



British Heart
Foundation

Air pollution

What is air pollution?

Air pollution is the name given to describe a number of microscopic particles and gases in the air that we breathe. Air pollution can be invisible because the particles are so small.

Some pollutants can be harmful. These include:

- **Particulate matter**, which is a collection of soot and dust.
- **Gases**, such as nitrogen dioxide, ozone, sulphur dioxide and carbon monoxide.

It is estimated that in the UK air pollution contributes to the premature death of 29,000 people a year.

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FOR EVERY
HEARTBEAT**

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What causes it?

Traffic exhaust fumes from vehicle engines are a major source of air pollution in the UK. Air pollution is also caused by emissions from burning fuel for domestic and industrial purposes.

Levels of air pollution can vary daily depending on the weather and season.

Air pollution and your heart

The WHO state that worldwide, the majority of air pollution related deaths are due to cardiovascular disease.

Research shows that exposure to elevated levels of air pollution can cause, or make existing heart conditions worse. Both short and long term exposure to high amounts of air pollution have been linked to an increased risk of heart attack and stroke. For some people with heart failure, short term exposure to high amounts of air pollution could worsen their condition and lead to an increased risk of admission to hospital and even death. Other studies show links between a worsening of symptoms for those with angina and atrial fibrillation.

How does it affect your heart?

Research suggests that there are several potential ways that air pollution can contribute to cardiovascular disease. It is not fully understood but it is thought that inhaling harmful pollutants could have the following effects:

- Inflammation, which may cause the arteries to narrow, increasing the risk of coronary heart disease, angina, heart attack and stroke.
- Make the blood more likely to clot (which could cause a heart attack in someone who already has coronary heart disease).
- Alter the function of the nervous system, which may cause abnormal heart rhythms, some of which could be harmful.
- Increase blood pressure which can cause the arteries to narrow and put extra strain on the heart.

Further research is needed to better understand how air pollution affects the heart and the blood vessels. The British Heart Foundation is currently funding scientists in this area.

Heart Helpline

Our cardiac nurses and information support officers are here to answer your questions and give you all the heart health information and support you need.

Call us on 0300 330 3311

Similar cost to 01 or 02 numbers.
Lines are open 9am - 5pm Monday to Friday.

This information does not replace the advice that your doctor or nurse may give you. If you are worried about your heart health in any way, contact your GP or local healthcare provider.

Who is most at risk?

People with cardiovascular disease or chronic lung disease are at greater risk. If you have a heart or lung condition you may want to avoid spending long periods of time in places where there is high levels of air pollution, for example near areas of busy traffic or near where pollution generated by industry adds to that produced by traffic.

Current evidence shows that healthy individuals with no history of cardiovascular disease have a low risk of having a heart attack or stroke following exposure to high levels of pollution.

Is it safe to exercise outside?

Aerobic physical activity is very good for the heart and for most people the benefits of exercising outdoors outweigh the risks associated with air pollution.

However, if you have a heart problem or chronic lung disease you should avoid going outside for long periods or undertaking strenuous exercise when air pollution is 'very high'. If air pollution is 'high' you should reduce strenuous activity, particularly outdoors and particularly if you have symptoms. It's still important to be physically active throughout the day so when the air quality is poor, make sure you're active indoors.

What can I do to protect my heart?

If you have cardiovascular disease it's important to regularly monitor the air pollution level where you live and work. This information is easy to find on the Government's UK-AIR website: uk-air.defra.gov.uk. This website provides a daily pollution forecast and classes levels as 'low,' 'moderate,' 'high' or 'very high' as well as a postcode finder service to monitor air pollution levels in your own area. You can also sign up to text alerts, follow the @DefraUKAir Twitter feed or call the helpline 0800 55 66 77. The BBC weather forecast also provides an air quality rating on its online forecast service.

Try to reduce your own contribution to air pollution; walking or cycling short distances instead of taking the car will not only reduce your emissions but will help you keep active. Or consider sharing a lift with a friend.

If you own a diesel car, do not remove the diesel particulate filter (DPF) on your exhaust and ensure that it is maintained and emptied regularly.

There is little evidence to recommend the use of facemasks. It is thought that many of the particles are too small to be filtered out by a mask. Research carried out in Beijing suggested that wearing a highly efficient mask may help to reduce the harmful effects of air pollution in people with coronary heart disease, but at the moment there is not enough evidence to recommend their use in the UK. Some people with lung conditions may find a mask helpful. However wearing one can be uncomfortable and can make breathing difficult for some.