



Patient Information

Chronic Obstructive Pulmonary Disease: Clearing the Airway

Chronic obstructive pulmonary disease, referred to as COPD, is a condition in which there is damage to the lungs and the airways that lead to the lungs. Most people with COPD have a combination of chronic *bronchitis* (brawn-kite-us) and *emphysema* (emp-fuh-zee-muh). In chronic bronchitis, long-term irritation and soreness lead to swelling and narrowing of the airways. In emphysema, the walls between the *alveoli* (al-vee-uh-lie)—tiny air sacs in the lungs—break down. Both of these conditions eventually lead to breathing difficulties and get worse over time.

Any inhaled irritant that repeatedly aggravates the lungs (including tobacco smoke, dust, chemical or gasoline exhaust, and air pollution) can cause COPD. Often, the disease progresses slowly and signs don't appear until the affected person is age 40 or older. COPD develops equally in men and women and, in the United States, is the fourth leading cause of death.

How do I know if I'm at risk?

Tobacco smoke causes up to 90% of all COPD cases. Therefore, smoking cigarettes, pipes, or cigars is, by far, the greatest risk factor for developing COPD. If you work or live in an area in which you breathe in secondhand smoke or any lung irritant over a long period of time, your risk of developing COPD is also elevated. In addition, people who have a rare hereditary condition and lack a certain type of protein in their blood may be more vulnerable to COPD.

What are the warning signs?

Initially, COPD may cause a cough that doesn't go away (often called "smoker's cough") or shortness of breath during exercise. Other signs include coughing up mucus, or *sputum* (**spewt**-um), and wheezing, or making a whistling sound when breathing. Some people with COPD experience a feeling of tightness in the chest. The more COPD has damaged your lungs, the worse your signs and symptoms will be.

If you have been diagnosed with COPD, call your doctor if any of your symptoms get worse, if you develop a fever, or if there are any changes in the color, consistency, or amount of your sputum. And get help immediately if your heart starts racing and your breathing becomes fast and difficult, if you have trouble talking or walking, if your fingers or lips turn a blue or gray color, or if your sputum has blood in it.

What tests do I need?

To determine whether you have COPD, your doctor will ask you questions about your health and family history and have you breathe into a *spirometer* (spy-rahm-eh-er), a machine that measures how much air your lungs can hold and how fast you can blow air out of your lungs after taking a deep breath. Based on the results of the breathing test, your doctor can determine how severe your COPD is.

To make sure your symptoms aren't being caused by another lung condition, such as asthma, your doctor may perform *bronchodilator* (bron-koe-die-late-uhr) reversibility testing. This requires you to

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breathe into a spirometer after taking a bronchodilator medication, which relaxes the muscles around your airways to help you breathe more easily. Your doctor also may want to order a chest X-ray, measure the gasses present in a blood sample drawn from one of your arteries, or measure your lung's *diffusion* (dif-**yew**-shuhn) capacity. To test diffusion capacity, it's necessary for you to inhale a single breath of air containing a small amount of carbon monoxide and then rapidly exhale. This shows how well air is crossing from your alveoli into your bloodstream.

How can I avoid the problem?

To prevent COPD or keep it from getting worse, stay clear of fumes and particles that can irritate your lungs—by not smoking, avoiding smoke-filled environments, staying indoors with the windows closed if the outside air quality is poor, cooking in a ventilated area, and keeping a window open if you are using wood or kerosene as a heat source. For information on programs to help you quit smoking, call your local hospital or, for an online resource, visit www.smokefree.gov.

Also, if you have COPD, it's a good idea to get vaccinated against the flu every year and against *pneumonia* (new-**moe**-nya) every five years or so, depending on your age. This helps prevent complications that can develop from these illnesses.

How is it treated?

Although COPD can't be cured, there are therapies that can ease your symptoms and slow the progression of the disease. Your primary care doctor may refer you to a specialized doctor, called a *pulmonologist* (puhl-muh-**nah**l-uh-juhst), who may prescribe bronchodilator medications in a pill, liquid, or inhaler form. If you use the inhaler form, it's important to understand how to use it properly so that a full dose of the medication gets into your lungs,

not just your mouth. If your COPD is more advanced, you may be prescribed *corticosteroids* (kort-ih-ko-**steh**r-oyds) to reduce the inflammation in your airways. Most likely, your doctor will have you try this medication for a limited time to see if it helps with your breathing problems. In some very severe cases, surgery is needed—either to remove a large, unhealthy air sac that's compressing a lung; to remove a portion of diseased lung to allow for more effective breathing; or to replace a severely diseased lung with a healthy one from a human donor.

If you have low levels of oxygen in your blood, oxygen therapy may be prescribed. The oxygen is pumped from a small, portable tank into your nose through a tube or a face mask. You may need the extra oxygen all the time and carry the tank with you wherever you go, or you may need it only some of the time. Either way, the oxygen can help you breathe easier, protect your internal organs from damage, and help you feel better in general.

Your pulmonologist will design an overall treatment program especially for you. This program may include exercise training to help you develop stronger lungs, instruction on how to control your breathing, and nutritional education to improve your diet. You also will learn about COPD and how best to manage the disease. For example, wearing loose clothing and shoes that are easy to put on and take off, putting things that you use frequently in a location that's easy to reach, and performing tasks slowly are all strategies that can help you save your energy and your breath. ●

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