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What is COPD?



There are so many different terms, aren't there – bronchitis, asthma, emphysema, chronic obstructive pulmonary disease (COPD), chronic obstructive airways disease (COAD) and chronic obstructive lung disease (COLD). They all seem to be interchangeable and you will be forgiven for being very confused about them. So we will begin by explaining the reasons for all the different names.

It is only relatively recently that we have begun to understand the reasons why people develop lung diseases, and by this time some of the names mentioned above had already come into regular use. Most of the terms used are associated with narrowing of the air passages. Emphysema is the only exception because it is a condition that affects the tiny air sacs (the alveoli) in the



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lungs. So let’s start with a bit of information about the role of the lungs in breathing.

The purpose of breathing is, first, to get oxygen from the air into the bloodstream so that it can help in the chemical reactions that help our other organs and muscles work properly. Breathing also allows us to remove carbon dioxide from the bloodstream. Carbon dioxide is a ‘waste product’ resulting from the functioning of our organs and muscles. As you can see from Figure 1.1, the airways provide the transport for these two gases to and from the lungs, and the alveoli are where oxygen is taken in and carbon dioxide is taken out of the bloodstream. If this system is damaged in any way, the process of breathing will be impaired and cause symptoms such as breathlessness and cough.

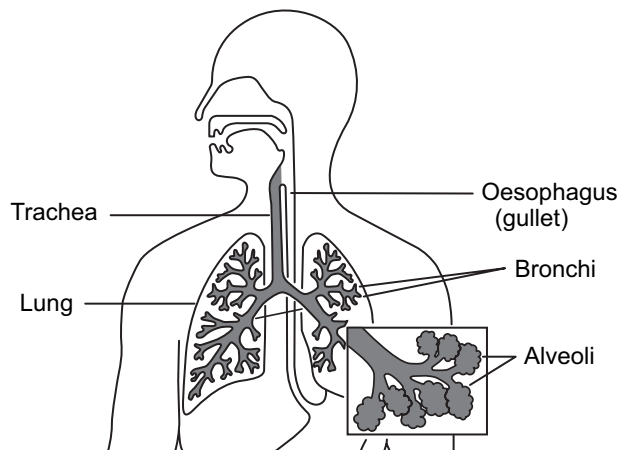


Figure 1.1 The breathing process

Definitions

Asthma and the others

The first major distinction, when it comes to the ‘names’, is to try to separate asthma from the rest. This is dealt with in more detail

in Chapter 3 (*How is COPD diagnosed?*), but asthma is a condition that affects *only* the airways, is usually reversible and is caused mainly by allergies. It is common in children (affecting up to one in four children in some parts of the world), and can change in its nature throughout someone's life – being bad some days and almost not noticeable on others. If properly treated, asthma does not usually cause persistent narrowing of the airways. Occasionally, however, the disease can be so severe that people are disabled by it on a daily basis, resulting in major restrictions on their lifestyle.

Bronchitis and the others

Bronchitis literally means airway ('bronchi') inflammation ('itis'). It can affect people for just a short period of time, when it's called *acute bronchitis*, or it can go on for years, when it is known as *chronic bronchitis*. Probably nearly all of us have had acute bronchitis at some point in our lives: it usually follows a virus infection or cold and causes coughing, occasionally with some phlegm too. It usually lasts for only a week or two. By contrast, chronic bronchitis is a more specific condition and is defined by the amount of phlegm the person coughs up and the period over which this continues. To be diagnosed as having chronic bronchitis, you have to cough up phlegm every morning for at least three consecutive months within a period of at least two years. We shall see in Chapter 2 (*Work and the environment*) that a number of environmental influences may affect people with chronic bronchitis but the overwhelming cause of chronic bronchitis is cigarette smoking. The precise way that cigarettes do their damage is not known but we do know that it is unusual for people to develop chronic bronchitis without having been exposed to cigarette smoke.

Emphysema and the others

Most people have known someone who has been told they have emphysema. It is nearly always a person who has smoked heavily for a good many years, and such people are often very breathless.

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Unlike conditions such as asthma and bronchitis, emphysema affects the alveoli – where the exchange of oxygen for carbon dioxide (*gas exchange*) takes place. As you can see in Figure 1.2, the alveoli are the air sacs where oxygen and carbon dioxide travel to and from the bloodstream; they are made of very elastic tissue so that they can expand and contract to let air in and out. This is usually an efficient process because we have millions of alveoli, all lying right beside very tiny blood vessels. In emphysema, large numbers of these alveoli have been destroyed and there is much less area for the gases to change places. So, although people can breathe the oxygen in, it cannot get into the bloodstream.

