

Asthma

Asthma is a common long-term condition that can cause a cough, wheezing, and breathlessness. The severity of the symptoms varies from person to person. Asthma can be controlled well in most people most of the time.

What is asthma?

Asthma is caused by inflammation of the airways. These are the small tubes, called bronchi, which carry air in and out of the lungs. If you have asthma, the bronchi will be inflamed and more sensitive than normal.

When you come into contact with something that irritates your lungs, known as a trigger (see below), your airways become narrow, the muscles around them tighten and there is an increase in the production of sticky mucus (phlegm). This leads to symptoms including:

- difficulty breathing
- wheezing and coughing
- a tight chest

Read more about the [symptoms of asthma](#).

The symptoms of asthma can range from mild to severe. When asthma symptoms get significantly worse, it is known as an asthma attack.

The symptoms of asthma include:

- feeling breathless (you may gasp for breath)
- a tight chest, like a band tightening around it
- wheezing, which makes a whistling sound when you breathe
- [coughing](#), particularly at night and early morning
- attacks triggered by exercise, exposure to allergens and other triggers

You may experience one or more of these symptoms. Symptoms that are worse during the night or with exercise can mean your asthma is getting worse or is poorly controlled. Talk to your doctor or asthma nurse about this.

Asthma attack

A severe asthma attack usually develops slowly, taking 6 to 48 hours to become serious. However, for some people, asthma symptoms can get worse quickly.

As well as symptoms getting worse, signs of an asthma attack include:

- you get more wheezy, tight-chested or breathless
- the reliever inhaler is not helping as much as usual
- there is a drop in your peak expiratory flow (see [diagnosing asthma](#) for more information)

If you notice these signs, do not ignore them. Contact your DOCTOR or asthma clinic or consult your asthma action plan, if you have one.

Signs of a severe asthma attack include:

- the reliever inhaler, which is usually blue, does not help symptoms at all
- the symptoms of wheezing, coughing and tight chest are severe and constant
- you are too breathless to speak
- your pulse is racing

- you feel agitated or restless
- your lips or fingernails look blue

A severe onset of symptoms is known as an asthma attack or an 'acute asthma exacerbation'. Asthma attacks may require hospital treatment and can sometimes be life-threatening, although this is rare.

For some people with chronic (long-lasting) asthma, long-term inflammation of the airways may lead to more permanent narrowing.

If you are diagnosed with asthma as a child, the symptoms may disappear during your teenage years. However, asthma can return in adulthood. Moderate to severe childhood symptoms are more likely to persist or return later in life. Although asthma does not only start in young people and can develop at any age. Read more about [childhood asthma](#) and [how asthma is diagnosed](#).

Diagnosing Asthma

If you have typical asthma symptoms, your DOCTOR is likely to be able to make a diagnosis. Your DOCTOR will want to know when your symptoms happen and how often, and if you have noticed anything that might trigger them.

A number of tests can be carried out to confirm the diagnosis.

Spirometry

A breathing test called spirometry is carried out to assess how well your lungs work. You will be asked to breathe into a machine called a spirometer.

The spirometer takes two measurements: the volume of air you can breathe out in one second (called the forced expiratory volume in one second or FEV1) and the total amount of air you breathe out (called the forced vital capacity or FVC).

You may be asked to breathe out a few times to get a consistent reading.

The readings are compared with average measurements for people your age, which can show if your airways are obstructed.

Sometimes an initial set of measurements is taken, then you are given a medicine to open up your airways (a reliever inhaler) to see if this improves your breathing. Another reading is then taken and, if it is much higher after taking the medicine, it can support the diagnosis.

Peak expiratory flow rate test

A small hand-held device known as a peak flow meter can be used to measure how fast you can blow air out of your lungs in one breath. This is your peak expiratory flow rate (PEFR), and the test is usually called a peak flow test.

You may be given a peak flow meter to take home and a diary to record measurements of your peak flow. Your diary may also have a space to record your symptoms. This will help you recognise when your asthma is getting worse.

Other tests

Some people, but not all, may need more tests. The tests may confirm the diagnosis of asthma or

help diagnose a different condition. This will help you and your doctor plan your treatment.

