



Indoor air pollution

Indoor air pollution, such as dust, dirt, or gases in the air, can affect your lung condition.

In this information we explain what indoor air pollution is, what can cause it, as well as how to improve the air you breathe at home and at work.

What is indoor air pollution?

You probably know it can be harmful to breathe in polluted air when you're outside. The same is true for when you're indoors. We spend about 90% of our time indoors – at home, work, school, or when we go to shops or restaurants.

Indoor air pollution is dust, dirt, or gases in the air inside buildings such as your home or workplace that could be harmful to breathe in. Poor indoor air quality has been linked to lung diseases like **asthma**, **COPD** and **lung cancer**. It has also been linked to increased risk of heart disease and stroke.

Types of air pollution include:

- **particulate matter (pm)** – tiny particles of dust and dirt in the air, such as soot and dust mites
- **gases** – for example carbon monoxide, nitrogen oxide, and sulphur dioxide

Indoor air pollution can be caused by anything from gas stoves and wood burners, to damp and mould.

Who can be affected by poor indoor air quality?

Anyone can be affected by indoor air pollution. If you live with a lung condition, such as COPD, asthma, or bronchiectasis, you're more likely to be affected by poor air quality as your lungs are more sensitive – although not everyone has the same reactions to the dust, dirt and gases in our homes.

If you have a severe lung condition you might find it harder to move around, so may spend more time indoors. This means you may have more contact with things that affect the air you breathe indoors. These could include cigarette smoke, cleaning products or mould.

Children are particularly vulnerable to poor indoor air quality as their lungs are still developing. Children's airways are smaller, so inflammation caused by indoor and outdoor air pollution can cause them to narrow more easily than in older people.

Causes and effects of indoor air pollution

Indoor air pollution can be caused by many things. On this page we explore the most common causes of indoor air pollution, the effects on our lungs and how to avoid them.

How does heating and cooking affect indoor air quality?

Cookers, heaters, stoves and open fires can release pollutants into your home. High levels of exposure to these pollutants can lead to lung and heart disease.

Burning wood and coal

Burning wood and coal in a stove or on an open fire released particulate matter (PM). This can irritate your nose and throat, giving you a cough or breathing problems.

Burning wood and coal also adds to outdoor air pollution. Pollutants from burning wood on stoves and open fires creates a higher percentage of emissions than road traffic emissions. Where possible, you should avoid using wood burners, especially if you have a lung condition.

If you have asthma, your symptoms might get worse. If you have COPD, it makes you more likely to have a flare-up. In the long term, your risk of getting lung cancer is also increased from burning coal or wood.

Heating and cooking with gas releases tiny particles of nitrogen dioxide (NO₂) and carbon monoxide (CO) into the air you breathe. However, gas is much cleaner to burn than coal and wood. Coal burning produces 125 times more sulphur dioxide than gas, on average. If you use a gas cooker, the most important thing is to keep the room ventilated when cooking by using an extraction fan and opening windows.

Electric is seen as the cleanest form of heating and cooking, as it releases less particles than gas, and much less than burning wood and coal. You may want to consider switching to electric cooking if possible - especially if you have a flare-up of your symptoms from breathing in gas, wood or coal particles.

Gas safety

Remember to have all your gas appliances such as boilers, cookers and fires checked annually. The Royal Society for the Prevention of Accidents (RoSPA) has more information about gas safety at www.rosipa.com/home-safety/advice/gas-safety

Carbon monoxide

The most dangerous pollutant is carbon monoxide, which can kill you within a few hours. Carbon monoxide is a poisonous gas with no smell or taste. It's created when fuels like gas, oil, coal or wood don't burn fully. It's important to make sure cooking and heating appliances are serviced regularly, and that vents and chimneys are not blocked. An appliance that isn't working properly may release more soot. It's recommended you have a carbon monoxide alarm in every room where fuel is burned. Take a look at this useful page from Which? On how to choose a carbon monoxide alarm at www.which.co.uk/reviews/carbon-monoxide-detectors/article/how-to-choose-a-carbon-monoxide-detector

If you have mild carbon monoxide poisoning, the first symptom you might notice is a headache. You might also notice flu-like symptoms, but without the temperature.

If several people in one building develop flu-like symptoms without a temperature, then it could be due to a carbon monoxide leak – so act immediately. Switch off all gas appliances and ventilate the property. Call the gas emergency number **0800 111 999** or the Health and Safety Executive Gas Safety Advice Line on **0800 300 363**.

