

## Oxygen Therapy

Patients with lung disease can have low levels of oxygen in their bodies and some need to use extra (*supplemental*) oxygen to bring their oxygen levels up to a healthier level. Adults and children with lung diseases such as chronic obstructive pulmonary disease (COPD), pulmonary fibrosis, cystic fibrosis (CF), or bronchopulmonary dysplasia (BPD) may require this therapy. Extra oxygen protects their bodies from the effects of low oxygen levels, helps them to function better, and allows them to stay more active.



### Why do some patients need oxygen therapy?

Oxygen is a basic need for all humans. The air we breathe contains about 21 percent oxygen. This amount is enough for people with healthy lungs and many with lung disease. However, some people with lung disease are unable to gather enough oxygen through normal breathing, so they require extra oxygen to maintain normal bodily function.

### How do I know if I need oxygen?

A healthcare provider will figure out if you need oxygen therapy by testing the presence of gases in your blood. This test is called an arterial blood gas (ABG) and involves taking a blood sample from an artery (usually in the wrist). A healthcare provider can also measure your oxygen level (*oxygen saturation* or *O2 Sat*) with a small device called a *pulse oximeter* that can be clipped painlessly on to your finger, toe or earlobe. With this device, your oxygen levels can be checked over a period of time, for example, during sleep or exercise. The general treatment goal is to keep your oxygen at a level that meets the body's need for oxygen, usually 88% or above.

### How much oxygen should I take?

Oxygen is a medical treatment that requires a prescription by a healthcare provider. Once the amount of oxygen needed is decided, the provider will prescribe an oxygen setting or flow rate. There may be a different setting or flow rate for different activities, for example during exercise, rest, and sleep. It is very important that you use the setting range exactly as it has been prescribed. Using too little may starve your brain and heart of oxygen, resulting in fatigue, memory loss or changes in the heart. Too much oxygen can also be a problem, especially for the lungs.

### Will I need oxygen when I sleep?

During sleep, people slow down their breathing. Patients who have low oxygen levels while they are awake usually have low levels during sleep. In some cases, patients who may not require oxygen while awake may need extra

oxygen while sleeping. The healthcare provider will determine if and how much oxygen you should take at night.

### Will I need oxygen when I am physically active?

During any physical activity people use more energy and therefore need more oxygen. To find out how much oxygen is needed during activity, the provider will have you do an *exercise stress test* or a *walk test* while measuring your oxygen saturation. Young children and infants can be observed during play activities and feeding.

### How many hours a day will I need oxygen?

In some cases, patients only need to use oxygen when they are active or while sleeping. However, in most cases, oxygen should be used as close to 24 hours a day as possible.

### Will I always need to use oxygen?

Most patients who require extra oxygen to treat their chronic illness will need to continue their oxygen therapy. Some patients may need to use extra oxygen during a disease flare-up or infection, but may be able to reduce or stop its use if their condition improves. You should never reduce or stop oxygen therapy on your own. Talk with your health care provider if you think a change in your oxygen therapy is needed.

### What are the different kinds of oxygen systems?

Oxygen can be delivered from three types of sources: oxygen concentrator, liquid system or oxygen pressurized in a metal cylinder. The right choice for you depends on how much and when you need it, and your daily activities. You may also need to take into consideration where you live, costs, or insurance restrictions.

### What are oxygen concentrators?

An oxygen concentrator produces oxygen by

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concentrating the oxygen that is already in the air and removing other gases. The concentrator is powered by electricity.

### What is liquid oxygen?

Liquid oxygen is made by super-cooling oxygen gas, which changes it to a liquid form. When in liquid form, the oxygen takes up much less room and can be stored in special thermos.

### What are oxygen cylinders?

Oxygen is compressed into a metal cylinder under high pressure. Oxygen may be stored in either large or small cylinders.

### What is a nasal cannula?

A nasal cannula is a two-pronged tube attached to the oxygen device for delivering oxygen through the nose.

### What are oxygen conserving devices?

Oxygen conserving devices make the delivery of oxygen more efficient, and reduce the amount of oxygen that is wasted. There are three types of oxygen conserving devices: the on-demand device, reservoir cannula and transtracheal oxygen.

#### What is an on-demand device?

On-demand oxygen delivery devices deliver a small amount of oxygen when the patient begins to inhale (breathe in). The delivery device is connected to the oxygen source by the nasal cannula. Young children do not usually use this device.

#### What are reservoir cannulas?

A reservoir cannula works by storing oxygen in a small chamber during exhalation (breathing out). When the patient is ready to inhale, they get the stored oxygen. This allows patients to use lower oxygen flow setting while still receiving the same amount of oxygen.

#### What is transtracheal oxygen?

Transtracheal oxygen is oxygen delivered through a thin tube inserted through the neck into the trachea (windpipe). Patients are able to talk with the tube in place. Transtracheal oxygen requires education for proper use.

### What should I watch for while I am on oxygen?

Either too little or too much oxygen can be a problem. If you have symptoms of drowsiness, morning headaches, fatigue or breathlessness, you need to contact the doctor. If your child or infant on oxygen seems tired, less active, is breathing harder, or has blue lips or nail beds, call the child's doctor.

### Do I have to worry about oxygen exploding or burning?

- Oxygen alone will not explode and does not burn, but oxygen will make a flame hotter and burn more vigorously.

- Never smoke while using oxygen. Your nose, hair, and clothing can catch fire.
- Keep oxygen at least 6 feet (2 meters) away from an open flame.
- Stabilize all cylinders by placing carts in a safe area or by securing them to a wall.
- Remember: oxygen is safe and therapeutic if used as instructed.

### What do I need to do when I travel?

You can maintain a lifestyle that includes travel even if you are on oxygen. However, travelling with oxygen requires careful planning well in advance of your trip. Check with your transportation company (airline, train, bus, boat) about its policies for travelling with oxygen. Contact your oxygen company to coordinate your oxygen supply during each phase of your trip. Make sure that you have plenty of oxygen with you in case of delays or emergencies. Keep a copy of your oxygen and medicine prescriptions with you. Finally, you should keep emergency numbers handy (healthcare provider, oxygen supply company, and names of local doctors and hospitals) just in case.

Source: ATS/ERS Standards for the Diagnosis and Management of Patients with COPD, <http://www.thoracic.org/COPD/20/oxygen.asp>

#### Additional Lung Health Information

##### American Thoracic Society

[www.thoracic.org](http://www.thoracic.org)

##### ATS Patient Advisory Roundtable

[www.thoracic.org/aboutats/par/par.asp](http://www.thoracic.org/aboutats/par/par.asp)

##### National Heart Lung & Blood Institute

[www.nhlbi.nih.gov/index.htm](http://www.nhlbi.nih.gov/index.htm)

##### American Lung Association

[www.lungusa.org](http://www.lungusa.org)



Your healthcare provider has prescribed oxygen therapy for your lung condition

- ✓ Oxygen is a medical treatment
- ✓ Use your oxygen exactly as prescribed by your health care provider
- ✓ If you have any of these symptoms: breathlessness, morning headache, fatigue, drowsiness, contact your health care provider
- ✓ Oxygen used properly is safe. Do not smoke near oxygen, or keep oxygen near open flames, or other sources of heat or flames

**Doctor's Office Telephone:**