

View this article online at: [patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet](https://patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet)

# Chronic obstructive pulmonary disease (COPD)

Chronic obstructive pulmonary disease (COPD) is a long-term condition of the lungs where the flow of air to the lungs is obstructed. Symptoms include cough and breathlessness. The condition is most often caused by smoking and the most important treatment is to stop smoking. Inhalers are commonly used to ease symptoms. Other treatments such as steroids, antibiotics, oxygen, and mucus-thinning (mucolytic) medicines are sometimes prescribed in more severe cases, or during a flare-up (exacerbation) of symptoms.

## What is COPD?

Chronic obstructive pulmonary disease (COPD) is a common and preventable condition. Chronic means persistent. Obstructive describes the prevention of the usual flow of air into the lungs. Pulmonary means 'to do with the lungs'. It is a long-term illness or disease.

COPD is now the preferred name for the type of airflow obstruction which in the past was called chronic bronchitis, emphysema or chronic obstructive airway disease (COAD). The obstruction is due to damage to the airways of the lungs. This in turn is the result of the airways being exposed to poisonous substances such as tobacco smoke and indoor or outdoor air pollution.

The word emphysema describes a type of lung damage that occurs in COPD - [see the separate leaflet called Emphysema](#).

## How common is COPD?

COPD is common and important. It is estimated that about three million people in the UK have COPD. However, in many of these people (perhaps as many as two million), the condition has not been formally diagnosed (normally these would be mild cases). This is because in the early stages, many people put up with a cough or mild breathlessness without seeing their doctor, perhaps dismissing it as a 'smoker's cough'. They may only see their doctor when symptoms get worse.

Worldwide, it is believed that nearly 12 in every 100 people have COPD, and there are 3 million deaths each year from COPD.

COPD mainly affects people over the age of 40 and becomes more common with increasing age. It is usually diagnosed in people over the age of 50. It is more common in men than in women.

A flare-up (exacerbation) of COPD is one of the most common reasons for admission to hospital. 1 in 8 emergency hospital admissions are due to COPD. This makes COPD the second largest cause of emergency admissions, and one of the most expensive inpatient conditions treated by the NHS.

People with COPD commonly have other diseases as well – such as [cardiovascular disease](#), [lung cancer](#), [osteoporosis](#), [depression](#) and [anxiety](#).

## What causes COPD?

[Smoking is the cause in most cases](#). It is by far the biggest risk factor for COPD. The lining of the airways becomes inflamed and damaged by smoking. Cigarette smoking is the biggest risk factor, but other types of smoking can lead to a risk of developing COPD:

- Passive smoking – regularly being in the presence of secondhand smoke due to others smoking.
- Cigars.
- Pipes.
- Waterpipe smoking devices.

- Marijuana.
- In utero exposure – this is a baby being exposed to smoke whilst still in the womb, due to the pregnant mother smoking.

Air pollution may cause some cases of COPD, or make the disease worse. Air pollution can be indoor air pollution or outdoor air pollution. Indoor air pollution seems to be involved in more cases of COPD than outdoor air pollution. Indoor air pollution includes fumes from indoor fires or stoves, and dusts, fumes or chemicals present in some workplaces. The combination effect of long-term exposure at work to air pollutants **and** smoking increases the chances of developing COPD.

A small number of people have a hereditary (genetic) risk of COPD due to very rare protein deficiencies that can lead to lung, liver and blood disorders. (The condition is called [alpha-1-antitrypsin deficiency](#)). Less than 1 in 100 cases of COPD are due to this.

---

## COPD symptoms

- **Cough** is usually the first symptom to develop. It is productive with phlegm (sputum). It tends to come and go at first, and then gradually becomes more persistent (chronic). You may think of your cough as a 'smoker's cough' in the early stages of the disease, but this doesn't mean you should dismiss it – indeed, a 'smoker's cough' is a reason to see your GP. It is when the breathlessness begins that people often become concerned.
- **Breathlessness (shortness of breath) and wheeze** may occur only when you exert yourself at first. For example, when you climb stairs. These symptoms tend to become gradually worse over the years if you continue to smoke. Difficulty with breathing may eventually become quite distressing.
- **Sputum** – the damaged airways make a lot more mucus than normal. This forms sputum. You tend to cough up a lot of sputum each day.

