Oxygen Therapy

Supplemental oxygen therapy helps people with COPD, COVID-19, emphysema, sleep apnea and other breathing problems get enough oxygen to function and stay well. Low blood oxygen levels (hypoxemia) can damage organs and be life-threatening. You may need oxygen therapy for life or temporarily. Healthy blood oxygen levels help you feel and sleep better.

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Overview

What is oxygen therapy?

Oxygen therapy helps people with lung diseases or breathing problems get the oxygen their bodies need to function. This oxygen is supplemental (additional) to what you breathe in from the air. You may also hear the term supplemental oxygen.

Who needs oxygen therapy?

You may need oxygen therapy if you have:

- Asthma, bronchitis or emphysema.
- Chronic obstructive pulmonary disease (COPD).
- COVID-19.
- Cystic fibrosis.
- Heart failure.
- Lung cancer or other cancers.
- Pneumonia.
- Pulmonary fibrosis.
- Sleep apnea.

also need supplemental oxygen, including mountain climbers. Oxygen levels in the air are lower in high-altitude locations, which can lead to altitude sickness.

What does oxygen therapy do?

Oxygen therapy gives your body the oxygen it's not getting when you breathe in air. You might think of it as a respiratory system aid.

When you breathe through your mouth or nose, your body takes in air. Air contains 80% nitrogen and 20% oxygen. Your lungs filter oxygen from this air. They then send oxygen through blood vessels to your organs, tissues and cells.

When you have lung problems, not enough oxygen reaches your cells to keep your body and organs working as they should. You develop low blood oxygen levels (hypoxemia). Over time, hypoxemia can lead to organ damage and organ failure. Lack of oxygen can be life-threatening.

What are healthy oxygen levels?

A healthy oxygen level (also called oxygen saturation) is 95% or higher. Healthcare providers prescribe oxygen therapy when oxygen levels drop below 88%.

Providers use these tests to measure oxygen levels:

- **Pulse oximeter:** This small device painlessly clips onto your finger, toe or earlobe. Sensors in the device send light beams through your skin to measure oxygen levels in capillaries (tiny blood vessels). Many providers routinely perform this test at each appointment. You can also buy a pulse oximeter (pulse ox) at drugstores to use at home.
- **Arterial blood gas test:** This test uses a blood sample from an artery to measure oxygen and carbon dioxide levels in your blood. This test is the most accurate method for determining lung function.
- **Lung function tests:** Pulmonary function tests like spirometry measure how well you inhale and exhale air. Some tests also measure your lungs' ability to send oxygen into your cells.

What are signs of low oxygen levels (hypoxia)?

You can't always tell when your oxygen levels are low. When symptoms occur, you may experience:

- Shortness of breath.
- Bluish tint to skin, lips and nails.

- Extreme fatigue.
- Severe headaches.
- Coughing or wheezing.
- Fast pulse and heart rate.
- Confusion.

Procedure Details

Where does oxygen therapy take place?

Oxygen therapy can take place just about anywhere. There are smaller-sized oxygen systems that you can take with you wherever you go (portable oxygen).

You may get oxygen therapy at:

- A care facility like a nursing home.
- A hospital or other medical setting.
- Your home.

What are the types of oxygen therapy systems?

Oxygen comes in gas or liquid form. Oxygen systems may be large and stationary for home

use, or small and portable.

Types of oxygen therapy delivery systems include:

- **Compressed gas:** A large, metal cylinder stores 100% oxygen as a gas under pressure. The cylinder has a regulator to control the flow of oxygen. An oxygen-conserving device sends oxygen when you inhale and stops oxygen flow when you exhale. These tanks eventually run out of oxygen. A gauge shows the tank's oxygen levels. When the tank is empty, an oxygen supplier replaces it. You should always have extra oxygen tanks on hand.
- **Liquid oxygen:** A thermos-like container stores pure oxygen as a very cold liquid. When you release the oxygen, the liquid converts to a gas that you breathe in. The smaller container makes it portable for use outside the home.
- **Oxygen concentrators:** This electric or battery-powered device pulls air from the room. It then separates and compresses oxygen from the air, while also removing nitrogen. You breathe in the purified air. With a concentrator, you'll never run out of oxygen. Concentrators are the easiest portable system to travel with. And many models are

approved by the Federal Aviation Administration (FAA), so you can even take them on planes.

