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Cough

Coughing is an automatic reaction to try to clear your airways. The cough reflex protects the airways and lungs. It is important to seek medical attention if a cough has lasted for more than three weeks. If the cough is accompanied by symptoms such as shortness of breath, coughing up blood or weight loss it is important to seek medical attention. The most common causes of cough are mentioned below.

What is a cough?

A cough is an automatic (reflex) muscle action that forces air up and out of your lower airways (lungs) and upper airways (windpipe, nose and mouth). Everyone coughs occasionally to 'clear their throat'. The cough reflex protects the airways and lungs.

Coughing occurs if the airways are partially blocked by mucus (for example, during a cold). It also occurs when choking on a piece of food which enters the windpipe (trachea) instead of going down the food pipe (oesophagus). People may need to cough if they breathe in chemicals or smoke that irritates the airways.

Doctors divide cough symptoms as follows:

- Acute, meaning it lasts for less than three weeks.
- Subacute, meaning it lasts for three to eight weeks.
- Chronic, meaning it lasts for longer than eight weeks.

Acute cough usually improves after one week although often lasts for up to three. [The most common cause is a viral infection](#) which causes a runny nose and cough. Viral infections can affect anyone. Young children commonly have eight viral infections a year, especially in the winter months and these are usually associated with a high temperature (fever). With each episode lasting 7-21 days, it can feel as though they are unwell more often than they are well. It is important to remember that each episode increases the immunity of that child and usually no treatment is required.

Chronic cough is common. 1-2 adults in 10 are affected.

What causes a cough?

Common causes of acute cough (lasting less than three weeks)

- [Upper respiratory tract infections](#). These are the most common cause of acute coughs. They are caused by infection with a germ (virus). They usually start to improve within a week, without specific treatment. Symptoms may go on for up to three weeks.
- Lower respiratory tract infections. These are less common and cause lung infections such as [bronchitis](#) or [pneumonia](#). These conditions may be caused by infection with germs (viruses, bacteria or fungi).
- [Asthma](#). This causes wheeze, breathlessness and cough which tends to be worse at night, in cold air and during exercise. An infection with a virus can make symptoms of asthma much worse. This is called an exacerbation of asthma.
- Irritants - smoke or chemical fumes that you breathe in may irritate the airways.

Common causes of subacute cough (lasting three to eight weeks)

- Airways that are slow to settle down after an infection. In this case the germ has gone but the airways are still swollen and irritable, causing an ongoing cough. This is called airway hyper-responsiveness.
- [Whooping cough](#).
- Other infections which may cause a longer-lasting cough, such as [tuberculosis \(TB\)](#).

Common causes of chronic cough (lasting more than eight weeks)

- Postnasal drip. This is a condition where mucus in the nose drips down the back of the throat. It can be caused by anything which causes the nose to produce more mucus. This includes [allergies](#), [hay fever](#) and [nasal polyps](#) as well as viral infections.
- [Acid reflux](#). Acid in the stomach washes up the food pipe and spills into the airways.
- Asthma. Undiagnosed or under-treated asthma causes cough.
- Side-effects of medication. For example, [angiotensin-converting enzyme \(ACE\) inhibitor medicines](#), which are used to treat [high blood pressure](#), can cause cough.
- [Lung disease caused by smoking - chronic obstructive pulmonary disease \(COPD\)](#). The lung damage causes cough and breathlessness to get steadily worse. This mainly affects smokers.
- Irritants such as cigarette smoke including [being in contact with other people's smoke \(passive smoking\)](#).

Less common causes of cough

- A foreign body. Food can go down the windpipe instead of the food pipe. Other objects may also be inhaled by accident, such as beads, particularly in children.
- [Lung cancer](#). This is more likely in smokers.
- [Cystic fibrosis](#). This is an inherited condition that affects the lungs and causes chronic cough.
- [Pneumothorax](#). In this condition, air gets trapped outside the lung, inside the chest.
- [Bronchiectasis](#). This is a condition where airways of the lungs are excessively widened and produce extra mucus.
- [A blood clot in the lung \(pulmonary embolus\)](#).

How to stop a cough

Treatment will depend on the likely cause of the cough.

For acute coughs due to viral infections, nothing will stop or get rid of the cough which will settle with time. However some simple remedies can help reduce the symptoms:

- Inhaling steam, or honey and lemon to soothe the throat.
- Reducing a temperature or soothing aches and pains with [paracetamol](#) or [ibuprofen](#).
- [Stopping smoking](#).
- Using asthma inhalers if these have been prescribed for asthma

For coughs due to lower respiratory tract infections, if a bacterial cause is suspected, antibiotics might be prescribed.

Coughs should not usually be treated with antibiotics. The vast majority of coughs are caused by viruses - antibiotics have no effect on viruses and can cause vomiting, diarrhoea, anaphylaxis and many other side effects. The National Institute for Health and Care Excellence (NICE) guidelines advise that people with viral upper respiratory tract infections and people with bronchitis should not generally be given antibiotics. People who are at risk of bacterial infections (see below*) should be assessed to see if they need antibiotics. It is a myth that the colour of the phlegm can predict whether a cough has a bacterial or viral cause - almost all coughs producing phlegm are viral.

