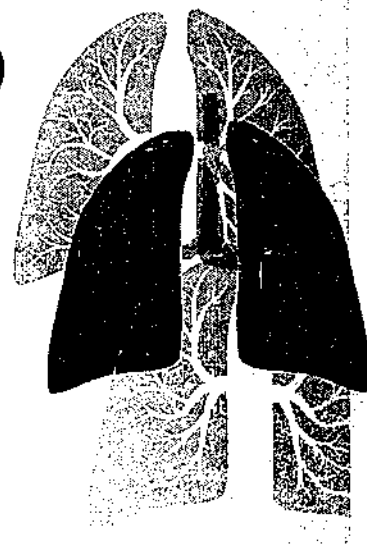




Chronic Obstructive Pulmonary Disease (COPD)

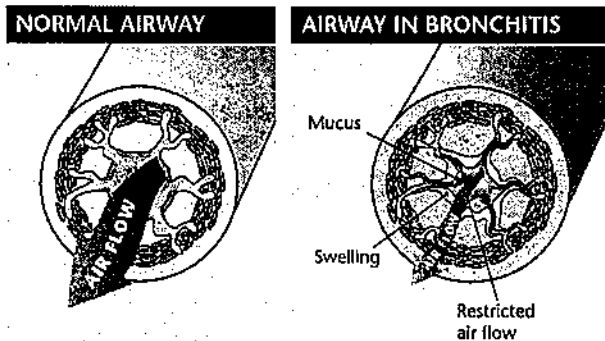
Chronic Obstructive Pulmonary Disease (COPD) is a preventable and treatable disease that makes it difficult to empty air out of the lungs. This difficulty in emptying air out of the lungs (airflow obstruction) can lead to shortness of breath or feeling tired because you are working harder to breathe. COPD is a term that is used to include chronic bronchitis, emphysema, or a combination of both conditions. Asthma is also a disease where it is difficult to empty the air out of the lungs, but asthma is not included in the definition of COPD. It is not uncommon, however for a patient with COPD to also have some degree of asthma.



What is chronic bronchitis?

Chronic bronchitis is a condition of increased swelling and mucus (phlegm or sputum) production in the breathing tubes (*airways*). Airway obstruction occurs in chronic bronchitis because the swelling and extra

alveoli because they spring back to their original size. In emphysema, the walls of some of the alveoli have been damaged. When this happens, the alveoli lose their stretchiness and trap air. Since it is difficult to push all of the air out of the lungs, the lungs do not empty efficiently and therefore contain more air than normal. This is called air trapping and causes *hyperinflation* in the lungs. The combination of constantly having extra air in the lungs and the

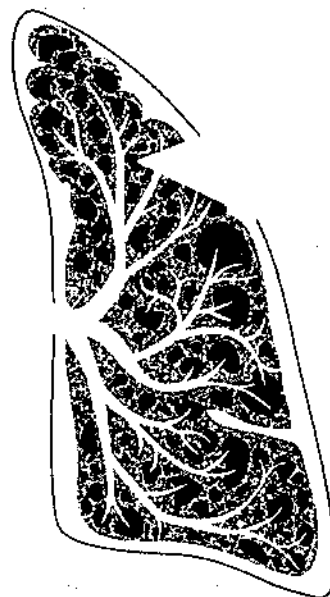


mucus causes the inside of the breathing tubes to be smaller than normal. The diagnosis of chronic bronchitis is made based on symptoms of a cough that produces mucus or phlegm on most days, for three months, for two or more years (after other causes for the cough have been excluded).

What is emphysema?

Emphysema is a condition that involves damage to the walls of the air sacs (*alveoli*) of the lung. Normally there are more than 300 million alveoli in the lung. The alveoli are normally stretchy and springy, like little balloons. Like a balloon, it takes effort to blow up normal alveoli; however, it takes no energy to empty the

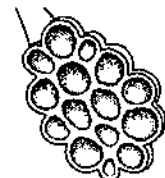
EMPHYSEMA



Alveoli with Emphysema



Microscopic view of normal Alveoli



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extra effort needed to breathe results in a person feeling short of breath. Airway obstruction occurs in emphysema because the alveoli that normally support the airways open cannot do so during inhalation or exhalation. Without their support, the breathing tubes collapse, causing obstruction to the flow of air.

