
Understanding Oxygen Therapy

You need oxygen from the air you breathe for your body's cells to work. Having low oxygen levels in your blood can make you feel tired, confused, or short of breath. If your oxygen level is low for too long, serious problems can occur in many parts of the body.

If you have a long-term (chronic) health condition that makes your blood oxygen levels too low, your healthcare provider may prescribe oxygen. This is also called oxygen therapy or supplemental oxygen. This can help you breathe more easily. Some short-term conditions may require oxygen as well.

Symptoms of low blood oxygen

Symptoms of low blood oxygen include:

- Feeling tired
- Feeling confused
- Being short of breath
- Having blue or gray lips or fingernails

How oxygen therapy helps with chronic conditions

You may need oxygen therapy if you have a chronic health condition, such as:

- Pulmonary hypertension
- COPD (chronic obstructive pulmonary disease)
- Cystic fibrosis
- Late-stage heart failure
- Asthma
- Sleep apnea

Oxygen therapy can help raise your blood oxygen levels, making it easier for you to breathe. This can help you to:

- Feel less short of breath
- Have more energy
- Be more active and do the things you enjoy
- Sleep better if you need oxygen at night

With higher blood oxygen levels, your organs will also work better.

How is your blood oxygen level tested?

Your healthcare provider will check your blood oxygen level. This will be done either by using a pulse oximeter or by taking a blood sample (arterial blood gas test).

Pulse oximeter. This small, electronic device checks your blood oxygen level without using a needle. The device can be attached to your finger, toe, earlobe, nose, or forehead. A light from the device measures the oxygen level in your blood. It can give a false reading if you're wearing dark nail polish, or if you have poor circulation or anemia.

Arterial blood gas (ABG) test. This is the most accurate test. It uses a blood sample taken from an artery in your wrist. This measures the oxygen level right from your blood.

What is a normal oxygen level?

A pulse oximeter measures your oxygen saturation level (SapO₂). This is a percentage of how much oxygen your blood is carrying. Normally, your oxygen saturation level percentage should be in the mid to high 90s. In some chronic conditions such as COPD, it may be both acceptable and desirable to have lower levels of oxygen. With these conditions, your oxygen saturation percentage should typically not be lower than 88%. Ask your healthcare provider what a normal oxygen saturation level is for you.

An ABG test measures several aspects of your oxygen level. Important levels for you to know include:

- Partial pressure of oxygen (PaO₂): 80 to 100 millimeters of mercury (mmHg)
- Partial pressure of carbon dioxide (PaCO₂): 35 to 45 mmHg
- Oxygen saturation (SaO₂): 95% to 100%

If tests show that your oxygen level is low, your healthcare provider may prescribe oxygen. You may need oxygen all the time. Or you may only need it for certain activities, such as during exercise or sleep.

Types of oxygen systems

Oxygen can be delivered in three different ways: with an oxygen concentrator, as compressed oxygen, or in a liquid oxygen system. You may use more than one type, depending on when you need oxygen:

- **Oxygen concentrator.** This is a large machine that stays in one spot. It takes in the oxygen from the air you breathe and removes other gases. It then gives you 85% to 95% pure oxygen at a steady rate (continuously). It has to be plugged into an electrical outlet. (A backup oxygen supply is advised in case of a power outage.) The concentrator must be kept in a spot with a good supply of fresh air. Don't keep it in a closed space, such as a closet. A concentrator won't run out of oxygen so it doesn't need refills.
- **Compressed oxygen.** This is oxygen gas stored in a metal tank. These tanks come in different sizes. Smaller tanks can be carried. Larger tanks are on wheels. They can be pulled around the house. Some portable tanks can be refilled by you. But others must be returned to the oxygen supply company to be refilled.
- **Liquid oxygen.** With this system, oxygen is compressed and cooled to a very low temperature so that it's frozen. It's kept in special containers that stay at this low temperature. When you use liquid oxygen, it's warmed and becomes gas before reaching you. This system uses a main storage unit and a portable tank so you can

take your oxygen with you. These systems often provide highly concentrated oxygen. They don't need electricity to work. You must be careful when handling liquid oxygen because it's so cold.

To breathe in the oxygen, you will need one of these:

- **Nasal cannula.** This lightweight tube is used most often for oxygen therapy. It has 2 prongs that fit just inside your nose. The other end attaches to the oxygen system.
- **Facemask.** This mask covers your nose and mouth. It also has a lightweight tube that attaches to the oxygen system. You may have to use a mask if you need a higher oxygen concentration or if you can't handle a nasal cannula.

Choosing an oxygen system

Talk with your healthcare provider about which oxygen system is best for you. Choosing a system will depend on several factors such as:

- How much oxygen you need (your flow rate)
- When you need oxygen (day, night, or both)
- Where you live
- How active you are
- Your electrical supply
- The cost
- Any insurance restrictions

Once oxygen is prescribed, you'll be referred to a medical equipment company. They will set up the oxygen unit and teach you how to use it.

Side effects of oxygen therapy

Oxygen is considered a medicine. As with any medicine, you may have side effects, such as:

- Dry or bloody nose
- Morning headaches
- Feeling tired

Safety tips for using oxygen therapy at home

Oxygen makes fire burn hotter and faster. It's important to reduce the chances of fire when you use it. Follow these tips for safe oxygen use at home:

- Keep the oxygen unit at least 5 feet away from heat sources and open flames.
- Don't smoke when you are using oxygen.

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- Don't allow smoking near you. Consider putting up signs in and outside your home that say "No smoking" and "No open flames."
 - Don't use aerosol sprays near the oxygen unit. This includes air fresheners and hairspray.
 - Don't use oxygen when cooking with gas.
 - Don't use electrical appliances when wearing oxygen. This includes hair dryers, electric razors, and heating pads.
 - Keep a fire extinguisher and smoke alarms nearby.
 - Keep the oxygen unit upright and secured. Never have it on its side.