How can damp and mould affect me?

In Britain, a lot of houses are old, and the weather can be wet and cold. So, it's important to stop our homes getting damp and mould growing.

Damp leads to condensation, which encourages mould and other fungi to grow. Lots of things can cause this, from cooking, to washing and drying clothes. Condensation is more likely to happen in cold places in your household, like windows or rooms with external walls.

If your home's damp, you might have an irritated nose and throat, or feel short of breath. If you have a lung condition, your symptoms may get worse. It's common to have an allergy to mould.

One fungus often found indoors is called aspergillus. It grows on dust and powdery food items like flour. It can cause a wide range of conditions, from mild irritation of your airways to more serious infections if you have a lung condition.

If you have bad damp, mould or fungi, get professional help to deal with it – especially if you think it might trigger your breathing problems. If you are renting, you should tell your landlord about the problem and they should arrange to fix the underlying cause. **Shelter** and **citizens advice** both have advice on dealing with damp and mould in a rented home. You could also ask your GP for a letter to support further action.

How can smoke and vapour affect me?

If you have a lung condition, you may find that breathing in tobacco, cannabis, and e-cigarette smoke causes your symptoms to flare up. You might also have the same symptoms when burning candles and incense.

What are the effects of cigarette smoke?

Smoking is the main cause of preventable illness and death. Second-hand tobacco smoke is also bad for our health. The good news is that laws have banned smoking in enclosed public spaces, including public transport, workplaces, and in cars with children.

If anyone smokes in your home, tiny particles from tobacco smoke can drift all through your house. These particles can remain at harmful levels for up to five hours. Breathing in this smoke may cause your nose or throat to get irritated, and you might cough or have trouble breathing.

If you have a long-term lung condition smoking will make your symptoms worse. In the long term, your risk of getting lung cancer is also increased.

Children are particularly at risk. Breathing in tobacco smoke affects how their lungs work and makes them more likely to develop a long-term lung condition when they grow up.

Using e-cigarettes is less harmful than tobacco smoking, but these devices are not completely harmless. If you decide to use an e-cigarette at home, it should be kept out of reach of children. If you are a parent or carer you should consider the drawbacks of permitting vaping in the home.

Some people are affected by second-hand smoke from cannabis cigarettes. If you have a long-term lung condition such as asthma, breathing this in can make your symptoms worse.

What are the effects of burning candles and incense?

Candles and incense sticks emit particles and other pollutants when they burn. Incense sticks emit more than 100 times the amount of fine particles as candles. There is also evidence linking incense burning to lung disease, so try and avoid using these regularly.

Candles are much less of a health risk - but some fragranced candles may contain VOCs. Try using an extractor or opening windows while burning candles if possible.

Light candles in well ventilated, large spaces instead of smaller spaces like bathrooms.

How can chemicals in cleaning and decorating products affect me?

The products we use to clean and decorate our homes can sometimes contain chemicals called volatile organic compounds (VOCs). It's a good idea to avoid breathing in VOCs, as well as products that contain bleach or ammonia.

Products containing VOCs, particularly those in a spray, can cause irritation to your lungs and may increase your risks of developing an allergy or asthma. If you live with a lung condition, your airways are likely to be irritated. VOCs are not always clearly labelled on cleaning products, so it's best to look for chemical free or allergy friendly products. VOCs can be found in products such as:

- washing detergents
- furniture polish
- air fresheners
- deodorants and perfumes
- carpet cleaners
- pesticides and fungicides
- paints and paint strippers
- varnishes and glues.

Some decorating products have a 'globe' symbol on the packaging to tell you what level of VOC is in the product.

You may find other types of VOC, such as formaldehyde, in carpets, furniture, shelving and flooring. Some people say the smell of a new sofa or soft furnishing sets off their allergies or makes their asthma worse. Products containing formaldehyde should be clearly labelled according to Health and Safety Executive (HSE).

What building materials cause indoor air pollution?

If you have a lung condition, you may find certain building materials trigger your condition. Building materials such as asbestos pose a risk to your lung health.

The Alliance for Sustainable Building Products has suggestions for safe, environmentally-friendly building products at www.asbp.org.uk/

Asbestos

Asbestos poses many risks to lung health. It has been banned in the UK since 1999, but older properties may still have asbestos-containing materials.