What causes COPD?

COPD can be caused by many factors, although the most common cause is cigarette smoke. Environmental factors and genetics may also cause COPD. For example, heavy exposure to certain dusts at work, chemicals, and indoor or outdoor air pollution can contribute to COPD. The reason why some smokers never develop COPD and why some never-smokers get COPD is not fully understood. Hereditary (genetic) factors probably play a role in who develops COPD.

How do I know if I have COPD?

Shortness of breath, cough, and/or mucus production, that does not go away, are common signs and symptoms of COPD and indicate the need for a visit to your health care provider and evaluation for the need of a breathing test called *spirometry*. Spirometry is a simple test that measures airway obstruction.

How is COPD treated?

The first and most important treatment in smokers is to stop smoking. Medications are usually prescribed to widen the airways (bronchodilators), reduce swelling in the airways (anti-inflammatory drugs, such as steroids), and/or treat infection (antibiotics). COPD can also cause the oxygen level in the blood to be low; if this occurs, supplemental oxygen will be prescribed (see *ATS Patient Information Series Handout on Oxygen Therapy* <http://patients.thoracic.org/information-series/en/resources/oxygen-therapy.pdf>). Breathlessness, however, will happen with COPD even if you have good oxygen levels. (see *ATS Patient Information Series Handout on Breathlessness* http://patients.thoracic.org/information-series/en/resources/ATS_Patient_Ed_Breathlessness.pdf) Breathlessness is therefore not a good guide for oxygen use. To control symptoms of COPD, your breathing medications must be taken everyday, usually for life. Surgical procedures such as lung volume reduction surgery or lung transplantation may be helpful for some cases of COPD (see *ATS Patient Information Series Handout on Surgery for COPD* <http://patients.thoracic.org/information-series/en/resources/surgery-for-chronic-obstructive-pulmonary-disease.pdf>).

Pulmonary rehabilitation programs offer supervised exercise and education for those with breathing problems (See *ATS Handout on Pulmonary Rehabilitation* in a forthcoming issue). Support groups are also

available for COPD patients for education and opportunities to share experience with other patients and families.

Will COPD ever go away?

The term chronic in chronic obstructive pulmonary disease means that it lasts for a long time. While symptoms may vary from time to time, the lungs can still have disease, therefore, COPD is for life. While the symptoms of COPD sometimes improve after a person stops smoking and takes medication regularly, symptoms can further improve after attending pulmonary rehabilitation. Shortness of breath and fatigue may never go away entirely, however, patients can learn to manage their condition and continue to lead a fulfilling life.

How does a healthcare provider know a person has COPD?

Healthcare providers diagnose COPD based on both reports of symptoms and test results. The single most important test to determine if a person has COPD is spirometry.

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Source: ATS/ERS Standards for the Diagnosis and Management of Patients with COPD, http://www.thoracic.org/copd/patients_general.asp

Additional Lung Health Information

American Thoracic Society

<http://patients.thoracic.org/information-series/index.php>

COPD Foundation

<http://www.copdfoundation.org/What-is-COPD/Understanding-COPD/What-is-COPD.aspx>

National Heart Lung & Blood Institute

<http://www.nhlbi.nih.gov/health/health-topics/topics/copd/>

American Lung Association

<http://www.lung.org/lung-disease/copd/about-copd/understanding-copd.html>

Rx What to do...

- ✓ Stop smoking and avoid smoke exposure.
- ✓ See your health care provider for unexplained chronic cough or shortness of breath.
- ✓ Ask your provider about a spirometry test to check your lungs.

Doctor's Office Telephone:

The ATS Patient Information Series is a public service of the American Thoracic Society and its journal, the AJRCCM. The information appearing in this series is for educational purposes only and should not be used as a substitute for the medical advice one's personal health care provider. For further information about this series, contact J. Corn at jcorn@thoracic.org.