

What is Chronic Obstructive Pulmonary Disease? (COPD)

There is no one definition of COPD. It is often referred to as a “mixing bowl,” “grab bag” or “catch-all” for various lung disorders. Most frequently, it is described as a mixture of two disease states: chronic (obstructive) bronchitis and emphysema. COPD is most often the result of long time cigarette smoking.

What defines the main disease process in COPD is obstruction of the airways. This could be caused by thickening of the airways or by pressure on the outside walls of the airways. Normally the lungs move air in and out to meet your body’s needs, but in COPD the flow of air is obstructed making it harder to breath, particularly with activity.

Commonplace and usually trivial illnesses such as the common cold can cause an acute worsening of symptoms in COPD and become debilitating within a short time. Furthermore, the heart sometimes overworks and fails under the stress of having to pump blood through badly damaged lungs.

SYMPTOMS

The symptoms of lung disease are:

- shortness of breath
- coughing
- wheezing
- excess mucus in the lungs

For some people, these symptoms are mild and do not cause serious breathing problems. For others, the symptoms can be serious enough to interfere with normal daily activities. Therapy is aimed at slowing the disease progression and controlling the symptoms.

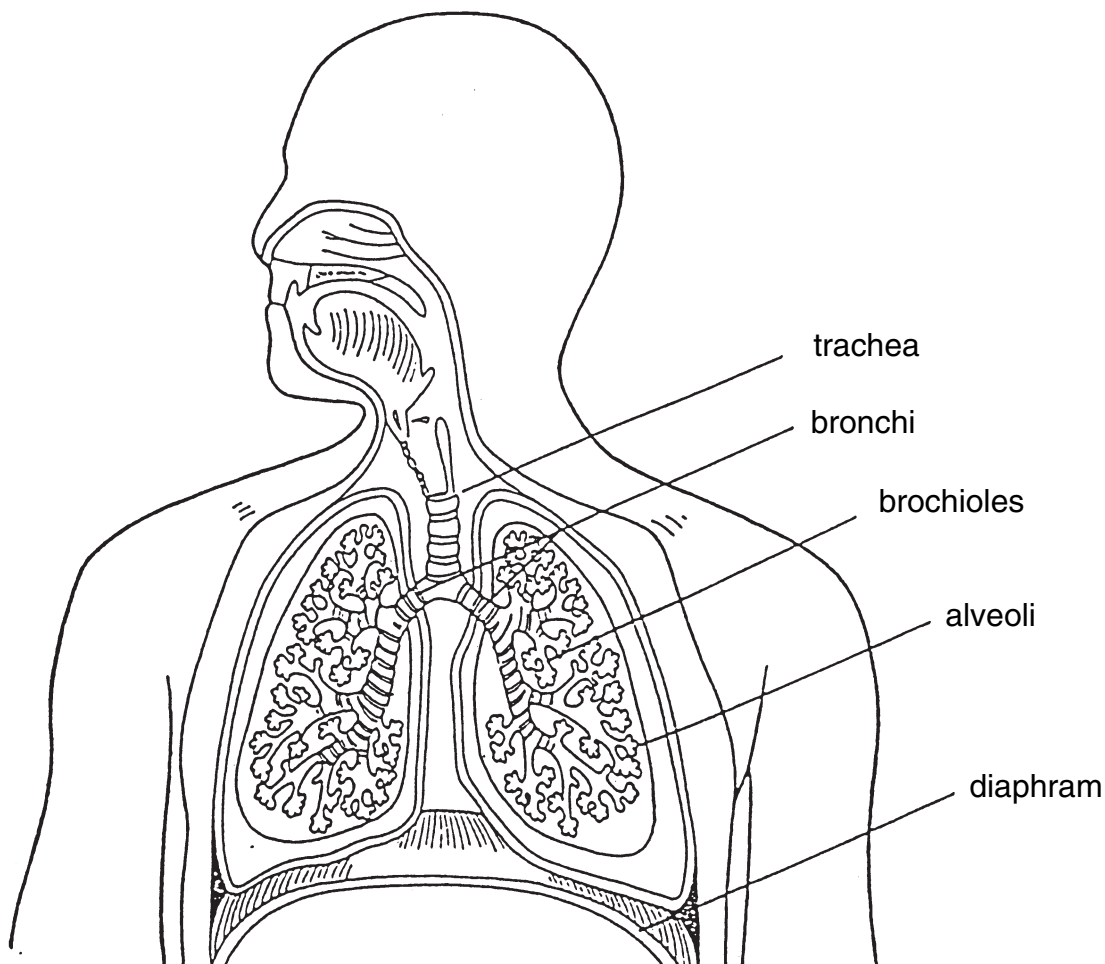
NORMAL RESPIRATORY FUNCTION

In order to fully understand your disease and how it affects your breathing, it's helpful to understand how the respiratory system works.

