



# Oxygen therapy

## Why is oxygen therapy used?

If you're living with a lung condition you may be offered oxygen therapy if your blood oxygen levels are low. If they are, breathing in air with a higher concentration of oxygen can correct this.

Oxygen is a gas that is vital to all the cells in your body. At sea level, the air we breathe in contains about 21% oxygen. Our bodies need oxygen for all their active processes like digesting food, contracting muscles or even just thinking.

If you have low blood oxygen levels, oxygen therapy can help make it easier to do things you might otherwise find difficult. For example, it can enable you to walk further. It can also improve your life expectancy.

### Tip

If you are already on oxygen and have never been assessed, ask your GP to refer you to a specialist. The specialist will assess why you are breathless and check if you have low oxygen levels.

## What is oxygen therapy?

There are several different kinds of oxygen therapy:

- **long term oxygen therapy (LTOT)** - used to stabilise oxygen levels for 15 hours and more a day
- **nocturnal oxygen therapy (NOT)** - used to improve oxygen levels when you're asleep
- **ambulatory oxygen therapy (AOT)** - used to improve oxygen levels when you're active
- **palliative oxygen therapy (POT)** - used to manage severe breathlessness that doesn't respond to other treatments

## Obstructive and restrictive lung conditions

Obstructive and restrictive lung diseases are terms used to describe types of lung conditions. Both can cause low blood oxygen levels, and so may be treated with oxygen therapy tailored to your needs.

Obstruction refers to how quickly you can move air in and out. Restriction refers to the total amount of air you can get into your lungs. So both can reduce the amount of oxygen in your blood, but for different reasons.

If a healthy person takes a big breath in and then blows out as hard as they can, they should be able to get at least 70% of the air out of their lungs in one second. In **obstructive lung disease**, airflow is slowed down so it takes longer for your lungs to empty when you breathe out. This can happen because of damage to your airways which makes them narrow or because of damage to lung tissue, which makes the lungs less elastic.

Common **obstructive lung diseases** are:

- chronic obstructive pulmonary disease (COPD)
- asthma
- bronchiectasis
- cystic fibrosis

In **restrictive lung disease**, you cannot fill your lungs fully with air because your lungs are restricted from fully expanding. This can happen because the lungs themselves are stiff or because there is a problem with the chest wall or the breathing muscles.

The most common **restrictive lung conditions** are:

- interstitial lung disease, such as idiopathic pulmonary fibrosis
- sarcoidosis

Lung expansion can also be restricted by:

- scoliosis (or curved spine)
- neuromuscular disease, such as muscular dystrophy or motor neurone disease
- diaphragm paralysis
- obesity

## Will I benefit from oxygen therapy?

You may be prescribed oxygen therapy if you have been diagnosed with one, or a combination, of the following conditions:

- chronic obstructive pulmonary disease and emphysema
- interstitial lung disease which includes idiopathic pulmonary fibrosis
- cystic fibrosis
- lung cancer
- bronchiectasis
- pulmonary hypertension
- severe heart disease

You may also be prescribed oxygen before a specific lung condition is identified.

You should be assessed by a specialist, who will advise if extra oxygen is useful for your condition. Different lung conditions need different management and oxygen prescriptions are tailored to your individual needs. Oxygen therapy does not help everyone with a lung condition.

Oxygen is a medical gas and is prescribed like any other medication. It is regulated by the Medicines and Healthcare Products Regulatory Agency. You must use your oxygen as prescribed and be monitored regularly so that your prescription can be adjusted according to your needs. Misusing oxygen can be harmful.

If you experience new symptoms of headache, a faster than normal pulse rate, disorientation or confusion, you must tell your respiratory team or GP immediately, or go to A&E.

## How does oxygen therapy help?

Oxygen therapy helps improve low blood oxygen levels. This can help you to walk further. It can also reduce the risk of complications such as **pulmonary hypertension**, which is high blood pressure in the lungs. Most of what we know about the benefits of oxygen therapy comes from studies of people with **COPD**. But when used as prescribed, oxygen therapy can improve life expectancy in many people.

