CONDITION

Lung disease

Lung disease is a broad term for conditions affecting the airways, lung tissue, blood vessels, or lining around the lungs.

WHAT IT IS
Conditions that interfere with normal lung function

BODY SYSTEM
Lungs and breathing

MAIN SYMPTOMS
Breathlessness, cough, wheezing, chest discomfort

WHAT CAUSES IT
Infection, exposure, immune disease, inherited changes, or unknown

HOW IT IS DIAGNOSED
Breathing tests, imaging, laboratory tests, or tissue sampling

MAIN TREATMENT
Cause-specific medicines, rehabilitation, oxygen, procedures, or surgery

CAN IT BE CURED?
Sometimes - some causes resolve, while others remain lifelong

IS IT AN EMERGENCY?
Sometimes - severe breathing trouble or blue lips

LONG-TERM OUTLOOK
Shaped by the condition, severity, treatment, and overall health

Overview

"Lung disease" is not one diagnosis. It is a broad term covering many conditions that affect how you breathe or how oxygen passes into your blood.

Some conditions affect the airways, which are the tubes that carry air through the lungs. Examples include asthma and chronic obstructive pulmonary disease, or COPD. Others damage the tiny air sacs where oxygen enters the blood, as can happen with pneumonia or emphysema.

Lung disease can also affect the tissue supporting the air sacs, the blood vessels inside the lungs, or the thin lining around the lungs. Lung cancer and conditions caused by workplace dust are also included.

Some lung conditions are short-lived and improve with treatment. Others continue for years and need ongoing care. Their seriousness ranges widely. A mild infection and advanced scarring of the lungs are both forms of lung disease, but they have very different treatments and outlooks.

Breathing symptoms do not always come from the lungs. Heart conditions, anaemia, anxiety, poor physical fitness, and other problems can cause similar symptoms. An assessment is needed to identify the cause.

Symptoms

Symptoms may begin suddenly, as with some infections or a blood clot in the lung. They may also develop slowly over months or years.

Common symptoms include:

The pattern provides useful clues. Asthma symptoms may come and go or be triggered by exercise, allergens, or cold air. COPD often causes persistent breathlessness and cough. Infections may cause fever, mucus, and symptoms that develop over days. Lung scarring often causes a dry cough and gradually increasing breathlessness.

Early lung disease does not always cause obvious symptoms. Some conditions are found during imaging or breathing tests performed for another reason.

- Shortness of breath during activity or at rest
- A cough that is new, persistent, or changing
- Wheezing, which is a high-pitched sound when breathing
- Chest tightness, discomfort, or pain
- Coughing up mucus, sometimes called phlegm
- Repeated chest infections
- Unusual tiredness or reduced ability to exercise
- Coughing up blood
- Unexplained weight loss or loss of appetite

Causes and risk factors

The cause depends on the specific condition. Sometimes more than one factor is involved, and

in some people no cause is found.

Tobacco smoke is a major preventable cause of COPD and lung cancer. Second-hand smoke can also harm the lungs. Vaping may irritate or injure the lungs and is not harmless, although its long-term effects are still being studied.

Workplace and environmental exposures can cause disease over time. These include asbestos, silica dust, coal dust, fumes, chemicals, air pollution, and smoke from fires or indoor cooking fuels. The risk is affected by the substance, concentration, length of exposure, and use of protective controls.

Viruses, bacteria, fungi, and parasites can infect the lungs. Most respiratory infections do not cause permanent lung damage, but severe or repeated infections sometimes do.

The immune system can mistakenly attack lung tissue. This can happen with conditions such as rheumatoid arthritis, scleroderma, and sarcoidosis. Some medicines and medical treatments, including certain cancer treatments, can also injure the lungs.

Inherited gene changes cause conditions such as cystic fibrosis and alpha-1 antitrypsin deficiency. A family history may increase the likelihood of some other lung conditions, but it does not mean that you will develop them.