Before its dangers were known, asbestos was often used in buildings for insulation, flooring and roofing, and sprayed on ceilings and walls. Breathing in asbestos fibres can lead to lung diseases such as asbestosis and mesothelioma.

If you find asbestos in your home, make sure it remains undisturbed. If it's damaged or deteriorating, get it removed by accredited professionals. We have more detailed information on what to do if you think you've been exposed to asbestos at blf.org.uk/support-for-you/asbestos-related-conditions/ive-been-exposed

Fibreglass

Fibreglass is a type of building insulation. Like asbestos, if disturbed it becomes part of the dust in the air and can be easily breathed in. Fibreglass is safer than asbestos, but it still comes with risks if you breathe it in. It can irritate the airways, and if you live with a lung condition and breathe it in, you may see your symptoms get worse.

If you have fibreglass in your home, don't disturb it. If you come into contact with it, wear a mask and protective clothing.

VOCs

Volatile organic compounds (VOCs) in building materials may include roofing and flooring materials, insulation, cement, coating materials, heating equipment, soundproofing, plastics, glue and plywood.

Radon

Radon is a natural radioactive gas that comes from rocks and soil in granite areas. It's colourless and odourless. Certain areas of the UK have higher levels of radon. The radon level in the air we breathe outside is very low, but it can be higher inside poorly ventilated buildings.

High levels of exposure for long periods of time may put you at risk of developing lung cancer.

If your home is built on ground with a higher level of radon, you can take measures to reduce it. You can find out if your home is in a radon-affected area at UKradon at www.ukradon.org

Indoor radon often varies from building to building. If your home is affected, UKradon has a tool to help you decide if you need to reduce the level and how at www.ukradon.org/information/reducelevels

Allergy triggers in your home

Having an allergic reaction to things in your home may affect you more if you live with a long-term lung condition. On this page we cover the type of allergies you might get and what you can do to help yourself.

You may find you develop allergies to things in your home such as dust mites, pets and mould spores. If you think you have an allergy, tell your GP. They will be able to advise you if you need treatment or they may refer you to a specialist allergy clinic to be tested.

If you've developed an allergy to something in your home, you'll usually get itchy and runny eyes, a runny nose and inflamed, swollen sinuses. Breathing through your nose can be difficult too, and you might have a cough. If you have asthma, your symptoms might get worse.

Dust mites

Everyone has dust mites in their home. They are microscopic insects that live off human skin and form part of the dust in our homes. They thrive in damp places, and are found in bedding, soft furnishings and carpets.

An allergy to dust mites is very common and normally affects people with asthma or allergic rhinitis. If you are allergic, you might notice symptoms such as a runny nose, sneezing, or a blocked nose. It's impossible to get rid of all dust mites, but there are things you can do to keep your house as clean as possible to remove some of them.

If you have been confirmed to have a dust mite allergy, the following may help to improve your symptoms:

- **Use synthetic pillows** and acrylic duvets
- **Wash all bedding** at least once a week
- **Use an allergy cover** on your mattress and bedding
- **Choose wood or laminate flooring** instead of carpet if possible
- **Fit blinds that can be easily wiped** down instead of curtains

Our sister charity Asthma UK has more advice on dealing with dust mites for people with asthma at asthma.org.uk/advice/triggers/dust-mites/

Pet allergies

A pet allergy is when a person has a reaction to a pet's skin cells, saliva or urine. Sometimes people are allergic to dander - the dead flakes of skin that pets shed.

Dander is very small and can stay in the air for a long time. It collects on fabric furniture and sticks to your clothes. Research has found it takes several months for cat allergens to disappear from a home after a cat has left.

Any animal with fur can cause pet allergies. It's most common to develop an allergy to cats, dogs and rodents such as mice, rats and ferrets.

Birds can also trigger allergic reactions and asthma symptoms because of their feathers. A powder called feather dander is released when birds clean their feathers, play or wash.

If you're breathing in dust caused by birds, you can develop an immune response called hypersensitivity pneumonitis. This causes inflammation of the lung tissue.

If you have been confirmed to have a pet allergy, the following may help to improve your symptoms:

- **Limit where your pet can go in the house**, or not allow it in the house altogether
- **Wash your pet** and any surfaces they touch regularly
- **Use an air purifier** to reduce airborne pet allergens - high-efficiency particulate air (HEPA) filters are recommended.
- **Consider replacing carpets** with wood flooring or vinyl.

Another option is to rehome your pet if your reactions are becoming difficult to manage.

How can I improve my indoor air quality?

