

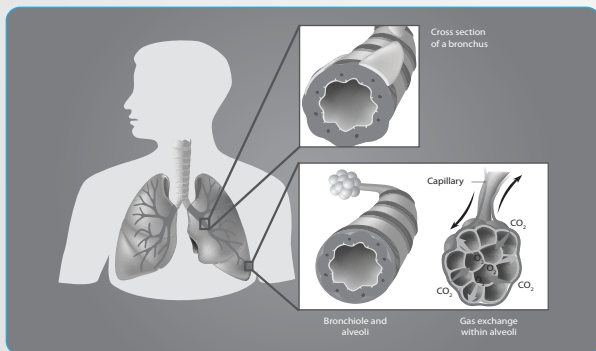


Chronic Obstructive Pulmonary Disease

How our lungs work¹

- The air that we breathe passes through the windpipe into small tubes in the lungs known as bronchial tubes or airways. Fig. 1: Human lung anatomy and function.
- These bronchial tubes are divided into thousands of smaller tubes known as bronchioles, which end in a bunch of tiny round air sacs called alveoli (see Fig. 1).
- The walls of these air sacs contain small blood vessels called capillaries.
- When we breathe, gas exchange takes place (see Fig. 1).
 - o Oxygen from the inhaled air passes through the walls of the air sac into the capillaries.
 - o Carbon dioxide moves from the capillaries into the air sac.
- The airways and air sac are elastic.
 - o When we breathe in, the air sacs fill up with air and inflate.
 - o When we breathe out, the air goes out of the air sacs, causing them to deflate.

Fig. 1: Human lung anatomy and function.



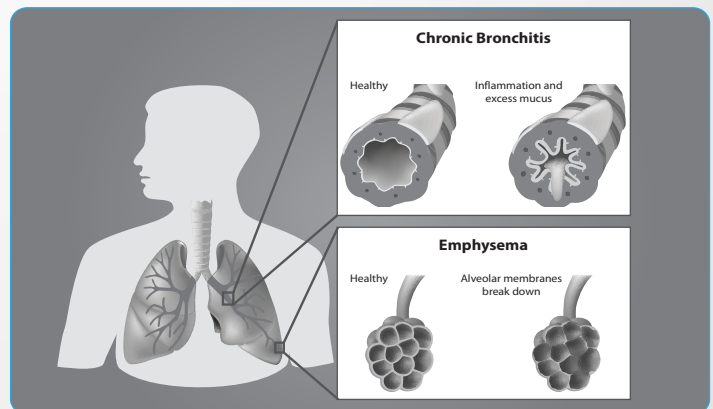
What is COPD?

Chronic obstructive pulmonary disease (COPD) is a group of diseases that cause blockage of airways, making breathing difficult. It is a progressive disease, which means that it worsens over time.¹ Chronic obstructive pulmonary disease includes emphysema, chronic bronchitis and, in some cases, asthma.²

Difficulty in breathing in COPD is due to the small amount of air flowing in and out of the airways. This may be caused by (see Fig. 2): Fig. 2: Chronic obstructive pulmonary disease.

- Loss of elastic quality of the airways and air sacs
- Destruction of the walls between the air sacs
- Thickening and inflammation of the airway walls
- Excess mucus, which may lead to clogging of airways

Fig. 2: Chronic obstructive pulmonary disease.



What causes COPD?

Chronic obstructive pulmonary disease is caused by long-term exposure to irritants that damage the lungs and airways. Some factors that may cause COPD include:^{1,2}



Cigarette smoke



Exposure to air pollutants in the home and workplace



Genetic factors



Respiratory infections

Signs and Symptoms of COPD

There may be no symptoms or only mild symptoms at the beginning of the disease. The symptoms become more severe as the disease progresses. Common signs and symptoms of COPD include:³

- Persistent cough, with lots of mucus
- Shortness of breath, especially when engaging in physical activity
- Wheezing or whistling sound while breathing
- Chest tightness
- Frequent cold or flu

Treatment of COPD

As COPD cannot be cured, treatment is aimed at relieving symptoms, slowing disease progression and improving overall health. It can be managed by:⁴

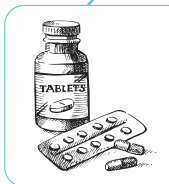
1. Lifestyle changes



A. Quit smoking



B. Avoid lung irritants



2. Taking medicines that help open the airways and make breathing easier.



3. Pulmonary rehabilitation helps improve overall well-being through exercise programs and nutritional and psychological counseling.



4. *Oxygen therapy:* In case of severe COPD, providing oxygen through nasal prongs or a mask may make breathing easier.



5. *Surgery:* This is usually a last resort in severe COPD when symptoms cannot be relieved through medicines.

Living with COPD⁵

- *Avoid lung irritants:* Quit smoking and avoid other lung irritants such as dust, smoke and chemical fumes.
- *Get ongoing care:* Take all your medicines as prescribed and visit your doctor regularly
- *Manage the disease and its symptoms:* Slow down the pace of your activities and also reduce physical activities such as climbing stairs or moving things around.

References

1. National Institute of Health. Explore COPD. Available at: <http://www.nhlbi.nih.gov/health/health-topics/topics/copd/>. Accessed on: 27 May 2013.
2. Centers for Disease Control and Prevention. Chronic Obstructive Pulmonary Disease. Available at: <http://www.cdc.gov/copd/>. Accessed on: 27 May 2013.
3. National Institute of Health. Explore asthma. Available at: <http://www.nhlbi.nih.gov/health/health-topics/topics/copd/signs.html>. Accessed on: 27 May 2013.
4. National Institute of Health. Explore asthma. Available at: <http://www.nhlbi.nih.gov/health/health-topics/topics/copd/treatment.html>. Accessed on: 27 May 2013.
5. National Institute of Health. Explore asthma. Available at: <http://www.nhlbi.nih.gov/health/health-topics/topics/copd/livingwith.html>. Accessed on: 27 May 2013.