- **Chest infections** (also known as respiratory infections) are more common if you have COPD. A sudden worsening of symptoms (such as when you have an infection) is called an exacerbation. Wheezing with cough and breathlessness may become worse than usual if you have a chest infection and you may cough more sputum. Sputum usually turns yellow or green during a chest infection. Chest infections can be caused by germs called bacteria **or** viruses. Bacteria (which can be killed using **antibiotic medicines**) cause about 1 in 2 or 3 exacerbations of COPD. Viruses (which cannot be killed with antibiotics) are a common cause of exacerbations too, particularly in the winter months. The **common cold** virus may be responsible for up to 1 in 3 exacerbations.
- Other symptoms of COPD can be more vague. Examples are weight loss, tiredness and ankle swelling.

**Chest pain and coughing up blood (haemoptysis) are not common features of COPD.** It is possible to have slightly blood-streaked sputum when you have a chest infection. However, chest pain, blood in the sputum or coughing up just blood, should always be reported to a doctor. This is because other conditions need to be excluded (such as **angina, heart attack** or **lung cancer**).

## What is the difference between COPD and asthma?

COPD and asthma cause similar symptoms - in particular difficulty breathing (breathlessness). However, they are completely different diseases. Briefly:

- In COPD there is permanent damage to the airways. The narrowed airways are fixed, and so symptoms are persistent (chronic). Treatment to open up the airways is therefore limited.
- In asthma there is inflammation in the airways which makes the muscles in the airways narrow (constrict). This is temporary so the narrowing comes and goes. So, the symptoms tend to come and go, and vary in severity from time to time. Treatment to reduce inflammation and to open up the airways usually works well.
- COPD is more likely than asthma to cause an ongoing cough with phlegm (sputum).

- Waking at night with breathlessness or wheeze is common in asthma and uncommon in COPD.
- COPD is rare before the age of 35, whilst asthma is common in under-35s.
- There is more likely to be a history of asthma, allergies, [eczema](#) and [hay fever](#) (so-called atopy) in people with asthma.

**Both asthma and COPD are common, and some people have both conditions – this is known as Asthma-COPD overlap syndrome, or ACOS.** [See the separate leaflet called Asthma for more details.](#)

## Diagnosing COPD

COPD may be suspected by your doctor because of your symptoms. Examination of your chest can be normal in mild or early COPD. Using a stethoscope, your doctor may hear wheezes in your chest, or find signs of a chest infection.

Your chest may show signs of being over-inflated (hyperinflation). This is because the airways are obstructed and, as well as it being difficult for air to get into your lungs, it is also difficult for it to escape. Your symptoms (history) and physical examination will help your GP decide if COPD is likely.

### Spirometry

The most common test used in helping to diagnose the condition is called spirometry, also known as lung function tests. This is a breathing test which can be done in your GP surgery, or may be done at a different clinic. You will be asked to breathe or blow into a small machine called a spirometer which will measure how well your lungs are working. As well as helping to make the diagnosis of COPD, spirometry might point your GP in the direction of a different diagnosis, such as [pulmonary fibrosis](#). It is also sometimes used to monitor the progression of COPD.

This test can help make a diagnosis of COPD. It also divides COPD into four stages of severity depending on the results. [To read more about spirometry and the four stages of COPD, see the separate leaflet called Spirometry.](#)

### Other tests

A [chest X-ray](#) may show signs of COPD and can be used to help exclude other serious conditions (including lung cancer). Occasionally, a special [CT scan](#) of the chest – high-resolution CT – is needed.