## When could I be referred for oxygen therapy?

You may have been diagnosed with a lung condition and have the right medication but still feel very out of breath. It may be time for your health care professional to investigate if your blood oxygen levels are low. This involves an assessment and then, if needed, oxygen therapy being prescribed. There are also times when you could have your treatment reviewed.

You can be referred for assessment by:

- your GP or practice nurse
- community services such as the community respiratory team, community matron or physiotherapist
- your hospital doctor - if you have been in hospital after a flare-up of your condition, or you are newly diagnosed with a lung condition
- an occupational health department if you work
- a private health care provider

Before you are referred for assessment, you'll have a simple test, called pulse oximetry, to make sure that an assessment for oxygen is right for you. If your oxygen levels falls below a certain percentage, and your health care professional thinks oxygen therapy could help, you may be referred to the home oxygen assessment and review service.

You may also be asked to take an exercise or walking test. This assesses your oxygen needs, if your blood oxygen levels only fall when you're active. You may be asked to walk for six minutes up and down an indoor corridor or to climb a few stairs. If you need to, you can stop and rest. Or you may be asked to walk for a short time around some cones placed on the floor. Your pace will be set by a series of beeps that will get faster. When you are unable to keep up with the beeps, the test will end.

You should expect to receive:

- an appointment for assessment within six weeks of being referred
- a telephone call to confirm your attendance and that you are well enough for an assessment the day before your appointment

You will be asked about your smoking habits at your oxygen assessment and, if you smoke, offered advice on quitting.

## How will I be assessed?

You will be assessed by a health care professional who will be able to administer the right amount of oxygen for you. This may be your respiratory nurse, a physiotherapist or an occupational therapist either in the hospital or the community. They will know the equipment provided by the local oxygen supplier. You will be advised who your first point of contact is for oxygen-related questions.

The assessment can happen in a variety of places. You can sometimes be assessed while you are in hospital. You may be assessed at home if your condition is very severe and this service is available in your area.

The assessment will take up to an hour and a half.

### **Pulse oximetry**

If you have not already had a pulse oximetry test, this will be done first to make sure you are suitable for the assessment.

### **Blood tests**

You will have blood tests to measure how well your lungs can provide oxygen to your body and remove waste products such as carbon dioxide.

Blood is usually taken from an artery in your wrist and then pressure is applied to where the blood was taken from for several minutes to stop any more bleeding. Sometimes blood is taken from your ear lobe instead. The blood sample is sent to the laboratory to be tested while you wait.

You may then be asked to breathe oxygen through a mask over your face, or through some tubing in your nose, for at least 30 minutes before a second blood sample is taken.

In some cases, you may need a second appointment four to six weeks later for a second blood test. This is to check that you have consistently low levels of oxygen in your blood before a decision is made.

### **Exercise or walking tests**

You may also have an exercise or walking test.

Find out more about these tests at [blf.org.uk/breathing-tests](https://www.blf.org.uk/breathing-tests)

Once the test results have been reviewed you will be told if oxygen therapy is right for you.

If the blood tests show that you have too much carbon dioxide in your blood, you may need to see a specialist to review your condition before you are assessed again.

If you have advanced disease, oxygen may be prescribed by your palliative care team. This may be for your use at home or in a hospice or nursing home. At this stage, oxygen can help relieve any distress that can occur when breathing is difficult.

### **What happens if I need oxygen therapy?**

- You will be given an explanation of what happens next and the choices you have.
- You will be given information and training about using oxygen in a language you and your family or carers understand.
- You will be shown the different types of equipment and try them out to see which is best for you. Ask your health care professional to explain which delivery method is best for you and why. Your prescription can be changed later if you need a different oxygen therapy.
- You might be asked if you need help with daily living from your local health care team or social services. If you do need help, someone will come to see you at home.
- Your GP will be told the result of your assessment and that you have been prescribed oxygen.
- If you smoke, you will be offered support to help you quit.

## When will my oxygen therapy be reviewed?

Clinical guidelines for oxygen assessment and review of specific lung conditions vary. Depending upon the nature and stability of your condition your oxygen therapy may be reassessed every three to six months.