Here's a list of ways to improve your indoor air quality at home.

Tip

You can check the quality of the air with indoor air sensors. They can measure humidity, particulate matter (PM), air temperature, VOCs, carbon dioxide and, other gases in the air. Based on the results, you can make choices on what to change in your home, for example changing how you heat your home.

While it's not possible to eliminate every risk, you may want to try the following handy tips:

Keep rooms well-aired

Open your windows for 5-10 minutes several times a day, especially if you're cooking or using the shower. Keeping your space well-ventilated is especially important if you're having building work done too. Keeping your windows open also reduces risks from viruses, such as the coronavirus.

Try to avoid opening your windows at peak times of traffic. You can also check your local outdoor air pollution levels at uk-air.defra.gov.uk

Use allergy friendly or chemical-free products

These will have lower levels of VOCs and are usually fragrance-free.

Use solid or liquid cleaning products

Unlike sprays, these won't get into the air for you to breathe in.

Prevent condensation

Dry washing outside or in a tumble drier. If you can't do that, try a well-ventilated room or airing cupboard. You could also consider using an extraction fan in the kitchen and bathroom. This will prevent damp and mould.

Keep your home warm

By keeping your home between 19°C and 21°C in colder months, you can prevent condensation.

Fix any leaks or water damage

This reduces high humidity and prevents mould.

Keep your home smoke-free

Don't smoke indoors and don't allow others to smoke in your home. If you smoke, the best thing to do to improve your health is to quit. If smoke from your neighbours is affecting you, try asking them to smoke somewhere else. If you explain your situation, they may be understanding.

Use electric or gas heating

Cook and heat your home with electric and gas instead of burning wood and coal. Remember to use an extraction fan or open windows when cooking.

Vacuum regularly

Vacuum your home if you're allergic to anything. You may even want to consider replacing carpets with wood or laminate flooring. You can also wipe dust using a damp cloth to avoid dust going into the air.

Indoor air pollution at work

You might also experience indoor air pollution in your workplace. Certain jobs might expose you to higher amounts of air pollutants than you'd experience at home.

Common workplace air pollution

At work you could be exposed to substances that can make your airways more sensitive, called asthmagens. Asthmagens are substances that can lead to the development of asthma. They include certain vehicle spray paints, dust from flour, wood dust, metal working fluids and cleaning agents. If you already have asthma, asthmagens can make your symptoms worse.

Other risks of air pollution in the workplace include asbestos fibres, welding fumes and silica dust. Silica dust can be dangerous and is found in products such as brick and concrete. Welding is a common industrial process that releases fine particulate matter and toxic gases.

If you work as a cleaner, you could be exposed to VOCs.

Air pollution in an office

You may also experience indoor air pollution in office environments. Some people can be affected by perfumes or sprays that colleagues are wearing – it's a good idea to let your colleagues know what can trigger your lung condition symptoms.

Air conditioning can have both positive and negative effects on people with lung conditions. For example, some people with asthma have found that air conditioning helped to filter out airborne allergens – such as pollen and animal dander. However, other people with lung conditions such as bronchiectasis find that the cold air triggers their symptoms, causing them to cough or become breathless.

If air conditioning is an issue for you, speak to your employer about sitting away from it or switching it off. If your office has an air conditioning unit, it's important that your employers have this serviced at least once a year.

Your rights as an employee

You have the right to work in a place where the risks to your health and safety are properly controlled by your employer.

Workplace regulations are there to protect you from potentially harmful pollutants. The company that you work for should do a risk assessment to identify what could harm you and if necessary, how they must control these risks.

If you are worried about the health and safety at your place of work, talk to your employer, supervisor or health and safety representative. If they can't address your concerns, you can report the problem to the Health and Safety Executive (HSE) at www.hse.gov.uk/contact/concerns.htm

Tip

Find out more about air pollution in your workplace on the HSE's website (www.hse.gov.uk) or at Breathe Freely (www.breathefreely.org.uk)

Get in touch with us to find support near you.

Helpline: **03000 030 555**

Monday to Friday, 9am-5pm

Ringing our helpline will cost the same as a local call.

helpline@blf.org.uk

blf.org.uk

Code: FL29 **Version:** 5

blf.org.uk/indoor-air-pollution

Last medically reviewed: August 2021

Due for medical review: August 2024

We value feedback on our information. To let us know your views, and for the most up to date version of this information and references, call the helpline or visit **blf.org.uk**