A blood test to make sure [you are not anaemic](#) is often helpful. If you are anaemic, you have a tendency to be lacking in iron, and anaemia can lead to breathlessness. Sometimes a blood test can show changes (called polycythaemia) that suggest you have persistently low levels of oxygen (hypoxia).

A pulse oximeter is a device which can be clipped on to your finger. It measures your heart rate (pulse) and the amount of oxygen in your circulation (oxygen saturation). Lower levels than normal tend to be found in people who have COPD, especially if you have a flare-up (exacerbation) of your symptoms.

## How does COPD progress?

Symptoms of COPD typically begin in people aged over 40 who have smoked for 20 years or more. A 'smoker's cough' tends to develop at first. Once symptoms start, if you continue to smoke, there is usually a gradual decline over several years. You tend to become more and more breathless. In time your mobility and general quality of life may become poor due to increasing breathing difficulties.

Chest infections tend to become more frequent as time goes by. Flare-ups (exacerbations) of symptoms occur from time to time, typically during a chest infection. [See the separate leaflet called Acute Exacerbations of COPD \(COPD Flare-ups\) for more information.](#)

There are two ways of determining how severe an individual person's COPD is. One is by the spirometry test explained in the [linked leaflet called Spirometry](#), which defines four stages. Another way is by using a breathlessness scale.

### Medical Research Council (MRC) Breathlessness scale

Breathlessness can be graded as the following:

- Grade 1: if you are not troubled by breathlessness except on strenuous exertion.

- Grade 2: if you are short of breath when hurrying on level ground or walking up a slight incline.
- Grade 3: if you walk slower than others of your age because of breathlessness, or if you have to stop for breath when walking at your own pace.
- Grade 4: if you stop for breath after walking about 100 metres or if you have to stop after a few minutes of walking on level ground.
- Grade 5: if you are too breathless to leave the house or if you are breathless on dressing or undressing.

Some guidance uses a modified MRC scale - the descriptions are exactly the same, but they are graded from zero to four instead of from 1 to 5.

If the condition becomes severe [then heart failure may develop](#). This is due to the reduced level of oxygen in the blood and to changes in the lung tissue which can cause increased pressure in the blood vessels in the lungs. This increase in pressure can put a strain on the heart muscle, leading to heart failure.

Heart failure can cause various symptoms including worsening breathlessness and fluid retention. (**Note:** heart failure does not mean the heart stops beating - that is called cardiac arrest. Heart failure occurs when the heart does not pump blood very well.)

**Respiratory failure** is the final stage of COPD. At this point the lungs are so damaged that the levels of oxygen in the blood are low. The waste product of breathing, called carbon dioxide (CO<sub>2</sub>), builds up in the bloodstream. People with end-stage COPD need palliative care to make them more comfortable and ease any symptoms.

## Is COPD life-threatening?

COPD can be a life-threatening (fatal) disease in some cases. About 30,000 people die each year in the UK from the end stages of COPD. Many of these people have several years of ill health and poor quality of life before they die. In some cases people die of severe exacerbations due to severe chest infections. The life expectancy of a person with COPD is very variable and depends on various things such as:

- How long you smoked for and how much you smoked
- If you continue to smoke or if you continue to be exposed to the pollution or poisons which caused the condition.
- How severe the condition is, how many exacerbations you have and whether you are often admitted to hospital
- Whether you have other or associated illnesses. For example, smoking also puts you at risk of lung cancer and heart attacks, so if you are a smoker and also have one of these conditions, this would lower your life expectancy.
- If you lose weight - losing weight and muscle wasting is associated with less ability to do exercise and an increased likelihood of becoming very ill or dying.

## Can COPD be cured?

COPD cannot be cured. However, if you stop smoking cigarettes, it may progress more slowly, or in some cases not get any worse. Some people live more or less normal lives with mild COPD for many years. Others are very disabled by their breathlessness.

Depression and/or anxiety commonly affect people with COPD, and can be treated if recognised.

