

## What Is Respiratory Failure?

Respiratory (RES-pih-rah-tor-e) failure is a condition in which not enough oxygen passes from your lungs into your blood. Your body's organs, such as your heart and brain, need oxygen-rich blood to work well.

Respiratory failure also can occur if your lungs can't properly remove carbon dioxide (a waste gas) from your blood. Too much carbon dioxide in your blood can harm your body's organs.

Both of these problems—a low oxygen level and a high carbon dioxide level in the blood—can occur at the same time. Diseases and conditions that affect your breathing can cause respiratory failure. Examples include COPD (chronic obstructive pulmonary disease) and spinal cord injuries. COPD prevents enough air from flowing in and out of the airways. Spinal cord injuries can damage the nerves that control breathing.

To understand respiratory failure, it helps to understand how the lungs work. When you breathe, air passes through your nose and mouth into your windpipe. The air then travels to your lungs' air sacs. These sacs are called alveoli (al-VEE-uhl-eye). Small blood vessels called capillaries run through the walls of the air sacs. When air reaches the air sacs, the oxygen in the air passes through the air sac walls into the blood in the capillaries. At the same time, carbon dioxide moves from the capillaries into the air sacs. This process is called gas exchange. In respiratory failure, gas exchange is impaired.

Respiratory failure can be acute (short term) or chronic (ongoing). Acute respiratory failure can develop quickly and may require emergency treatment. Chronic respiratory failure develops more slowly and lasts longer.

Signs and symptoms of respiratory failure may include shortness of breath, rapid breathing, and air hunger (feeling like you can't breathe in enough air). In severe cases, signs and symptoms may include a bluish color on your skin, lips, and fingernails; confusion; and sleepiness. One of the main goals of treating respiratory failure is to get oxygen to your lungs and other organs and remove carbon dioxide from your body. Another goal is to treat the underlying cause of the condition.

Acute respiratory failure usually is treated in an intensive care unit. Chronic respiratory failure can be treated at home or at a long-term care center. The outlook for respiratory failure depends on the severity of its underlying cause, how quickly treatment begins, and your overall health. People who have severe lung diseases may need long-term or ongoing breathing support, such as oxygen therapy or the help of a ventilator (VEN-til-a-tor). A ventilator is a machine that supports breathing. It blows air—or air with increased amounts of oxygen—into your airways and then your lungs.

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If you have respiratory failure, you may receive oxygen therapy. Extra oxygen is given through a nasal cannula (two small plastic tubes, or prongs, that are placed in both nostrils) or through a mask that fits over your nose and mouth.

Once your doctor figures out what's causing your respiratory failure, he or she will plan how to treat that disease or condition. Treatments may include medicines, procedures, and other therapies.