# COPD

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## What is it?

COPD stands for *chronic obstructive pulmonary disease*. This is a condition in which you gradually develop breathing problems over a long period of time. *Chronic* means that you usually have symptoms on a regular basis. *Obstructive* means that air empties from your lungs more slowly than normal and you have to work harder than normal to get fresh air back into them. COPD is commonly known as "smoker's lung".

Most people experience at least some loss of lung function as a part of the normal aging process. However, people who have COPD lose the ability to breathe properly at an earlier age than normal and they continue to lose lung function more quickly than people who do not have COPD.

In most cases, COPD is a mixture of *chronic bronchitis*, which is at least partially reversible, and *emphysema*, which is permanent. Often patients with COPD also have some degree of asthma.

## What causes it?

The most common cause of COPD is cigarette smoking (including secondhand smoke). Approximately 80-90% of cases are caused by tobacco smoke. People who smoke lose lung function faster than people who do not smoke, and are more likely to have symptoms of COPD. The typical person with COPD has had many bronchial infections, a few episodes of pneumonia and a gradual increase in shortness of breath after many years of smoking.

It is also possible to develop COPD after many years of exposure to some toxic substances found in the air at the workplace or the home, such as dust, industrial chemicals, or smoke from a wood burning stove. In rare cases the chronic lung damage is caused by a genetic deficiency in an enzyme called *alpha-1-antitrypsin*, which normally protects the lungs from emphysema.

## Who gets it?

COPD is the third leading cause of death after heart attacks and cancer in the United States affecting 5.8% of Americans. Over the last 40 years, COPD related deaths have increased by 70% while deaths from heart disease and stroke have decreased. COPD now affects over 16 million Americans and is progressively growing. The annual cost to the nation is $49 billion.

COPD occurs most often in older people. Most patients are over 40 and have smoked more than one pack per day for at least 10 years. Ten percent of the population aged 65 years and older is affected by COPD. Every year more than 100,000 Americans die from COPD. A smoker is 10 times more likely than a non-smoker to die from COPD. Women dying from COPD now outnumber men due to the rising popularity of smoking among women since the 1970's.

## What are the symptoms?

Four key symptoms suggest that a patient may have COPD. The first is chronic **cough**, either intermittent or every day. Cough is often present throughout the day and rarely occurs only at night. The second major symptom is chronic **mucus** (*sputum*) **production**. The third symptom is **shortness of breath** that worsens over time, is present every day, and worsens during exercise or with respiratory tract infections. This is the symptom that usually prompts the patient to see a physician. The fourth major finding is exposure to **risk factors** such as tobacco smoke, occupational dust or toxins, or smoke from home cooking or heating fuels.

**Key Symptoms**

- Chronic (long-lasting) cough
- Excess mucus production
- Shortness of breath
- Wheezing
- Tight feeling in the chest

## How do you prevent it?

If you smoke, you should quit. It is also important to avoid second hand passive smoking. If you have family members who never smoked but have COPD, ask about getting a test for alpha1-antitrypsin deficiency.

If you are exposed to toxic substances in the air, the best way to prevent the progression of COPD symptoms is to reduce your exposure to these sources of irritation. If you work around fumes, dusts or chemicals, or have frequent lung infections, protect your lungs. Wear a mask or other types of protections while you work and treat infections aggressively to keep them under control.

## Can it be treated?

Although there is no cure for COPD, there are treatment plans that involve stopping smoking and using medications which can slow progression and reduce complications. However, none of the existing treatments for COPD have been shown to modify the long-term decline in lung function that is the hallmark of the disease.

When you are diagnosed with COPD, your doctor may prescribe medicine for you to take every day. People who have advanced COPD are also likely to have flare-ups of the disease where the symptoms become worse. During a flare-up, you may need to take more of your daily medicines, or you may need to take different ones. Talk to your doctor about what to do during a COPD flare-up.

- **Bronchodilators** help the muscles around your airways relax. This allows them to stay open so that air can move into and out of your lungs. Short-acting bronchodilators are normally used infrequently only when needed to reduce symptoms quickly (so called "rescue medicine"). They can be used every 4 hours as needed. If your bronchodilator does not relieve symptoms within 15 - 30 minutes, or if the inhaler is becoming less effective, or you are using the inhaler more regularly than initially prescribed (especially more than one canister per month), consult your doctor.

Anticholinergics like ipratropium (Atrovent) are effective quick acting bronchodilators for COPD. Beta-agonists albuterol (Proventil, Ventolin), and pirbuterol (Maxair) are also short-acting and can be combined with ipratropium (Combivent) which may be more effective.

Long-acting bronchodilators are especially helpful in patients with moderate to severe persistent COPD. Long-acting anticholinergics either alone or combined with beta-agonist have been shown to improve shortness of breath and quality of life. They can be combined with other bronchodilators or steroids.

- **Corticosteroids** are available in oral, injectable and inhaled form (Flovent, Qvar, Aerobid, Azmacort, and Pulmicort). Inhaled forms are used most often to treat COPD. You may need to take corticosteroids for a week or two before you notice any difference in your symptoms. You should find that you need your rescue bronchodilator less often when you use corticosteroids regularly. However, steroids can increase the risk of osteoporosis and cataracts. Therefore they are mostly used for people with persistent disease.

- **Antibiotics** are sometimes used to kill bacteria which can cause a flare-up in the symptoms of COPD. This is called an acute exacerbation of chronic bronchitis (chronic bronchitis is one of the main parts of COPD).

- **Oxygen** is often used in people with severe COPD. At this stage, the lungs are no longer able to deliver enough oxygen to the rest of the body. Supplemental oxygen either part time or full time can be used to increase the amount of oxygen in the blood. It is important to closely follow your doctor's advice since too much oxygen can actually make things worse.

- **Lung transplantation** or **lung volume reduction surgery** is occasionally attempted for patients with end stage disease in an effort to remove the worst portion of the lung. However these patients are also at high risk of death from the procedure itself due to their pre-existing severe lung damage.

- **Alpha-1-antitrypsin** replacement therapy is used for those individuals born with this enzyme defect. It must be used lifelong and is administered by injection.

## Are there complications?

Chronic obstructive pulmonary disease is fast becoming a major cause of long term disability and premature death, primarily due to the popularity of cigarette smoking beginning in the 1950's through the present. The progression of COPD complications includes frequent infections, pulmonary hypertension, irreversible emphysema and eventual respiratory failure.

## In summary

- COPD is usually characterized by shortness of breath, chronic cough and excess sputum production usually with history of exposure to smoke or smoking.
- The key to prevention is the avoidance of tobacco smoke and other lung irritants.
- For more information, contact familydoctor.org or the American Lung Association at www.lungusa.org or (800) 586-4872.

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