NORMAL BREATHING

As you inhale, air enters your body through your mouth or nose. From your nose, air passes into the trachea (windpipe). The trachea divides into two wide branches called bronchi, which lead directly into the lungs. The bronchi branch and rebranch many times, subdividing into even smaller tubes called bronchioles.

At the end of the bronchioles are tiny, stretchy air sacs called alveoli. If you could see alveoli through a microscope, they would look like small clusters of grapes. Outside the membrane walls of the alveoli are tiny blood vessels called capillaries. The capillaries pick up the oxygen from the alveoli. The oxygen is circulated through the bloodstream to every cell in the body and sent back to the alveoli. It is in the alveoli that oxygen is traded for carbon dioxide. This exchange of gases is essential for body function.



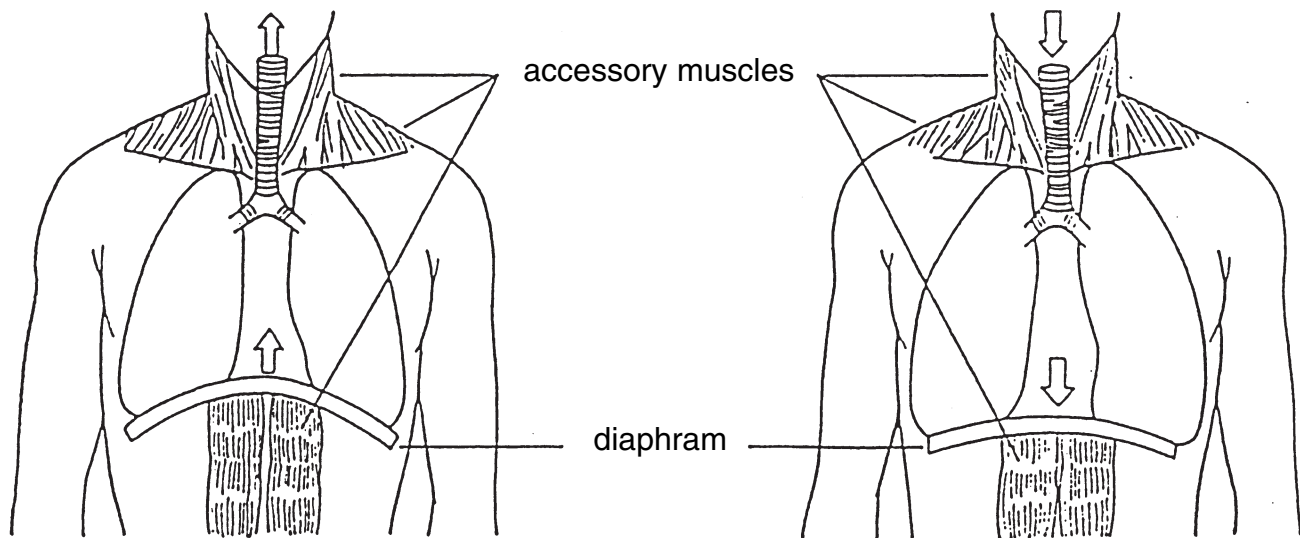
YOUR BREATHING MUSCLES

The muscles that surround the lungs do the work of expanding and squeezing to pump air in and out.

The diaphragm, a dome-shaped muscle located below the lungs, is the largest breathing muscle and does most of the work. Other muscles that surround the lungs and help with breathing are called accessory muscles. They are located in the abdomen, neck, shoulders and in the spaces between your ribs. When the diaphragm is weak and is not being used properly, accessory muscles do extra work to help pump air in and out of the lungs.

When you inhale, your diaphragm contracts and moves down toward your abdominal cavity, and air is drawn into your lungs. As your diaphragm relaxes, it moves upward and air is pushed out of your lungs.

If the muscles surrounding your lungs are weak, breathing will be more difficult. Strengthening these breathing muscles will make breathing easier.



YOUR NATURAL FILTERING SYSTEM

As air enters the upper air passages (nose and throat), it is moistened and warmed to body temperature. Much of the dust and bacteria in the air is kept out of the lungs by the body's natural filtering system.

This filtering system is made up of special cells that line the airways and lungs. Some of these cells secrete sticky mucus to trap debris. Other cells have hair-like bristles that sweep trapped debris and mucus upward where it is swallowed or coughed out. This constant sweeping motion filters out debris so that when oxygen finally reaches the tiny alveoli inside the lungs, it is clean. The fresh, clean oxygen then travels through the bloodstream to the rest of the body.

Cigarette smoke can destroy the tiny hair-like bristles in the cells allowing dust and debris to collect in the lungs. The collection of dust, debris and various tobacco products can eventually lead to the development of lung disease.

