

Acute Respiratory Failure, Adult

Acute respiratory failure occurs when there is not enough oxygen passing from your lungs to your body. When this happens, your lungs have trouble removing carbon dioxide from the blood. This causes your blood oxygen level to drop too low as carbon dioxide builds up.

Acute respiratory failure is a medical emergency. It can develop quickly, but it is temporary if treated promptly. Your lung capacity, or how much air your lungs can hold, may improve with time, exercise, and treatment.

What are the causes?

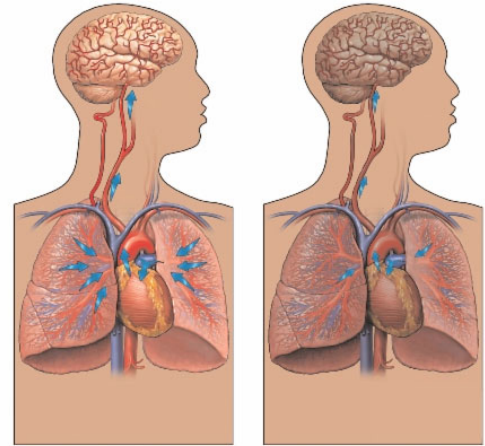
There are many possible causes of acute respiratory failure, including:

- Lung injury.
- Chest injury or damage to the ribs or tissues near the lungs.
- Lung conditions that affect the flow of air and blood into and out of the lungs, such as pneumonia, acute respiratory distress syndrome, and cystic fibrosis.
- Medical conditions, such as strokes or spinal cord injuries, that affect the muscles and nerves that control breathing.
- Blood infection (*sepsis*).
- Inflammation of the pancreas (*pancreatitis*).
- A blood clot in the lungs (*pulmonary embolism*).
- A large-volume blood transfusion.
- Burns.
- Near-drowning.
- Seizure.
- Smoke inhalation.
- Reaction to medicines.
- Alcohol or drug overdose.

What increases the risk?

This condition is more likely to develop in people who have:

- A blocked airway.
- Asthma.
- A condition or disease that damages or weakens the muscles, nerves, bones, or tissues that are involved in breathing.
- A serious infection.
- A health problem that blocks the unconscious reflex that is involved in breathing, such as hypothyroidism or sleep apnea.
- A lung injury or trauma.



Normal
oxygen level

Low
oxygen level

What are the signs or symptoms?

Trouble breathing is the main symptom of acute respiratory failure. Symptoms may also include:

- Rapid breathing.
- Restlessness or anxiety.
- Skin, lips, or fingernails that appear blue (*cyanosis*).
- Rapid heart rate.
- Abnormal heart rhythms (*arrhythmias*).
- Confusion or changes in behavior.
- Tiredness or loss of energy.
- Feeling sleepy or having a loss of consciousness.

How is this diagnosed?

Your health care provider can diagnose acute respiratory failure with a medical history and physical exam. During the exam, your health care provider will listen to your heart and check for crackling or wheezing sounds in your lungs. You may also have tests to confirm the diagnosis and determine what is causing respiratory failure. These tests may include:

- Measuring the amount of oxygen in your blood (*pulse oximetry*). The measurement comes from a small device that is placed on your finger, earlobe, or toe.
- Other blood tests to measure blood gases and to look for signs of infection.
- Sampling your cerebral spinal fluid or tracheal fluid to check for infections.
- Chest X-ray to look for fluid in spaces that should be filled with air.
- Electrocardiogram (ECG) to look at the heart's electrical activity.

How is this treated?

Treatment for this condition usually takes place in a hospital intensive care unit (ICU). Treatment depends on what is causing the condition. It may include one or more treatments until your symptoms improve. Treatment may include:

- Supplemental oxygen. Extra oxygen is given through a tube in the nose, a face mask, or a hood.
- A device such as a continuous positive airway pressure (CPAP) or bi-level positive airway pressure (BiPAP or BPAP) machine. This treatment uses mild air pressure to keep the airways open. A mask or other device will be placed over your nose or mouth. A tube that is connected to a motor will deliver oxygen through the mask.
- Ventilator. This treatment helps move air into and out of the lungs. This may be done with a bag and mask or a machine. For this treatment, a tube is placed in your windpipe (*trachea*) so air and oxygen can flow to the lungs.
- Extracorporeal membrane oxygenation (ECMO). This treatment temporarily takes over the function of the heart and lungs, supplying oxygen and removing carbon dioxide. ECMO gives the lungs a chance to recover. It may be used if a ventilator is not effective.
- Tracheostomy. This is a procedure that creates a hole in the neck to insert a breathing tube.
- Receiving fluids and medicines.
- Rocking the bed to help breathing.

Follow these instructions at home:

- Take over-the-counter and prescription medicines only as told by your health care provider.
- Return to normal activities as told by your health care provider. Ask your health care provider what activities are safe for you.
- Keep all follow-up visits as told by your health care provider. This is important.

How is this prevented?

Treating infections and medical conditions that may lead to acute respiratory failure can help prevent the condition from developing.

Contact a health care provider if:

- You have a fever.
- Your symptoms do not improve or they get worse.

Get help right away if:

- You are having trouble breathing.
- You lose consciousness.
- You have cyanosis or turn blue.
- You develop a rapid heart rate.
- You are confused.

These symptoms may represent a serious problem that is an emergency. Do not wait to see if the symptoms will go away. Get medical help right away. Call your local emergency services (911 in the U.S.). Do not drive yourself to the hospital.

This information is not intended to replace advice given to you by your health care provider. Make sure you discuss any questions you have with your health care provider.