## COPD treatment

[Stopping smoking is the most important treatment.](#) No other treatment may be needed if the disease is in the early stage and symptoms are mild.

If symptoms become troublesome, one or more of the following treatments may be advised.

**Note:** treatments do not **cure** COPD. Treatments aim to ease symptoms. Some treatments may prevent some flare-ups (exacerbations) of symptoms.

As a general rule, a trial of 1-3 months of a treatment will give an idea of whether it helps or not. A treatment may be continued after a trial if it helps, but may be stopped if it does not improve symptoms.



It can be helpful to consider treatments for three separate problems.

- Treatments for stable COPD.
- Treatments for exacerbations of COPD.
- Treatments for end-stage COPD.

These three treatment situations are discussed below.

## Treatments for stable COPD

### Inhalers

The main treatments are medications given in devices called inhalers. The medicine within the inhaler is in a powdered form which you breathe in (inhale). The medicines in standard inhalers reach the lungs better if used with a spacer device. Inhalers include one, two or even three types of medicines. They may include:

- A bronchodilator agent – this is a medicine which opens up (dilates) the airways. Some work quickly but don't last very long; others are longer-acting.
- A steroid – these reduce the inflammation in the airway, thereby reducing the swelling. This in turn adds to the space available for air to pass. In recent years, treatment of COPD has moved away from steroid inhalers towards more use of long-acting bronchodilators.
- A medicine which helps to dry up the secretions produced by the airways.

[See the separate leaflet called Inhalers for COPD \(including Inhaled Steroids\) for more details.](#)

### Bronchodilator tablets

These are tablets which open up the airways. [They are explained in the separate leaflet called Oral Bronchodilators.](#)

### Mucolytic medicines

A mucolytic medicine such as [carbocisteine](#) and [erdosteine](#) makes the phlegm (sputum) less thick and sticky, and easier to cough up. This may also have a knock-on effect of making it harder for germs (bacteria) to infect the mucus and cause chest infections.

[These medicines are explained in the separate leaflet called Mucolytics.](#)

### **Non-medicine treatments**

A programme called 'pulmonary rehabilitation' has been shown to be of benefit for people with moderate COPD. It is recommended for people who have Grade 3 (see explanation of the grades above) or worse, or for those who have landed up in hospital with an acute exacerbation of COPD. It is a series of sessions over a few weeks and includes:

- Physical training (exercise classes) and advice about exercise.
- Education about COPD.
- Nutritional advice.
- Psychological assessment and advice about psychological symptoms.

## **Treatment of exacerbations of COPD**

The most common trigger of a flare-up (exacerbation) of COPD is an infection – for example, a virus such as the common cold, or a bacterial or viral chest infection. Heavy air pollution can also trigger a flare-up. Treatment involves adding extra medicines temporarily to your usual treatment. This is usually [steroid tablets](#) with or without [antibiotics](#). These medicines are usually taken until your symptoms settle down to what is normal for you.

If you have frequent flare-ups then your doctor may advise on a self-management plan. This is a written plan of action agreed by you and your doctor on what to do as soon as possible after a flare-up starts to develop. You might be given antibiotics and steroids to keep at home, so that they can be started quickly in the event of a flare-up.

If your symptoms are very severe, or if treatments for an exacerbation are not working well enough, you may need to be admitted to hospital.

For information on treatment in this situation, see the separate leaflet called [Acute Exacerbations of COPD \(COPD Flare-ups\)](#).

## Treatment of end-stage COPD

### Palliative care

Palliative care means care or treatment to keep a person as comfortable as possible - to reduce the severity of the disease, rather than to cure it. Mostly it is about helping you with your symptoms, to make them easier to bear. Palliative care is not quite the same as terminal (end of life care), when someone is dying and death is expected within a few days.

As COPD progresses, the condition becomes more severe. You might have more frequent exacerbations and/or admissions to hospital. These factors can give a clue as to how advanced the illness is. Palliative care is usually started in COPD when you are on the maximum medication and your condition is continuing to get worse (deteriorate). Sometimes in these situations you might choose to remain at home for any/all treatments, rather than having further hospital admissions, as things get worse.