Airway responsiveness tests

This test is used to see how your airways react when they come into contact with a trigger. You will be asked to take a mannitol challenge test which involves breathing in increasing amounts of a dry powder. This deliberately triggers asthma symptoms and causes the airways to narrow. In children, exercise is sometimes used as a trigger.

You then blow into the spirometer to measure how much your FEV1 and FVC have changed in response to breathing in the trigger. If there is a significant decrease in these measurements, you may have asthma.

Testing airway inflammation

- Phlegm sample. The doctor may take a sample of phlegm to check whether you have inflammation in the lungs.
- Nitric oxide concentration. As you breathe out, the level of nitric oxide in your breath is measured. A high level of nitric oxide can be a sign of airway inflammation.

Allergy tests

Skin testing or a [blood test](#) can be helpful to confirm whether your asthma is associated with specific allergies, for example dust mites, pollen, or foods.

Occupational asthma

If you report that your symptoms are better on days you do not work or when you are on leave, you may have occupational asthma. Occupational asthma may also be diagnosed if you work in an industry where there is a high risk of getting the condition, such as:

- paint sprayers
- bakers and pastry makers
- nurses
- chemical workers
- animal handlers
- welders
- food processing workers
- timber workers

To help diagnose occupational asthma, your DOCTOR may ask you to take measurements of your peak expiratory flow both at work and when you are away from work.

Your DOCTOR may then refer you to a specialist in occupational medicine to confirm the diagnosis.

Tests can also be carried out to see if you are allergic or sensitive to certain substances known to cause occupational asthma.

What causes asthma?

The cause of asthma is not fully understood, although it is known to run in families. You are more likely to have asthma if one or both of your parents has the condition.

Common triggers

A trigger is anything that irritates the airways and brings on the symptoms of asthma. These differ from person to person and people with asthma may have several triggers.

Common triggers include house dust mites, animal fur, pollen, tobacco smoke, exercise, cold air and chest infections.

Read more about the [causes of asthma](#).

Asthma can also be made worse by certain activities, such as work. For example, some nurses develop asthma symptoms after exposure to latex. This is often referred to as work-related asthma or occupational asthma.

Treating asthma

While there is no cure for asthma, there are a number of treatments that can help effectively control the condition. Treatment is based on two important goals:

- relieving symptoms
- preventing future symptoms and attacks from developing

Treatment and prevention involves a combination of medicines, lifestyle advice, and identifying and then avoiding potential asthma triggers.

Who is affected?

In the UK, 5.4 million people are currently receiving treatment for asthma. That is 1 in every 12 adults and 1 in every 11 children. Asthma in adults is more common in women than men.

Asthma in Children

Asthma is a common long-term condition that can be effectively controlled in most children. The severity of asthma symptoms varies between children, from mild to severe.

In the UK, over 1.1 million children have asthma.

What is asthma?

Asthma affects the airways, the small tubes known as the bronchi, that carry air in and out of the lungs. If your child has asthma, the airways of their lungs are more sensitive than normal.

When your child comes into contact with something that irritates their lungs, known as a trigger (see below), their airways narrow, the lining becomes inflamed, the muscles around them tighten, and there is an increase in the production of sticky mucus or phlegm.

This makes it difficult to breathe and causes symptoms such as:

- wheezing
- coughing
- shortness of breath
- tightness in the chest

Asthma attack

A sudden, severe onset of symptoms is known as an asthma attack, or an acute asthma exacerbation. Asthma attacks can sometimes be managed at home but may require hospital treatment. They are

occasionally life threatening.

Read more about the [symptoms of asthma in children](#).

Causes of asthma

The exact cause of asthma is not yet fully understood. Asthma often runs in families and a child is more likely to have asthma if one or both parents have the condition.

There are also a range of asthma triggers, although everyone's asthma is different and people may have several triggers.

An upper respiratory tract infection, such as a cold or flu is the most common trigger of an asthma attack. Other common triggers include:

- exercise, especially in cold weather
- an allergy to and contact with house dust mites, animal fur, grass and tree pollen
- exposure to air pollution, especially tobacco smoke

Read more about the [causes of asthma in children](#).

