers to respiratory (lung) disease that blocks airflow in the lungs and causes breathing difficulties. Chronic bronchitis (inflammation of the airways or bronchial tubes) and emphysema (damage to the lining of the air sacs in the lungs) are often part of this condition.

Your doctor may perform lung (pulmonary) function testing, also called spirometry, or arterial blood gas analysis to help diagnose this condition. Chest x-ray (https://www.radiologyinfo.org/en/info/chestrad) or chest CT (https://www.radiologyinfo.org/en/info/chestct) may be used to measure the extent of your disease. While there is no cure for COPD, your doctor may recommend lifestyle changes, therapies, medication and/or surgery to help relieve your symptoms.

What is Chronic Obstructive Pulmonary Disease (COPD)?

Chronic obstructive pulmonary disease (COPD) refers to pulmonary (http://www.radiologyinfo.org) disease that blocks airflow in the lungs and causes breathing difficulties. Chronic bronchitis (http://www.radiologyinfo.org) and emphysema (http://www.radiologyinfo.org) are often part of this condition.

Chronic bronchitis is the inflammation of the airways or bronchial tubes (http://www.radiologyinfo.org) . This inflammation can create narrowing and excess mucus, blocking airflow. You may develop a long-standing cough, which occurs to clear the mucus from the airways. For bronchitis to be considered chronic, you must have a cough that lasts at least three months of the year for two years.

Emphysema occurs when the linings of the air sacs are damaged and holes develop in the lungs. Once the air becomes trapped in these holes, the lungs slowly increase in size and lose their elasticity. This makes breathing more difficult because the lungs cannot exhale air completely.

Symptoms of COPD may include:

- Shortness of breath, especially during physical activity
- Chronic cough, often with excess mucus
- Recurrent respiratory infections
- Wheezing
- Tightness in the chest
- Cyanosis (http://www.radiologyinfo.org) , or a blue discoloration of the lips or fingernail beds
- Lack of energy
- Unintended weight loss

There are many factors that contribute to the development of COPD. The leading cause is tobacco smoking. Others include:

- Secondhand smoke

- Air pollution
- Exposure to harmful dust or chemical fumes in the workplace

In rare cases, non-smokers or children may develop COPD as a result of alpha-1 antitrypsin deficiency (http://www.radiologyinfo.org) (A1AD). A1AD is a genetic disorder caused by abnormally low levels of a protein called alpha-1 antitrypsin. These patients develop emphysema at the base of the lung.

How is COPD diagnosed and evaluated?

Your primary care doctor will begin by taking your medical history and asking about symptoms. You will also undergo a physical exam.

If your doctor suspects you are suffering from COPD, the following tests may be performed:

- Spirometry: This lung function test involves the use of a machine called a spirometer (http://www.radiologyinfo.org) that measures how much air you are able to move by taking a deep breath in and out, and how quickly you are able to do so.
- Arterial blood gas analysis: This test measures how much oxygen and carbon dioxide are present in your blood. A high percentage of carbon dioxide in the blood can be a sign of poorly functioning lungs caused by COPD.

Your doctor may also order the following imaging tests:

- Chest x-ray: (https://www.radiologyinfo.org/en/info/chestrad) This exam can help support the diagnosis of COPD by producing images of the lungs to evaluate symptoms of shortness of breath or chronic cough. While a chest x-ray may not show COPD until it is severe, the images may show enlarged lungs, air pockets (bullae (http://www.radiologyinfo.org)) or a flattened diaphragm (http://www.radiologyinfo.org) . A chest x-ray may also be used to determine if another condition may be causing symptoms similar to COPD. *See the Safety section (https://www.radiologyinfo.org/en/info/safety-xray) for more information about x-rays.*
- Chest computed tomography (CT) scan: (https://www.radiologyinfo.org/en/info/chestct) This exam may be performed to help support the diagnosis of COPD or determine if the disease has worsened. It combines special x-ray equipment with sophisticated computers to produce multiple images or pictures of the inside of the lungs. CT images can identify emphysema better and at an earlier stage than a chest x-ray. They can also identify other changes of COPD such as enlarged arteries in the lungs. CT is sometimes used to measure the extent of emphysema within the lungs. It can also help determine if the symptoms are the result of another disease of the chest. *See the Safety section (https://www.radiologyinfo.org/en/info/safety-xray) for more information about CT.*

How is COPD treated?

While there is no cure for COPD, your doctor may recommend one or more of the following to help relieve symptoms:

- Lifestyle changes: Stop all smoking and increase physical activity.
- Therapies: Oxygen therapy involves the use of a device that brings additional oxygen to your lungs. Pulmonary rehabilitation is a program that uses counseling, diet advice and physical activities to help you better manage your COPD.
- Medications: Steroids, inhalers and antibiotics may be prescribed to treat symptoms of COPD.
- Surgery: In severe cases, surgery, such as lung transplant (http://www.radiologyinfo.org) or lung volume reduction surgery (http://www.radiologyinfo.org) , may be needed when symptoms have not improved by way of medication or non-invasive therapies.

Which test, procedure or treatment is best for me?

- *Acute Respiratory Illness in Immunocompetent Patients (https://www.radiologyinfo.org/en/info/acs-acute-respiratory-illness-immunocompetent)*

- *Chronic Cough (https://www.radiologyinfo.org/en/info/acs-chronic-cough)*
- *Chronic Dyspnea-Noncardiovascular Origin (https://www.radiologyinfo.org/en/info/acs-chronic-dyspnea-noncardiovascular)*
- *Hemoptysis (https://www.radiologyinfo.org/en/info/acs-hemoptysis)*

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