CONDITION

COPD

COPD is a long-term lung condition that narrows the airways and makes breathing difficult.

WHAT IT IS
Long-term lung condition with persistent airflow blockage

BODY SYSTEM
Lungs and breathing

MAIN SYMPTOMS
Breathlessness, ongoing cough, phlegm, wheezing

WHAT CAUSES IT
Usually smoking or long-term exposure to harmful particles

HOW IT IS DIAGNOSED
Post-bronchodilator spirometry showing persistent airflow obstruction

MAIN TREATMENT
Inhalers, exposure reduction, rehabilitation, vaccines, selected oxygen therapy

CAN IT BE CURED?
No - existing lung damage is not reversible

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, confusion, or blue-grey lips

LONG-TERM OUTLOOK
Usually progressive, but treatment can reduce symptoms and flare-ups

Overview

COPD stands for chronic obstructive pulmonary disease. It is a long-term condition in which airflow through the lungs is persistently limited. The airways may be inflamed and narrowed, and some of the tiny air sacs where oxygen enters the blood may be damaged.

COPD includes features often called chronic bronchitis and emphysema. Chronic bronchitis means long-lasting airway inflammation with cough and phlegm. Emphysema means damage to the air sacs. Many people have a mixture of both.

The condition usually develops gradually, often after years of breathing in tobacco smoke or other harmful particles. Early breathlessness may be mistaken for ageing or poor fitness.

COPD cannot currently be cured, and damaged lung tissue does not return to normal. However, treatment can ease symptoms, improve activity and reduce sudden worsening.

Stopping exposure to tobacco smoke is especially important because it can slow further lung damage.

Symptoms

Symptoms often appear slowly and may become more noticeable during physical activity. They can include:

Some people unintentionally lose weight or lose muscle strength as COPD becomes more advanced. Others experience anxiety, low mood or poor sleep because breathing problems affect daily life.

A flare-up, also called an exacerbation, is a period when symptoms become worse than usual. Breathlessness, coughing or wheezing may increase, and phlegm may become thicker, more plentiful or change colour. Flare-ups can be triggered by infections, air pollution or other irritants, although a clear cause is not always found.

- Shortness of breath, especially when walking or climbing stairs
- A cough that does not go away
- Regular production of phlegm or mucus
- Wheezing or a tight feeling in the chest
- Frequent chest infections
- Tiredness and reduced ability to exercise

Causes and risk factors

Cigarette smoking is the most common cause of COPD, but not everyone with COPD has smoked. Long-term exposure to second-hand smoke, workplace dust, chemical fumes, biomass cooking smoke or heavy outdoor air pollution can also contribute.

Risk is influenced by how much exposure occurred, how long it lasted and how the lungs responded. Some people develop COPD after lower levels of exposure, while others do not develop it despite greater exposure.

A rare inherited condition called alpha-1 antitrypsin deficiency can cause COPD, sometimes at a younger age. Alpha-1 antitrypsin is a protein that helps protect lung tissue. Low levels leave the lungs more vulnerable to damage, particularly in people who smoke.

Other factors linked with higher risk include poor lung growth before adulthood, premature

birth, severe childhood respiratory infections and long-standing asthma. These factors do not mean that COPD will definitely develop.

COPD is not contagious. You cannot catch it from coughing, physical contact or sharing household items.

Diagnosis

COPD should not be diagnosed from symptoms alone. Other conditions, including asthma, heart problems and lung infections, can cause similar breathlessness or coughing.

The main test is spirometry. You blow hard into a machine that measures how much air you can breathe out and how quickly you can do it. The test is repeated after you inhale a medicine that opens the airways. Persistent airflow obstruction after this medicine supports a COPD diagnosis.

A healthcare professional will also ask about smoking, work exposures, symptoms, flare-ups and how breathing affects your activities. They may listen to your chest and check your blood oxygen level.

Other tests help assess your health or rule out different causes. These may include:

An X-ray can show emphysema or another lung problem, but it cannot confirm or exclude COPD by itself.

- A chest X-ray or, in selected cases, a CT scan
- Blood tests, including testing for alpha-1 antitrypsin deficiency
- An electrocardiogram or heart scan if a heart condition is possible
- Exercise testing or more detailed lung function tests
- A blood gas test when oxygen or carbon dioxide problems are suspected

Treatment and management

Treatment is based on your symptoms, lung function, flare-up history and other health conditions. It aims to help you breathe and stay active while reducing future flare-ups.

If you smoke, stopping is the most effective step for slowing further loss of lung function. Support may include counselling and medicines that reduce cravings. Avoiding second-hand smoke and workplace irritants is also important.

Bronchodilator like albuterol or salmeterol inhalers relax the muscles around the airways.

Some work quickly for short-term relief, while others work for many hours and are used regularly. Long-acting inhalers may contain one or two types of bronchodilator.

Inhaled corticosteroids like budesonide or fluticasone reduce airway inflammation. They are added for selected people, particularly those with repeated flare-ups or certain blood test findings. They are not needed by everyone with COPD and can have side effects, including an increased risk of pneumonia in some people.

Correct inhaler technique matters. A device may not deliver enough medicine if it is difficult to use or used incorrectly. Technique should be reviewed during routine appointments, especially when symptoms change.