Improving your quality of life in the end stages of COPD is very important. Palliative care can be given in a hospice, but is just as likely to be provided by your GP, district nurse or community palliative care team. The idea is that a multidisciplinary team, with different healthcare professionals, can anticipate any problems before they happen. The team can help you with access to medication and any equipment that might be needed.

Palliative care involves not just physical treatments. Psychological and spiritual well-being are important too. The aim is that both you and your family feel supported and that your care is planned.

### Home oxygen

This may help **some** people with severe symptoms or end-stage COPD. It does not help in all cases. Unfortunately, just because you feel breathless with COPD it does not mean that oxygen will help you. Great care has to be taken with oxygen therapy. **Too much** oxygen can actually be **harmful** if you have COPD. To be considered for oxygen you would need to have very severe COPD, and be referred to a consultant (respiratory specialist) at a hospital for specialist assessment and advice.

## Other medicines

[Opioid medicines](#) such as [morphine](#) and [codeine](#) may be prescribed to try to reduce your coughing, and to help with breathlessness. Hyoscine is a medication that can be given to try to dry up secretions from your lungs.

Anxiety is a common symptom when you are breathless. Morphine can help the feelings of anxiety. In some cases, other anti-anxiety medicines (such as [diazepam](#)) can be given. Depression and anxiety are common in patients with COPD, at all stages of the disease. You may already be prescribed medication for this.

## Other treatments for COPD

### Surgery

This is an option in a very small number of cases. Removing a section of lung that has become useless **may** improve symptoms. Sometimes large air-filled sacs (called bullae) develop in the lungs in people with COPD.

A single large bulla might be suitable for removal with an operation. This **can** improve symptoms in **some** people. Lung transplantation is being studied, but is not a realistic option in most cases.

## What can I do to improve my own health with COPD?

### Stop smoking

[Stop smoking](#) . If you stop smoking in the early stages of COPD it will make a huge difference. Damage already done to your airways cannot be reversed. So a person with COPD cannot get better, and cannot be completely cured.

However, stopping smoking can slow the progression of the disease, so that it does not get worse or does so more gradually. It is never too late to stop smoking, at any stage of the disease. Even if you have fairly advanced COPD, you are likely to get benefit and slow down further progression of the disease.

Your cough may get worse for a while when you give up smoking. This often happens as the lining of the airways 'comes back to life'. Resist the temptation to start smoking again to ease the cough. An increase in cough after you stop smoking usually settles in a few weeks.

The National Health Service (NHS) provides free help and advice for people having difficulty in stopping smoking. Medication, such as [varenicline](#) and [bupropion](#), and nicotine replacement therapy (such as patches and chewing gum) can be prescribed, and counselling offered. You could see your GP or practice nurse for further advice, or visit the [NHS Smokefree website](#).

## **Get immunised**

Two immunisations are advised.

- [A yearly 'flu jab' each autumn](#) protects against possible influenza and any chest infection that may develop due to this.
- [Immunisation against pneumococcus](#) (a germ that can cause serious chest infections). This is a one-off injection and not yearly like the 'flu jab'.

## **Try to do some regular exercise**

Studies have shown that people with COPD who exercise regularly tend to improve their breathing, ease symptoms and have a better quality of life.

[Any regular exercise or physical activity is good](#). However, ideally the activity that you do should make you at least a little out of breath, and be for at least 20–30 minutes, at least three to four times a week. If you are able, a daily brisk walk is a good start if you are not used to exercise. But, if possible, try to increase the level of activity over time.

If your ability to exercise is limited by your COPD (grade 3 or more) or if you have been hospitalised with a flare-up, you will need specialist advice to help you exercise safely. You may be referred for pulmonary rehabilitation or be under the care of a community respiratory team. You will be given exercises and advice to try to help you stay as fit as possible. This is important because, effectively, you may become disabled due to your breathlessness.

