CONDITION

Occupational asthma

Occupational asthma is asthma caused by breathing in a substance or irritant at work.

WHAT IT IS
Asthma caused by workplace exposure

BODY SYSTEM
Lungs and airways

MAIN SYMPTOMS
Wheezing, cough, chest tightness, shortness of breath

WHAT CAUSES IT
Inhaled workplace sensitizers or irritants

HOW IT IS DIAGNOSED
Spirometry and serial peak-flow tests at work and away

MAIN TREATMENT
Exposure avoidance and standard asthma medicines

CAN IT BE CURED?
Sometimes - early exposure removal may end symptoms

IS IT AN EMERGENCY?
Sometimes - severe breathlessness or reliever not helping

LONG-TERM OUTLOOK
Earlier exposure removal improves the chance of recovery

Overview

Occupational asthma is asthma caused by something you breathe in at work. Asthma makes the airways in your lungs inflamed and unusually sensitive. The muscles around the airways can tighten, making it harder to breathe.

Many substances can cause occupational asthma. Examples include flour dust, wood dust, laboratory animal proteins, cleaning chemicals, paint ingredients and metal compounds. Some people develop symptoms after repeated exposure over weeks or years. Others develop asthma after a single, unusually heavy exposure to an irritating gas, smoke or chemical.

Occupational asthma is different from asthma that happens to get worse at work. If you already had asthma and workplace dust, fumes, cold air or physical activity aggravate it, this is called work-exacerbated asthma. The two conditions may feel similar, but identifying which one you have can affect workplace decisions.

Early assessment matters. Continued exposure to the substance causing asthma can make symptoms harder to control and reduce the chance that they will settle after exposure stops.

Symptoms

Symptoms are the same as those of other forms of asthma. They may include:

You may also have a blocked or runny nose, sneezing, itchy eyes or skin symptoms. Nose and eye symptoms sometimes begin before breathing problems.

A work-related pattern is an important clue. Symptoms may start during a shift, several hours after work or during the night. They may improve on weekends or holidays and return after you go back. This pattern is not always clear, especially if exposure continues outside normal working hours or asthma has become persistent.

Symptoms can also continue during time away from work. Improvement on holiday supports a work-related cause, but a lack of improvement does not rule it out.

- Wheezing or a whistling sound when breathing
- Cough, sometimes worse at night
- Chest tightness
- Shortness of breath

Causes and risk factors

One type of occupational asthma develops when your immune system becomes sensitive to a workplace substance. This is called sensitizer-induced occupational asthma. There is usually a symptom-free period before the condition develops, which can last from weeks to years.

Sensitizers include:

Another type follows exposure to substances that directly irritate the airways. Repeated exposure to cleaning sprays, fumes or other irritants can contribute. Asthma may also begin after a single high-level exposure, such as a chemical spill or fire. This is sometimes called acute irritant-induced asthma.

Jobs with exposure to airborne dusts, fumes, vapours, gases or biological materials carry greater risk. Examples include baking, spray painting, woodworking, healthcare, cleaning, hairdressing, farming, welding and laboratory work. Risk depends on the particular task and exposure, not just the job title.

Having allergies or a personal or family history of asthma may increase susceptibility to some sensitizers. However, occupational asthma can develop without these factors. Smoking is not the main cause, but tobacco smoke can worsen symptoms and may make asthma harder to control.

- Flour, grain and baking enzymes
- Wood dust
- Proteins from laboratory animals, fish or shellfish
- Latex and some other natural proteins
- Isocyanates used in spray paints, foams and adhesives
- Persulfates used in hair-bleaching products
- Certain metals, including platinum salts

Diagnosis

Diagnosis involves confirming that you have asthma and showing that it is linked to work. This can take time because a single test may be normal between episodes.

Tell a healthcare professional what materials you use, when symptoms occur and whether they improve away from work. Product names, safety data sheets, recent spills and changes in workplace processes can all be helpful. Occupational health records may provide further information.

Spirometry measures how much air you can breathe out and how quickly you can do it. The test may be repeated after you inhale a medicine that opens the airways. A clear improvement supports an asthma diagnosis, although normal spirometry does not rule asthma out.

You may be asked to record peak flow, a simple measure of how quickly you can blow air out. Readings are usually taken several times each day during periods at work and away from work. Recording symptoms, tasks and medicine use at the same time helps a specialist interpret the pattern. Do not deliberately expose yourself to a suspected substance to create symptoms.

Other possible tests include:

Allergy tests can show sensitization, but they do not prove that a substance is causing asthma. Specific inhalation challenge testing exposes you to a carefully controlled amount of a suspected substance under medical supervision. It is available only in some specialist centres.

Assessment is most useful while you are still working in the same environment, provided it is safe to continue. Speak with a clinician before making major exposure or employment changes

when possible.

- Airway challenge testing, which checks how sensitive your airways are
- Blood or skin-prick tests for allergy to certain workplace substances
- A specific inhalation challenge in a specialist centre

Treatment and management

The main treatment is to prevent further exposure to the substance causing the asthma. Complete removal from exposure offers the best chance of improvement for sensitizer-induced occupational asthma. Simply reducing exposure may not be enough once your immune system has become sensitized.

