

COPD

What is COPD?

Chronic obstructive pulmonary disease (COPD) refers to persistent obstruction of the airways of the lungs. It is also the name for a collection of lung disease that includes chronic bronchitis, emphysema and chronic obstructive airways disease. People with COPD have difficulty breathing, primarily due to a narrowing of the airways.

Your airways branch out inside your lungs like an upside-down tree. At the end of each branch are small, balloon-like air sacs. In healthy people, both the airways and air sacs are springy and elastic. When you breathe in, each air sac fills with air like a small balloon. The air sac deflates when you breathe out.

In COPD, your airways and air sacs lose their shape and become floppy, making it difficult to exhale completely and air gets trapped in the lungs makes the lungs "hyper inflate".

What causes it?

Cigarette smoking is the most common cause of COPD. The more you smoke and the longer you smoke increases your chances of developing COPD.

Smoking irritates and inflames the lungs, which results in scarring. Over many years, the inflammation leads to permanent changes in the lungs. The walls of the airways thicken and more mucus is produced. Damage to the delicate walls of the air sacs in the lungs causes emphysema and the lungs lose their normal elasticity. The smaller airways also become scarred and narrowed. These changes cause the symptoms of breathlessness, cough and phlegm associated with COPD.

Breathing in other irritants like pollution, dust or chemicals, and passive smoking may also cause or contribute to COPD, but these are rarer.

COPD is a common, preventable and often treatable respiratory disease. It usually only starts to affect people over the age of 35. Often people are only diagnosed years later for example in their 50s, often when they begin to experience symptoms.

How is it diagnosed?

COPD is diagnosed by your doctor through a thorough physical examination and history taking of your symptoms such as wheezing, coughing, mucus production or breathlessness.

- Shortness of breath that is persistent, or progressive over time and worse with exercise
- Chronic cough that may be intermittent and sometime may not produce mucus
- Chronic sputum production
- Recurrent lower respiratory chest infections
- Exposure to chemicals, fumes, gases, smoking and active smokers. Certain tests may also be performed that will confirm a diagnosis:
- Pulmonary function test: Used to measure your lungs' ability to move air in and out. The simplest test can be done using a Peak Flow meter but most pulmonary function tests are done on machines in doctors' rooms or hospitals

The pulmonary function tests are also used to determine the severity of the airflow obstruction and track how the condition is progressing. This test is also used to classify your condition into mild, moderate, severe or very severe.

How can COPD affect my health?

COPD can have a serious impact on your health. COPD damages your lungs and can damage your heart as well. COPD may start with only a slight morning and evening shortness of breath. Later it may result in every breath requiring a major effort.

COPD may interfere with the passage of blood through the small blood vessels of the lung. The heart will have to work even harder to pump blood in order to oxygenate the body. The heart may enlarge with the extra strain and eventually give out.

What are the symptoms?

During the early stages of COPD most people experience few symptoms. The condition usually progresses slowly and changes in breathing may hardly be noticed.

As time goes on people may experience a shortness of breath that may occur with normal daily activities i.e. housework, walking short distances. Other symptoms of COPD include:

- Wheezing
- Coughing
- Bringing up phlegm
- Tight feeling in the chest
- Barrel-like distended chest
- Constant fatigue
- Difficulty sleeping
- Morning headaches
- Weight loss
- Swelling of the ankles
- Lethargy or difficulty concentrating

- Arterial blood gas: This is a blood test that measures oxygen and carbon dioxide. This test assesses how well the lungs are working
- Chest X-ray: This is helpful to diagnose COPD although the early stages of COPD may not show on the X-ray

Your doctor may classify your COPD in terms of severity based on your lung function test results and your other symptoms such your cough, shortness of breath, how many times you needed to be admitted or seek emergency care and how the COPD affects your usual daily activities.

Severity	Lung function result (FEV1)
Mild	> 80% of predicted
Moderate	50%-79% of predicted
Severe	30%-49% of predicted
Very severe	<30% of predicted

Using all this information your doctor may classify your COPD as either A, B, C or D. A is the least severe whilst D is the most severe.

Treatment

COPD is a progressive condition. Lung function can be expected to worsen over time, even with the best available care.

The most important management of COPD is to stop smoking. Stopping smoking may stop the condition from getting worse but continuing to smoke will accelerate the progression.

Medicines may slow down the progression of COPD if treatment is started early. The overall management of COPD is characterised by an increase in treatment, depending on the severity of your condition and your clinical status. The mainstays of treatment for COPD are:

- Bronchodilators, primarily beta-agonists i.e. regular use of long acting bronchodilators such as Formoterol and Salmeterol. Short-acting bronchodilators such as salbutamol are not usually recommended on a regular basis
- Corticosteroids: Inhaled Glucocorticoids e.g. Budesonide, beclomethasone or fluticasone
These two classes of medicines are often used alone or given in combination via inhalers. The inhaled corticosteroids should not be given as the sole therapy without a bronchodilator
- Anticholinergics such as ipratropium and tiotropium. Long acting anticholinergics such as tiotropium are preferred. The anticholinergic may also be added to the corticosteroid and the long acting bronchodilators
- Oral corticosteroids are meant to be used short term for exacerbations
- Oxygen: COPD patients with Hypoxemia (shortage of oxygen in the blood) who have severe COPD may require ongoing Oxygen. Remember to that continuing to smoke whilst using oxygen is extremely hazardous

Your role in managing this condition

There may be no known cure for COPD but the following may help to manage COPD in your life.

- Stop Smoking or reduce your exposure to passive smoking
- Clean air: Try to avoid pollution, second hand smoking and dust
- Protect against influenza and pneumonia by getting vaccinated. You should be vaccinated against influenza (flu) each year at least 6 weeks before the flu season starts. Both the conjugated and the polysaccharide types of Pneumococcal vaccines are recommended. If you have not had a lifetime conjugated Pneumococcal Vaccine i.e. Prevenar, please ask your doctor whether you should have the vaccine. The pneumococcal vaccine may protect you against pneumonia, which is a risk in COPD patients, and will protect you for a few years
- Lifestyle: Make sure that you get adequate sleep and nutrition to ensure your general health remains optimal
- Know how to recognise the signs of exacerbation and possible respiratory infection:
 - Sputum is thicker than normal, is discoloured i.e. bloody, yellow or green
 - Your nail beds stay grey or blue even after you are breathing easier
 - You have a high temperature
 - You have chest pain or trouble breathing especially during exercise that does not go away with rest
 - You become dizzy, confused and have swollen hands and feet, and blue or pale lips
 - If you have these symptoms, see your doctor
- Take your medication every day, as prescribed by your doctor. Continuous medication may prevent flare-ups

Disclaimer

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