## **Try to lose weight if you are overweight**

[Obesity can make breathlessness worse](#). If you are overweight or obese it is harder to exercise, and exercise makes you more breathless. It becomes a bit of a vicious cycle. If you are obese the chest wall is made heavy by fat.

This means that you have to work much harder to breathe in and take a good breath, to inflate the lungs and expand the chest. A dietician may be able to give you advice on [healthy eating](#) and [weight loss](#).

### **You may need nutritional supplements if you are underweight**

You may also be referred to a dietician if you are underweight. A dietician will be able to advise you on your diet, and also on nutritional supplements to help keep your weight within a normal range.

If your weight is within the normal range ([BMI 18-25](#)), then a [balanced, healthy, sensible normal diet](#) is best.

## **Regular follow-up**

If you have COPD, your GP surgery will probably call you yearly for a check-up or annual review. You can discuss your medication and the GP or nurse might assess your inhaler technique.

Regular review allows monitoring of the severity of your COPD, and gives an opportunity for health promotion such as help with stopping smoking or weight control. Reviews should happen more often:

- If you have frequent flare-ups (exacerbations), or complications.
- If you have very severe COPD.
- If you have recently been discharged from hospital.

## **COPD and flying**

If you have COPD and plan to fly then you should discuss this with the airline. Some airlines may request a fitness to fly assessment. Your GP is unlikely to be trained or insured to comment on your fitness to fly. They can provide (for a fee) a factual letter outlining how severe your COPD is, but if you want an assessment of your fitness to fly then you would need to see a doctor trained in travel medicine. This can take some time and is usually not available on the NHS, so think about it well in advance of any plans to travel.

If you are able to walk for 50 metres at a normal pace, or climb one flight of stairs, without feeling breathless, it is likely that you will not be affected in an aeroplane. If this is not the case, or if there are abnormalities in your lungs on examination, you will probably need assessment from your specialist. If you use oxygen (long-term oxygen therapy - LTOT), you will need to inform the airline, and discuss this further with your specialist.

When travelling by air you should keep your medicines, especially your inhalers, in your hand luggage. It is possible to use your own oxygen in-flight but individual circumstances may differ. Some people with COPD are more likely to need in-flight oxygen. Some people are more at risk of a [punctured lung \(pneumothorax\)](#) at altitude, despite the fact that the aircraft cabin is pressurised.

---

## Further reading

- [Puhan MA, Gimeno-Santos E, Cates CJ, et al](#); Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease. Cochrane Database Syst Rev. 2016 Dec 8;12:CD005305. doi: 10.1002/14651858.CD005305.pub4.
- [Chronic Obstructive Pulmonary Disease](#); NICE Guidance (December 2018 - last updated 2019)
- [Global initiative for chronic obstructive lung disease](#); 2023 report
- [Chronic Obstructive Pulmonary Disease](#); NICE CKS, May 2024 (UK access only)

**Disclaimer:** This article is for information only and should not be used for the diagnosis or treatment of medical conditions. Egton Medical Information Systems Limited has used all reasonable care in compiling the information but makes no warranty as to its accuracy. Consult a doctor or other healthcare professional for diagnosis and treatment of medical conditions. For details see our [conditions](#).

|                                     |  |                          |
|-------------------------------------|--|--------------------------|
| Authored by:                        | Peer Reviewed by:<br>Dr Colin Tidy, MRCP |                          |
| Originally Published:<br>19/11/2023 | Next review date:<br>07/08/2023          | Document ID:<br>doc_4219 |

---

View this article online at: [patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet](https://patient.info/chest-lungs/chronic-obstructive-pulmonary-disease-leaflet)

Discuss Chronic obstructive pulmonary disease (COPD) and find more trusted resources at [Patient](https://www.patientaccess.com).

---



To find out more visit [www.patientaccess.com](https://www.patientaccess.com)  
or download the app



Follow us