Age, premature birth, poor lung development, previous tuberculosis, and reduced immunity can also affect risk. A blood clot that travels to the lungs causes pulmonary embolism, a potentially serious condition involving the lung's blood vessels.

Diagnosis

Diagnosis usually begins with your symptoms, medical history, work and home exposures, smoking history, medicines, and family history. A clinician may listen to your breathing and check your blood oxygen level.

No single test can diagnose every type of lung disease. Tests are selected according to the suspected cause.

Spirometry measures how much air you can breathe out and how quickly you can do it. It is important for diagnosing and monitoring conditions that narrow the airways, including asthma and COPD. Other pulmonary function tests measure lung volume and how effectively gases move from the lungs into the blood.

A chest X-ray can show problems such as pneumonia, a collapsed lung, fluid around the lung, or some larger growths. A normal X-ray does not rule out every lung condition. Computed tomography, usually called a CT scan, gives more detailed images.

Blood tests may look for infection, inflammation, immune conditions, inherited changes, or low oxygen. Mucus samples can be tested for infection or abnormal cells.

Bronchoscopy involves passing a thin, flexible camera into the airways. It may be used to inspect the lungs or collect fluid and tissue. A biopsy removes a small tissue sample for examination. These tests are only needed in certain situations.

Other possible tests include exercise testing, allergy testing, heart tests, sleep studies, and scans of the lung's blood supply.

Treatment and management

Treatment is based on the named condition rather than the general label "lung disease."

Inhaled medicines can relax narrowed airways or reduce airway inflammation. Antibiotics like amoxicillin or doxycycline treat certain bacterial infections but do not work against viruses. Other medicines may suppress harmful immune activity, reduce lung scarring, dissolve or prevent blood clots, or target particular cancer cells.

Pulmonary rehabilitation is a supervised programme combining exercise, breathing strategies, education, and support. It can improve activity and quality of life for many people with chronic respiratory conditions. It does not replace damaged lung tissue, but it can help you use your remaining lung function more effectively.

Supplemental oxygen may be recommended when testing shows that blood oxygen remains too low. Breathlessness alone does not show whether oxygen is needed. Some people require oxygen during activity or sleep, while others need it for longer periods.

Procedures may drain fluid or air from around the lung, remove a blockage, open a narrowed airway, or treat damaged tissue. Surgery may be considered for selected cancers, severe emphysema, or other structural problems. Lung transplantation is an option for a small number of people with advanced disease.

Stopping smoking is useful at any stage. Treatment may also include vaccinations, nutrition support, airway-clearance techniques, physical activity suited to your health, and care for anxiety or low mood.

Do not stop prescribed inhalers, oxygen, steroids like prednisone or hydrocortisone , or immune medicines without medical advice. Some need to be reduced gradually or monitored closely.

Complications

Complications differ between conditions. Chronic lung disease can reduce oxygen in the blood and place extra strain on the heart. Severe disease can lead to respiratory failure, meaning the lungs cannot provide enough oxygen or remove enough carbon dioxide.

Other possible complications include:

Some lung diseases increase the risk of lung cancer, but most people with cough or breathlessness do not have cancer. New, persistent, or changing symptoms still deserve assessment.

- Sudden worsening of symptoms, sometimes called an exacerbation
- Repeated infections
- A collapsed lung or fluid around the lung
- High blood pressure in the lung's blood vessels
- Reduced strength, mobility, appetite, or body weight
- Sleep problems, anxiety, or depression
- Permanent scarring or loss of lung function

Prevention

Not every lung condition can be prevented. Inherited diseases, autoimmune conditions, and illnesses with no known cause may occur despite healthy choices.

You can reduce some risks by not smoking and by seeking support to stop if you do smoke. Avoiding second-hand smoke also reduces exposure.

Workplace dusts, fumes, and chemicals should be controlled at their source. Follow safety procedures and use correctly fitted protective equipment when required. Tell a healthcare professional about current and previous jobs if you develop breathing symptoms, because occupational disease can appear years after exposure.