Asthma is more common in young boys than young girls. However, this changes as children get older and, after [puberty](#), asthma is more common in girls.

During teenage years, the symptoms of asthma may disappear. However, asthma can return in adulthood.

Causes of asthma

There is no single cause of asthma, but certain things may increase the likelihood of developing it. These include genetics and the environment.

Who is at risk of developing asthma?

Things known to increase the likelihood of developing asthma include:

- a family history of asthma or other related allergic conditions (known as atopic conditions), such as eczema, food allergy or hay fever
- developing another atopic condition, such as a food allergy
- having [bronchiolitis](#) as a child (a common lung infection among children)
- being exposed to tobacco smoke as a child, particularly if your mother smoked during pregnancy
- being born prematurely (especially if you needed a ventilator)
- a low birth weight (less than 2kg or 4.5lb)

Asthma triggers

The symptoms of asthma can have a range of triggers, but they do not affect everyone in the same way. Once you know your asthma triggers, you can try to avoid them.

Triggers include:

- **Airway and chest infections** – Upper respiratory infections, which affect the upper airways, are often caused by cold and [flu](#) viruses and are a common trigger of asthma.
- **Allergens** – Pollen, dust mites, animal fur or feathers, for example, can trigger asthma.
- **Airborne irritants** – Cigarette smoke, chemical fumes and atmospheric pollution may trigger asthma.

- **Medicines** – The class of painkillers called [non-steroidal anti-inflammatory drugs \(NSAIDs\)](#), including [aspirin](#) and [ibuprofen](#), can trigger asthma for some people, although are fine for most. Children under 16 years of age should not be given aspirin.
- **Emotional factors** – Asthma can be triggered by emotional factors, such as stress or laughing.
- **Foods containing sulphites** – Sulphites are naturally occurring substances found in some food and drink. They are also sometimes used as a food preservative. Food and drinks high in sulphites include concentrated fruit juice, jam, prawns and many processed or pre-cooked meals. Most people with asthma do not have this trigger, but some may. Certain wines can also trigger asthma in susceptible people.
- **Weather conditions** – A sudden change in temperature, cold air, windy days, poor air quality and hot, humid days are all known triggers for asthma.
- **Indoor conditions** – Mould or damp, house dust mites and chemicals in carpets and flooring materials may trigger asthma.
- **Exercise** – Sometimes, people with asthma find their symptoms are worse when they exercise.
- **Food allergies** – Although uncommon, some people may have allergies to nuts or other food items, known as an anaphylactic reaction. If so, these can trigger severe asthma attacks.

What happens during an asthma attack?

During an asthma attack:

- the bands of muscles around the airways tighten
- there is increased inflammation in the linings of the airways, which swell
- the airways produce sticky mucus or phlegm, which can cause them to narrow further

The passages of the airways narrow, making it more difficult for the air to pass through and therefore more difficult to breathe. This can cause the characteristic wheezy noise, although not everyone with asthma will wheeze. In a life-threatening attack, there may not be a wheezy sound.

An asthma attack can happen at any time. However there are usually warning signs for a couple of days before. These include symptoms getting worse, especially during the night, and needing to use the reliever inhaler more and more.

If you or someone else is having a severe asthma attack and cannot breathe, dial 999 immediately for emergency medical treatment.

It can be difficult to diagnose asthma in children as many other conditions can cause similar symptoms.

Treating asthma in children

While there is no cure for asthma, there are effective treatments that can help control the condition. Treatment is based on two important goals:

- relieving symptoms
- preventing future symptoms and attacks from developing

Treatment involves a combination of medicines, a personal asthma action plan and avoiding potential asthma triggers.

Read more about [how asthma in children is treated](#).

It is important for your child to continue using their prescribed medication, with regular reviews.

This will help to keep asthma symptoms under control as your child gets older.

There are also several lifestyle changes that may help you and your child to manage their asthma. With support from schools, there is no reason why a child with asthma cannot take a full part in education and exercise.