How do oxygen therapy systems deliver oxygen?

Depending on your medical condition and oxygen needs, you may get oxygen via a:

- Cannula, a small tube with prongs on each end that sits inside your nostrils.
- Face mask.
- A tracheotomy tube surgically placed in your windpipe (trachea).

Risks / Benefits

What are the benefits of oxygen therapy?

Oxygen therapy can't cure a respiratory problem. But it can help your body get the oxygen it needs to keep organs healthy and functioning. As a result, you may:

- Feel less breathless while doing activities.
- Have more energy and be more physically active.

- Sleep better.

What are the side effects of oxygen therapy?

People receiving oxygen therapy may experience these side effects:

- Fatigue.
- Headaches, especially in the morning.
- Nosebleeds (epistaxis).

Is oxygen therapy safe?

Oxygen therapy is safe to use. While oxygen isn't flammable, it can cause a fire to burn faster and stronger. The fire can become explosive.

For everyone's safety, you should:

- Never smoke near an oxygen tank. And stay at least 5 feet from flames, including gas stoves, candles, fireplaces and firepits when using oxygen.
- Secure oxygen tanks in an upright position to a stand or fixed object. And never roll an oxygen cylinder. A tank that falls over or rolls may crack, causing pressure that can make the tank explosive.
- Store oxygen tanks in well-ventilated areas. This allows the small amounts of oxygen that

the tanks continually release to dissipate into the air instead of building up and becoming a fire hazard.

- Maintain a minimum distance of 8 feet from heat-producing devices, such as heaters and electrical appliances.
- Not use flammable materials like aerosol sprays, cleaning materials and oil (petroleum) products near an oxygen tank.
- Choose cotton clothes and bedding over wool, nylon and synthetic materials, which can produce static electricity sparks.
- Always have a fire extinguisher nearby and know how to use it. Make sure your smoke alarms work.

Recovery and Outlook

How long do people need oxygen therapy?

Some people with chronic conditions need supplemental oxygen for life, while others need it temporarily until they recover from an acute (short-term) illness. You should follow your healthcare provider's instructions. Depending on your specific health needs, you may need oxygen therapy 24 hours a day. Or you might need extra

oxygen only when you sleep or exercise.

When To Call the Doctor

When should I call the doctor?

You should call your healthcare provider if you experience:

- Chest pain.
- Confusion or memory loss.
- Dizziness.
- Extreme shortness of breath.
- Nausea and vomiting.
- Severe headaches.

Additional Common Questions

What happens if you use oxygen therapy and don't need it?

Oxygen is a medication that requires a prescription from a healthcare provider. You

should only use oxygen therapy as a medical treatment. If you take in more oxygen than your body needs, it can slow your breathing and heart rate to dangerous levels.

Too much oxygen can lead to oxygen toxicity or oxygen poisoning. This can happen if you accidentally take in too much supplemental oxygen or use oxygen therapy when you don't need it.

Signs of oxygen poisoning include:

- Chest pain.
- Difficulty breathing.
- Dizziness.
- Muscle spasms.
- Nausea.
- Vision problems.

What is hyperbaric oxygen therapy?

Hyperbaric oxygen therapy (HBOT) uses a special pressurized chamber to deliver 100% pure oxygen to your lungs. You go to a medical facility for this outpatient treatment.

Increased air pressure inside the chamber helps your lungs take in more oxygen. This extra oxygen can aid the healing of wounds, burns and infections.

Scuba divers and high-altitude mountain climbers may need HBOT if they develop decompression sickness (“the bends”). The condition occurs when too much nitrogen builds up in your blood and tissues.

A note from Cleveland Clinic

Oxygen therapy can be a lifesaving medical treatment when lung problems prevent you from taking in enough oxygen when you breathe. You may need supplemental oxygen all day, every day or just some of the time. Your healthcare provider can review the types of oxygen therapy delivery systems with you, so you can choose the one that best meets your needs. It’s critical to follow certain safety measures when you use oxygen therapy.

References

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