Recommended vaccines can lower the risk or severity of certain respiratory infections. Eligibility differs by age, health, pregnancy, occupation, and location.

Testing your home for radon may be advised in areas where this naturally occurring radioactive gas is common. Ventilation and measures that reduce indoor smoke or fumes may also help.

Handwashing, covering coughs, and avoiding close contact when you or others are acutely unwell can reduce the spread of respiratory infections.

Living with it and what to expect

What happens over months and years depends on the exact diagnosis. Some infections clear completely. Asthma symptoms often change over time and may have symptom-free periods. COPD and many scarring conditions are usually long-term, although treatment may slow decline, control symptoms, and reduce flare-ups.

Symptoms and test results do not always change at the same rate. You may feel more breathless because of an infection, loss of fitness, anaemia, or a heart problem even if the underlying lung condition is stable. A noticeable change should not automatically be accepted as part of chronic lung disease.

Routine follow-up may include reviews of symptoms, inhaler technique, oxygen levels, breathing tests, imaging, and treatment side effects. The schedule is based on the condition and its severity.

Activity is often encouraged within safe limits. Regular movement can improve stamina and confidence even when lung damage cannot be reversed. Pulmonary rehabilitation can help if breathlessness has made activity difficult.

An action plan may explain how to recognise a flare-up and when to seek help. If you use inhalers or oxygen, practical instruction matters. Support with work, travel, sleep, nutrition, and emotional health may also make day-to-day life easier.

Many people with chronic lung disease continue working, exercising, travelling, and taking part in family life. Others need increasing support. No single course applies to every lung condition.

When to get medical help

Arrange a routine medical appointment if you have a cough lasting several weeks, ongoing wheezing, repeated chest infections, breathlessness that limits usual activity, or symptoms that are gradually worsening. Also seek assessment for unexplained weight loss, persistent hoarseness, or a lasting change in your usual cough.

Contact your care team promptly if you have a diagnosed lung condition and your symptoms are worsening, your usual treatment is less effective, or you develop fever, increased mucus, or a change in mucus colour. Follow any personal action plan you have been given.

Seek urgent medical help for coughing up blood, new chest pain, sudden unexplained breathlessness, or a marked fall in your usual oxygen reading. Small streaks of blood still need prompt assessment.

Call emergency services if you:

Do not drive yourself during a severe breathing emergency.

- Are struggling to breathe or cannot speak in full sentences
- Have blue, grey, or unusually pale lips or skin
- Become confused, very drowsy, or collapse
- Have severe chest pain, especially with sweating or nausea
- Cough up more than a small amount of blood
- Develop sudden breathlessness with fainting or one-sided leg swelling

Common questions

Is lung disease the same as COPD?

No. COPD is one type of lung disease. The term also includes asthma, infections, lung scarring, blood-vessel disorders, inherited conditions, and cancer.

What are the early signs of lung disease?

Possible early signs include a persistent cough, breathlessness during activity, wheezing, reduced exercise ability, or repeated infections. These symptoms have many possible causes, so they cannot identify a condition by themselves.

Can damaged lungs heal?

Some lung inflammation and infection can resolve. Airway symptoms may improve with treatment. However, destroyed air sacs and established scar tissue usually do not return to normal. Treatment can still protect remaining function and reduce symptoms.

Does a normal chest X-ray rule out lung disease?

No. A chest X-ray can miss early, small, or airway-based problems. Breathing tests, a CT scan, or other investigations may be needed when symptoms continue.

Can I exercise if I have lung disease?

Many people can and should remain active, but the appropriate type and intensity depend on the condition and overall health. Pulmonary rehabilitation provides supervised exercise for people limited by chronic breathlessness.

Is breathlessness always caused by lung disease?

No. Heart problems, anaemia, anxiety, reduced fitness, obesity, and other conditions can cause breathlessness. More than one cause may be present at the same time.

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