If you have a respiratory tract infection or a flare-up, your health care professional will usually review your oxygen therapy promptly and you may need to be hospitalised. If your oxygen was adjusted following a flare-up or lung infection you may be reviewed again within six weeks to see if any more adjustment is needed.

In some conditions, if your health care professional notices you are improving, it might be possible to stop your oxygen therapy.

### Tip

If you experience new symptoms such as a headache, or you can't think straight and are drowsier or sleepier, tell your health care professional. You might have too much carbon dioxide in your blood.

## How is oxygen delivered?

All oxygen equipment is supplied by one of four suppliers according to where you live in the UK.

All oxygen must be prescribed by a registered health care professional and ordered on a home oxygen order form (HOOF). You will be asked to sign a home oxygen consent form (HOOF). The forms are sent to the supplier providing oxygen in your area. You will also need to give permission for your medical and contact details to be shared with the supplier. The company will then supply all the equipment you need to your home. An engineer will install the equipment and explain to you or a relative or friend how to use it.

You will receive your oxygen through one, or a combination, of:

- an oxygen concentrator – either portable or static for home use
- oxygen cylinders – large or small that contain oxygen as a gas
- liquid oxygen – this comes in a storage container. It is decanted and breathed in as a gas

All these oxygen systems are available on the NHS once you have been assessed. Some people choose to purchase their own portable concentrators. Talk to your respiratory team before doing this. It is also important to consult a reputable provider and trial the device before you buy one.

## Nasal cannulae and face masks

You can breathe in the oxygen from its container either through nasal cannulae or a face mask. A nasal cannulae can be used to deliver seven litres of oxygen a minute comfortably. If you need a higher rate of oxygen, humidified high-flow oxygen through a nasal cannula may be available. Discuss this with your respiratory specialist.

Nasal cannulae are made of plastic or silicone and are lightweight. You keep them in place by looping the tubing round your ears. People generally prefer them to face masks as they are more comfortable and deliver oxygen continuously into the nose. If your cannulae are uncomfortable, ask your supplier if they have different options.

Oxygen masks are held over your nose and mouth by plastic straps around your head. A simple face mask is useful if you have nasal irritation or nose bleeds. You may find a face mask easier if you always breathe through your mouth. But a face mask can feel uncomfortable and confining and is a little more conspicuous. Other masks offer better control of oxygen concentration at certain flow rates and your health care professional might suggest one if they think that you would benefit from it.

## Oxygen concentrators

An oxygen concentrator is a machine, about the size of a bedside table, which you plug into your usual household electricity supply. It extracts oxygen from room air and delivers it to you by plastic tubing to a nasal cannula or to a face mask. Long tubing can also be fixed around the floor or skirting board, both upstairs and downstairs, so that you can have oxygen around your entire house.

Rooms where you have an oxygen concentrator should be well ventilated. Don't worry - there will be plenty of oxygen left in the room for others to breathe!

The supplier of your oxygen service will reimburse money towards your electricity bill to pay for the supply that the concentrator uses. A back-up cylinder of oxygen is also provided in case of a power cut. An engineer will visit regularly to make sure the concentrator is working correctly.

Portable concentrators are also available for when you are outside your home, if you need ambulatory oxygen.

## Oxygen cylinders

Oxygen cylinders contain compressed oxygen. They are provided with tubing and a nasal cannula or a face mask, delivered to your home and replaced when empty. They provide oxygen for variable lengths of time, up to eight hours depending on the size of the cylinder and the flow rate of oxygen you have been prescribed. These cylinders are generally used for emergencies or for back-up.

## Portable or ambulatory oxygen

Your respiratory team may assess you for portable or ambulatory oxygen for when you exert yourself. If you are already on long-term oxygen therapy you may also need to use oxygen when you go out. Depending on your oxygen needs, you may be prescribed:

- **portable oxygen cylinders**

These oxygen cylinders weigh about two to three kg (six to seven lbs) and come with a carrying case. The oxygen in them lasts for up to three hours, depending on the flow rate. The higher the flow rate, the shorter the period they will last. As with any oxygen equipment, portable cylinders must be used according to the manufacturer's safety instructions to avoid a fire risk.

