Pulmonary embolism

Find out more about pulmonary embolism, the causes and symptoms to look out for, and how to reduce your chances of having one.

What is a pulmonary embolism?
A pulmonary embolism happens when a blood vessel in your lungs becomes blocked. Most of the time, this blockage is caused by a blood clot.
It’s a serious condition because it can prevent blood from reaching your lungs. Fast medical treatment can be lifesaving.

What are the symptoms?
The symptoms of a pulmonary embolism can sometimes be difficult to recognise because they can vary between different people. The main symptoms are chest pain, feeling short of breath, coughing and feeling faint or even passing out.

If you or someone you care for has a combination of these symptoms:
• chest pain
• shortness of breath
• coughing, including coughing up blood
• feeling dizzy or faint

Don’t delay: call 999 for an ambulance.
A blood clot in your leg can break off and travel to your lungs, so other warning signs could include a painful, red or swollen leg. Ask your doctor or go to A&E in these circumstances.

What causes a pulmonary embolism?
Most of the time, a pulmonary embolism is caused by a blood clot travelling up from one of the deep veins in your legs. This kind of clot is called a deep vein thrombosis (DVT).
Often, we don’t know the cause of a pulmonary embolism. It can happen for no obvious reason.
Times to take extra care

When you’ve been inactive for a long time, your chance of getting a pulmonary embolism increases.

When you’re inactive, blood tends to collect in the lower parts of your body, particularly in your lower legs. This isn’t usually a problem because when you start to move, your blood flow increases and blood begins to move more evenly round your body. If you’re immobile for a long time, the flow of blood around your body can slow a lot. This can be:

- after an operation or a serious limb injury
- after long periods of bed rest
- during a long-haul flight or a long train or car journey

Around half of all people who develop a pulmonary embolism do so while they’re in hospital.

Less commonly, you might have a condition that causes your blood to clot more easily than normal, such as cancer and cancer treatments such as chemotherapy and radiotherapy.

Other factors that increase your risk of developing a pulmonary embolism include:

- being overweight
- pregnancy – your risk is increased for up to six weeks after giving birth
- smoking
- taking some forms of hormone-based contraception or hormone replacement therapy (HRT). Your chances of developing a blood clot are very small if you’re taking the contraceptive pill or HRT, and your health care professional will consider your individual risk before prescribing them.

How is a pulmonary embolism diagnosed?

It can be hard for doctors to decide if you have a pulmonary embolism because the symptoms are similar to many other conditions. It’s important to diagnose it accurately because treating a pulmonary embolism isn’t always easy and treatments can cause side effects.

If your doctor suspects a pulmonary embolism, you’ll have a number of tests, such as a chest X-ray or an ultrasound scan to see if you have a blood clot in your leg, and tests to check how well your lungs are working.

You may also have more specialised tests such as:

- a blood test to look for a protein called D-dimer. High levels of D-dimer in your blood suggest that pieces of blood clot are loose in your bloodstream.
- a computerised tomography pulmonary angiography (CTPA) to see the blood vessels in your lungs. You are injected with a dye that helps to show your blood vessels and a scanner uses X-rays to build a detailed picture of the blood flow in your lungs.
- a ventilation-perfusion scan, also called a V/Q scan, to examine the flow of air and blood in your lungs. You will be asked to inhale a slightly radioactive gas and given an injection of slightly radioactive material. If the scan shows parts of your lungs have air in them but no blood supply, this may be the result of a pulmonary embolism.
How is a pulmonary embolism treated?

If you need treatment for a pulmonary embolism, you’ll almost always receive this in hospital. The main treatment is an anticoagulant, a drug that causes chemical changes in your blood to stop it clotting easily. The anticoagulant will stop the clot getting larger while your body slowly absorbs it. It also reduces the risk of further clots developing.

The main drugs used to treat pulmonary embolism are heparin, given by injection, and warfarin, taken as a tablet. Most people diagnosed with pulmonary embolism will need injections of heparin for at least five days. You’ll then usually continue to take warfarin only.

Other anticoagulants prescribed include:

- dabigatran
- rivaroxaban
- apixaban

If you’ve been prescribed an anticoagulant, you will usually be recommended to take it for at least three months to prevent blood clots. Some people need to take them for a longer time.

Like any medication, anticoagulants may have side effects, and effects will vary from person to person. One of the most important problems is bleeding more easily and excessively. Because of this, you will need regular blood tests to make sure you’re on the best dose.

Anticoagulants interact with many other drugs, including herbal remedies, and their effectiveness can be affected by alcohol and certain foods. Your doctor, nurse and pharmacist can help you to manage your medication.

In more severe cases of pulmonary embolism, other treatments may be needed to remove or break up a clot. This might be done with a medication called thrombolytics, or less commonly, surgery.

Prevention

There are a number of ways you can help to prevent a pulmonary embolism:

- take anticoagulant medication as prescribed by your health care professional.
- wear compression stockings if recommended by your health care professional. These fit tightly round your lower legs and encourage your blood to flow more quickly around your body.
- keep active:
  - after surgery, move around or do leg exercises as soon as you can.
  - on long-haul flights and other long journeys, do leg stretching exercises. Stand up and walk around when you can. Do some deep breathing. It also helps if you stay well hydrated, and have plenty of non-alcoholic drinks. Wear compression stockings.
  - if you’re at risk of developing blood clots, consult your health care professional before travelling long distances.
We can all reduce our risk of having a pulmonary embolism by making changes to our lifestyle, such as:

- not smoking
- getting regular exercise – at least 150 minutes a week
- eating a healthy balanced diet, with plenty of fruit and vegetables
- keeping a healthy weight

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