People with confirmed chronic obstructive pulmonary disease (COPD) which is usually a smoking-related illness are more prone to getting bacterial lung infections. They will usually be prescribed antibiotics to take when they have early signs of one of these infections.

For more chronic coughs, these remedies may help:

- Switching to another type of high blood pressure tablets if this is the cause of the cough.
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- Using a [steroid nasal spray](#) to help postnasal drip.
- [Losing weight](#), cutting out acid foods and alcohol.
- Taking [medicine to stop acid in the stomach](#) may all help acid reflux.

With a chronic cough, a referral to a lung (respiratory) specialist might be advised in order for further tests to be carried out. Most coughs will be managed by a GP without the need for this.

* At-risk groups include people with existing heart, lung, kidney, liver or nervous system disease; cystic fibrosis or conditions affecting the immune system; young children who were born prematurely; over-65s who have a combination of two or more of [diabetes](#), being in hospital in the previous year, [heart failure](#) or are taking steroids; or over-80s who have one of these factors.

What should I do if I develop a cough?

This will depend on how long the cough has lasted and how unwell you are feeling. If you feel well and the cough has not lasted long, you do not need to do anything but wait for it to settle. Simple remedies as described above may help while you wait for it to go on its own.

You should contact your GP if your cough lasts more than three weeks and is not improving. See your GP urgently if you feel very unwell, or if you develop red flag symptoms (see above). Use your reliever inhaler as instructed if you have asthma.

You should call an ambulance (999/112/911) if you experience unexpected and severe cough and difficulty in breathing that lasts for more than a few minutes. Otherwise, you should call your GP if concerned.

Potentially concerning causes of cough

Seek medical help urgently if:

- You are short of breath with your cough.
- You have chest pain with your cough (particularly if this is on one side and worse on breathing in).
- You are coughing up blood.
- Your cough has persisted for longer than three weeks and is not improving.

What investigations may be advised?

The doctor will want to know how long the cough has lasted and whether there are any other symptoms. The doctor will particularly ask about symptoms which may suggest an underlying serious condition ('red flags').

Red flag symptoms that may suggest serious underlying disease:

- [Coughing up blood.](#)
- [Weight loss.](#)
- [Night sweats.](#)
- [Breathlessness.](#)

A doctor will want to know:

- Did it start suddenly or develop over time? Did anything trigger it? How long has it lasted?
- When do you cough? Is it worse when you exercise?
- Are you breathless even when you're not coughing?
- Have you got any pain in your chest?
- Are you coughing up anything? What colour is it? Is there any blood?
- Do you feel ill? Do you have weight loss or sweats?
- Have you been in contact with anyone with TB or travelled abroad recently?
- Do you smoke?
- What is your occupation?
- Have you started any new medication recently?

These details will help the doctor to make a diagnosis. They will usually examine the throat, lungs and heart and may request some lung function tests, including a blowing test called a [peak flow reading](#). Another blowing test (sometimes available in a GP surgery but sometimes requiring a referral) is called [spirometry](#). A [chest X-ray](#) may be requested. Further tests of your lungs may be necessary depending on the results.

How long does a cough last?

This depends on the underlying cause. Most acute coughs will start to improve within a week and the cough will usually disappear within three weeks. People with smoking-related diseases tend to be affected by coughing and breathlessness. These smoking-related diseases tend to get worse as time goes on.

How can I avoid coughing?

You will need to find the underlying cause and try to address it if possible. Don't smoke, or [get help to stop smoking](#), because all common serious causes of chronic cough are more likely to affect smokers. Try to avoid dusty or smoky places. Use your asthma medication as advised.

Most over-the-counter cough medicines are not very effective. Sipping fluids, sucking lozenges or drinking warm drinks (eg, lemon with honey) can help a little but coughs are a vital reflex and cannot be stopped altogether. Products that contain [codeine](#) may help to stop coughing but often have unwanted side-effects like constipation and drowsiness.

Further reading & references

- [Cough \(acute\): antimicrobial prescribing](#); NICE Guidance (February 2019)
- [Recommendations for the assessment and management of cough in children](#); British Thoracic Society Cough Guideline Group - BMJ (2008)
- [Over-the-counter cough and cold medicines for children](#); Medicines and Healthcare products Regulatory Agency (MHRA), 2014
- [Gruffydd-Jones K](#); Managing Cough in Primary Care; Primary Care Respiratory Update
- [Cough](#); NICE CKS, May 2021 (UK access only)
- [Morice AH, Millqvist E, Bieksiene K, et al](#); ERS guidelines on the diagnosis and treatment of chronic cough in adults and children. Eur Respir J. 2020 Jan 2;55(1). pii: 13993003.01136-2019. doi: 10.1183/13993003.01136-2019. Print 2020 Jan.

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