Some suppliers may have lighter weight cylinders available – ask if they would be suitable for you if you find the cylinders heavy. Your supplier may also be able to provide you with an oxygen trolley with wheels.

- **conserving devices**

A conserving device is attached to a portable oxygen cylinder to make the supply last longer by giving you a pulse of oxygen only when you breathe in. This makes the oxygen last longer, but is not suitable for everyone as it cannot supply high levels of oxygen. Your health care professional can tell you if this device is suitable for you.

## Liquid oxygen

Liquid oxygen may be suitable if you use portable oxygen a lot, or need such high flows that cylinders do not last long. It's delivered and decanted into a tank in your home. This tank will be replaced by your supplier when it is nearly empty.

Liquid oxygen tanks must be housed in a very well-ventilated room, garage or shed. There must be no items around likely to catch fire. The tanks are used to fill portable oxygen cylinders, which contain a longer supply of oxygen than the usual portable cylinders. Liquid oxygen is very cold – take care when decanting it.

**It is your responsibility to inform your oxygen supplier when you need more oxygen cylinders or liquid oxygen tanks.**

Occasionally, oxygen therapy might make your nose dry or sore. Do not use Vaseline or any other petroleum-based product to relieve this, as they can be flammable. A softer nasal cannula may be available. Only use water-based products inside your nose or on your hands and face, such as K-Y jelly. Ask your pharmacist or health care professional if you need advice on what products, including sunscreen, you can use.

## Help and support

### Home oxygen suppliers

#### **Air Liquide:**

- 0808 143 9991 for **London**
- 0808 143 9992 for the **north-west England**
- 0808 143 9993 for **east Midlands**
- 0808 143 9999 for **south-west England**

Baywater Healthcare covers **Yorkshire and Humberside, west Midlands and Wales.**

- 0800 373 580

**BOC** covers **east and north-east England and Northern Ireland.**

- 0800 136 603

**Dolby Vivisol** covers **south England.**

- 0500 823 773

**Dolby Vivisol** also covers **Scotland.**

- 0800 833 531

We have online information about travelling with a lung condition or call our helpline on **03000 030 555.**



## How do I use my oxygen safely?

To avoid a fire risk, use your oxygen equipment according to the manufacturer's safety instructions. For example, you should not use oxygen while cooking with gas. Some hand creams and alcohol gels are not suitable for use alongside oxygen, since they may be flammable.

**No one should smoke near oxygen or use oxygen near a naked flame of any sort. E-cigarettes can also be a fire risk.**

The local fire service may offer specific advice about your home.

Most oxygen tubing has a fire break at the end of the tubing near your face that will stop oxygen in the event of a fire.

If you have difficulty with mobility or reduced sight, take care with oxygen tubing – if you are concerned about trips and falls, the community occupational therapist may be able to assess your home and offer ways to help. Your GP or local health care team can arrange this assessment.

**Remember that oxygen is a medicine – too much oxygen can be dangerous. It is dangerous for you to alter the oxygen flow rate your equipment provides or change the type of mask you use, unless instructed to do so by your health care professional. It has been prescribed for you after a very careful assessment.**

## Smoking and oxygen

You should **never** smoke, including e-cigarettes, when using oxygen. The carbon monoxide in the smoke reduces the amount of oxygen that your blood can carry around your body. This makes the oxygen therapy ineffective. Oxygen also helps combustion, so it is vital that there is **no smoking** around oxygen. There is a risk of facial burns and house fires if you or someone else smokes in your home when the oxygen supply is turned on.

If you continue to smoke while using oxygen, a risk assessment and a medical review will be undertaken. It might be appropriate to withhold or withdraw oxygen therapy because of public safety or risk to others.

Ask your respiratory team for advice on how to quit, or visit [blf.org.uk/smoking](https://www.blf.org.uk/smoking) for help to stop smoking.