Pulmonary rehabilitation combines supervised exercise, breathing education and practical support. It can improve exercise capacity, breathlessness and quality of life. It is useful even when lung damage is permanent because stronger muscles use oxygen more efficiently.

Vaccination against respiratory infections can reduce illnesses that may trigger flare-ups. Recommended vaccines are based on age, health history and local schedules.

During a flare-up, treatment may include extra inhaled bronchodilators and a short course of corticosteroid tablets. Antibiotics like amoxicillin or doxycycline are used when a bacterial infection is considered likely; they do not treat every flare-up.

Long-term oxygen therapy may help people whose blood oxygen remains severely low when they are stable. Breathlessness alone does not show that oxygen is needed. Oxygen levels must be measured because unnecessary oxygen does not provide the same benefit.

A small number of people with advanced COPD may be considered for procedures that reduce overinflated areas of lung, removal of large air spaces called bullae, or lung transplantation.

Complications

COPD can increase the risk of repeated chest infections and flare-ups requiring hospital care. Severe or frequent flare-ups may lead to a faster decline in health.

Low oxygen levels can strain the heart and raise pressure in the blood vessels of the lungs, known as pulmonary hypertension. COPD can also occur alongside heart conditions, osteoporosis, diabetes, lung cancer, anxiety or depression.

Reduced activity may lead to weaker muscles, making movement even harder. Advanced COPD can cause respiratory failure, when the lungs cannot maintain safe oxygen or carbon dioxide levels.

Prevention

Many cases of COPD can be prevented, but not all can. Inherited alpha-1 antitrypsin deficiency and some problems affecting early lung development cannot be prevented.

Not smoking is the most effective way to reduce risk. If you smoke, stopping can still protect the lung function you have, even after COPD has developed.

At work, appropriate ventilation, dust control and correctly fitted respiratory protection can reduce exposure to harmful particles or fumes. Avoiding second-hand smoke and reducing indoor smoke from cooking or heating may also help.

Vaccines do not prevent COPD itself. They can lower the risk of infections that may cause serious flare-ups in someone who already has the condition.

Living with it and what to expect

COPD usually lasts for life. It often progresses, but the pace is different from person to person. Symptoms may remain fairly stable for long periods, then worsen after a flare-up or with continued exposure to smoke and other irritants.

Regular movement is generally helpful. Breathlessness during safe activity does not always mean that the lungs are being harmed. Pulmonary rehabilitation can teach pacing, breathing techniques and ways to rebuild confidence. An activity plan should reflect your health and physical ability.

Eating enough protein and calories helps maintain muscle strength. Some people need support because breathlessness makes eating difficult, while others may benefit from gradual weight loss to reduce the effort of movement.

A written action plan can explain your usual symptoms, daily treatment and what to do when symptoms worsen. Routine reviews may cover inhaler technique, flare-ups, nutrition, mood, exercise, oxygen levels and other health conditions.

Some people continue working, travelling and taking part in family life for many years. Others need increasing support with demanding tasks. Advanced COPD may affect independence and life expectancy. Planning future care early allows you to record what matters to you without waiting for an emergency.

When to get medical help

Arrange a routine appointment if you have a persistent cough, regular phlegm or breathlessness that limits activity, especially if you smoke or have had long-term exposure to dust or fumes.

If you already have COPD, seek prompt medical advice when symptoms are clearly worse than usual, particularly if:

Use your agreed flare-up plan if you have one. Do not delay getting advice because you have treatment at home.

Call emergency services for severe breathing difficulty, inability to speak in full sentences, new confusion, extreme drowsiness, fainting, severe chest pain, or blue-grey lips or skin. These signs can mean that oxygen is dangerously low or another serious problem is present.

- Your reliever inhaler is helping less or is needed more often
- Breathlessness, coughing or wheezing is increasing
- Phlegm becomes much thicker, more plentiful or changes colour
- You develop a fever or signs of a chest infection
- You are struggling to eat, drink, sleep or manage normal activities

Common questions

Can COPD go away?

No. Current treatments cannot reverse established lung damage. Symptoms can improve, and stopping smoking can slow further loss of lung function. Inhalers, rehabilitation and flare-up prevention may make daily activities easier.

Is COPD the same as asthma?

No. Both can cause wheezing, coughing and breathlessness, but they affect the airways differently. Asthma-related narrowing is often more reversible, while COPD causes persistent airflow obstruction. Some people have features of both, so breathing tests and medical history are important.

What is the life expectancy for someone with COPD?

There is no single answer. Outlook is influenced by lung function, age, smoking, flare-up frequency, activity level, weight and other health conditions. Mild COPD may have a limited effect on lifespan, while advanced COPD can shorten life. Population estimates cannot predict one person's course.

Can I exercise if I get breathless?

Many people with stable COPD can exercise safely and benefit from doing so. Activity may improve muscle efficiency, stamina and confidence even though it does not repair the lungs. Pulmonary rehabilitation is a structured way to begin if breathlessness or fear of symptoms limits you.

Does everyone with COPD need oxygen?

No. Long-term oxygen is mainly used when testing shows persistently severe low blood oxygen. It is not a general treatment for breathlessness. Some people need oxygen only in specific circumstances, while many never need it.

Can COPD be seen on a chest X-ray?

An X-ray may show signs of emphysema or another chest condition, but it may look normal in earlier COPD. Spirometry after an airway-opening medicine is the main test used to confirm persistent airflow obstruction.

Sources

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