Avoidance does not always mean leaving employment. Depending on the workplace, options may include substituting a safer product, changing the process, improving ventilation, enclosing the source or moving to different duties. Occupational health staff, workplace safety specialists and your employer may help assess these options.

Respirators and masks can reduce some exposures when they are correctly selected, fitted and used. They should not be the only control when the substance can be removed or contained. Ordinary surgical or dust masks do not protect against every gas, vapour or fine particle.

Asthma medicines are used to reduce airway inflammation and relieve symptoms. Treatment may include an inhaled corticosteroid-containing controller and an inhaler used for symptom relief. The right approach depends on your symptoms, test results and risk of attacks. A written asthma action plan can explain how to monitor symptoms and what to do if they worsen.

Have your inhaler technique checked. Poor technique can prevent medicine from reaching the lungs. Avoid tobacco smoke and tell a clinician about ongoing nose or sinus symptoms, as treating these may improve overall control.

Do not stop prescribed asthma medicine because you feel better away from work unless a healthcare professional has advised you to do so.

Complications

Continued exposure can lead to persistent asthma, more frequent attacks and reduced lung function. Symptoms may eventually occur even when you are away from work.

A severe asthma attack can cause dangerously low oxygen levels and requires urgent treatment. This is not the usual course, but it is important to know the warning signs.

Occupational asthma can also affect sleep, physical activity, income and employment. Changing duties or leaving a job may create financial and emotional strain. Early support from occupational health services, worker representatives or relevant compensation services can help you understand your options.

Prevention

Not every case can be prevented. Some people become sensitized even when previous exposure caused no symptoms, and it is not possible to predict every individual response.

Workplaces can lower risk by replacing hazardous substances, enclosing dusty or chemical processes, using local exhaust ventilation and controlling spills. Training, correct handling procedures and suitable protective equipment provide additional protection.

Report new breathing, nose or eye symptoms early. Workplace health surveillance may help identify problems in jobs involving known asthma-causing substances. If you already have asthma, a workplace review can identify exposures that may worsen it.

Living with it and what to expect

Symptoms may improve after the responsible exposure ends, especially when occupational asthma is recognised early. Improvement can begin within weeks, but recovery may take months or longer. Some people become symptom-free, while others continue to have sensitive airways and need long-term asthma treatment.

The longer exposure continues after symptoms begin, the more likely asthma is to persist. Even after leaving the exposure, smoke, respiratory infections, exercise, cold air or strong smells may trigger symptoms.

Regular follow-up usually includes reviewing symptoms, inhaler use, workplace exposure and lung function. Seek an earlier routine review if symptoms are waking you, limiting normal activity or requiring your reliever more often than usual.

Keep copies of peak-flow records, test results, safety data sheets and occupational health reports. These can help if your role changes or you need workplace adjustments or a compensation assessment.

Most people can remain active when their asthma is well controlled. Follow your asthma action

plan and discuss how to manage exercise, travel or future jobs involving similar substances.

When to get medical help

Arrange a routine medical appointment if you develop repeated wheezing, cough, chest tightness or shortness of breath, especially if symptoms are worse during or after work. Mention any improvement on weekends or holidays and any exposure to dusts, fumes, sprays, animals or chemicals.

Seek a prompt review if symptoms are becoming more frequent, waking you at night, limiting activity or not responding as they normally do. New symptoms after a chemical spill, fire or heavy fume exposure also need prompt assessment, even if you initially feel better.

Call emergency services if you have severe difficulty breathing, cannot speak in full sentences, become confused or unusually drowsy, or notice blue or grey lips or skin. Emergency help is also needed if your reliever inhaler like albuterol or ipratropium is not helping or breathing continues to worsen despite following your asthma action plan.

Move away from an active spill, smoke cloud or chemical release if you can do so safely. Do not re-enter a hazardous area to help others without appropriate training and protective equipment.

Common questions

How do I know if my asthma is caused by work?

Symptoms that worsen during work periods and improve during weekends or holidays are a clue. Diagnosis usually requires breathing tests and peak-flow readings taken at work and away. Symptoms alone cannot confirm the cause.

Is occupational asthma permanent?

Not always. Some people recover after exposure ends, particularly when the condition is identified early. Others continue to have asthma for years and need ongoing treatment. Persistent symptoms do not necessarily mean you are still being exposed.

Can I keep working in the same job?

Sometimes, but avoiding the responsible substance is important. A different product, improved controls or reassignment may make continued employment possible. For sensitizer-induced asthma, even small amounts can trigger symptoms, so reduced exposure may not provide enough protection.

Is occupational asthma the same as work-exacerbated asthma?

No. Occupational asthma begins because of a workplace exposure. Work-exacerbated asthma is asthma from another cause that becomes worse at work. Both need good asthma treatment and better control of workplace triggers.

Will wearing a mask solve the problem?

Not by itself. Protection depends on the substance and the type, fit and condition of the respirator. Workplace controls that remove, replace or contain the source are generally more reliable than relying only on personal protective equipment.

Can occupational asthma affect compensation or employment rights?

It may. Reporting rules, disability protections and compensation systems differ by location. Medical records and objective test results can be important. Occupational health services, a worker representative or a qualified local adviser can explain the options available where you live.

Sources

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