**You will not get any long-term benefit from oxygen if you continue to smoke or if you do not use the oxygen as prescribed.**

## Home and car insurance

If you use oxygen, it's important to tell your insurers. This should not affect insurance premiums, but it will make sure you are fully covered in the event of a claim. It's a good idea to inform both buildings and contents insurance providers.

You should also inform your car insurance provider. But there is no need to notify the DVLA unless you experience giddiness, faint or lose consciousness.

## Holidaying with oxygen

Before you book a holiday, discuss your health needs with your respiratory specialist or GP.

### In the UK

You can arrange oxygen for travelling within the UK through your oxygen provider. You will need to tell them your holiday details, including the dates and where you will stay.

Give as much notice as you can - if possible - six weeks. This is most important during busy times like Easter. But two weeks' notice is often enough at less busy times of year.

Make sure the owner of the accommodation where you plan to stay is happy to have oxygen equipment and cylinders there, and get their permission to store it.

### Flying

If you plan to fly, you may need a fitness-to-fly test to confirm your need for in-flight oxygen.

You may not normally need oxygen but may need it while flying due to the higher altitude. You may also need it if you go to an area at a higher altitude than you're used to. You can test if you need oxygen at higher altitudes during the fitness-to-fly test. Your GP can help you to complete this test.

Airlines have their own rules about supplying oxygen and some charge to provide oxygen in-flight. Check with your airline before you book. Also check whether the flight is code-sharing. This is when a flight has one airline's code and flight number, but is operated by another one. You will need to check with each airline involved about their own oxygen policy.

The European Lung Foundation has details of airlines' oxygen policies.

#### Top tips before you fly

- Check the validity of your fitness-to-fly test. Some airlines are very specific about time between the test and travel
- There is no international, standardised approach at airports and on flights to the management of oxygen. Check with your airline
- Airlines usually provide oxygen through a breath-activated system. If this is difficult for you, discuss with the airline
- Most airlines will allow you to travel with your own portable concentrator of an approved make or a small full cylinder. Check with the airline
- Check whether the flight is code-sharing. This is when a flight has one airline's code and flight number, but is operated by another one. You will need to check with each airline involved about their own oxygen policy

## When you fly

- Conserve your energy. Pre-book assistance at the airport to avoid long walks
- Some airports insist on putting your oxygen equipment through X-ray machines. Ask for a wheelchair to help as you pass through security
- The international air transport association (IATA) promotes using nasal cannulae in flight. But check with your airline if you use a mask

## Travelling abroad

If you need oxygen on your holiday, you'll need to arrange oxygen at your destination before you travel. UK companies generally don't allow their equipment to be taken outside the UK. Your respiratory specialist or oxygen supplier can give you details of oxygen providers abroad. You'll need to organise and pay for this yourself.

You can buy or hire portable concentrators but make sure you have a spare battery pack or back-up cylinder. And remember your international plug adapters. Keep one in your hand luggage and carry a spare!

If you are going to Europe, you can arrange oxygen through the European Health Insurance Card (EHIC) scheme. You will need a valid EHIC, and you will have to use the authorised oxygen company for the country you are travelling to. For more details, visit the NHS website at [www.nhs.uk/NHSEngland/Healthcareabroad/countryguide/Pages/EEAcountries.aspx](http://www.nhs.uk/NHSEngland/Healthcareabroad/countryguide/Pages/EEAcountries.aspx)

## When travelling

- Check the insurance arrangements for your oxygen equipment
- Take helpline numbers for your oxygen equipment
- Take a copy of your oxygen prescription or doctor's letter in case you need more supplies
- Carry a spare battery pack for your portable concentrator. Anticipate travel delays
- Think ahead - plug in and charge your portable concentrator whenever you can

Get in touch with us to find support near you.

Helpline: 03000 030 555

Monday to Friday, 9am-5pm

Ringing our helpline never costs more than a local call and is usually free, even from a mobile.

[helpline@blf.org.uk](mailto:helpline@blf.org.uk)

[blf.org.uk](http://blf.org.uk)

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We value feedback on our information. To let us know your views, and for the most up to date version of this information and references, call the helpline or visit [blf.org.uk](http://blf.org.uk)