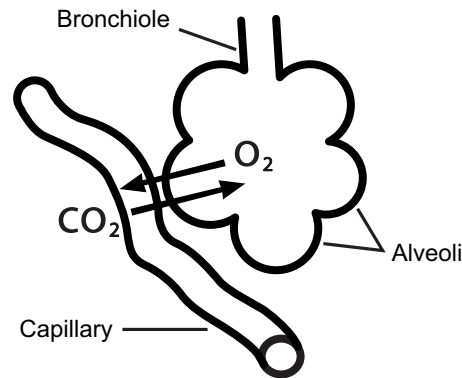


Figure 1.2 Gas exchange by diffusion in the lungs

My GP and practice nurse use lots of abbreviations when they're talking to me but 'COPD' is the main one. So what is COPD?

COPD stands for **Chronic Obstructive Pulmonary Disease**. It is also referred to as chronic obstructive airways disease (COAD) and chronic obstructive lung disease (COLD), but for the purposes of this book we are going to stick with COPD. If your doctor or nurse uses COAD or COLD, do not worry because the terms are pretty much identical. It's just that COPD has become the most widely used phrase, both in the UK and abroad. It is a

name that tries to cover the effects of cigarette smoking on the lungs but does not include lung cancer. It has become an important term, because we now realise that many people have varying combinations of bronchitis and emphysema, and that some people with asthma also smoke and develop COPD.

Many different countries now have their own definitions of COPD but they all state that the characteristics of COPD are:

- narrowing of the airways,
- it does not change very much from day to day,
- it is likely to get progressively worse as the years go by.

This definition is important because it means that you can only be diagnosed as having COPD if you do a special breathing test (see Chapter 3, *How is COPD diagnosed?*).

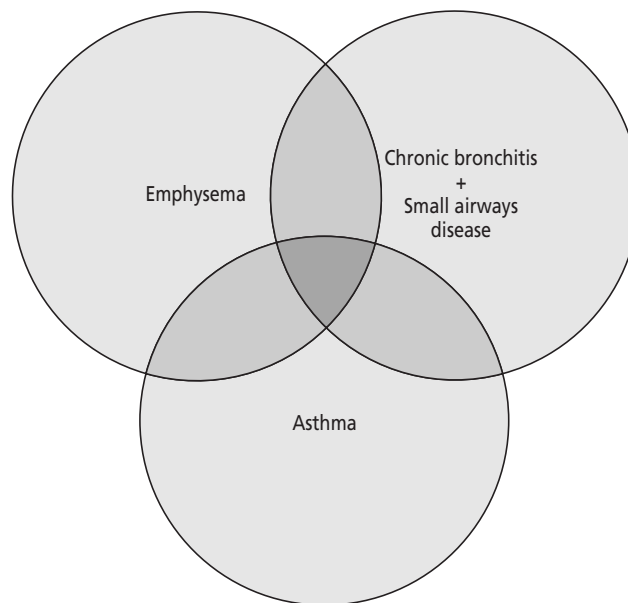


Figure 1.3 Diagrammatic representation of the overlap between chronic bronchitis, emphysema and asthma

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I still don’t really understand what my problem is. Do I have emphysema or not?

To be honest, emphysema can only be diagnosed by looking at specimens of your lung tissue under the microscope. This is not usually done because it doesn’t really affect the care that you receive. Breathing tests in combination with a chest x-ray can give your doctor the information that will indicate whether you have emphysema; if you are experiencing symptoms such as breathlessness, the doctor may well start you on inhalers to try to improve your symptoms (see Chapter 6, *Inhalers and nebulisers*).

Although it is helpful to get as clear a picture of your illness as possible, the really important issue is whether you have damaged your lungs and air passages as a consequence of smoking cigarettes and what the best treatments are to help you. The treatments that are available at present that are likely to help you do not depend on your doctor knowing the exact nature of the damage to your lungs and air passages. However, this may change in the future.

Can the changes to my lungs be reversed?

At the present time it is not possible to reverse the damage caused to your lungs by such things as cigarettes, and your doctor will be concentrating on trying to maximise the performance of the parts of your lungs that are working well. This is why it is vitally important for you to stop smoking as soon as possible if you haven’t done so already (see Chapter 4, *Stopping smoking*).

My father suffered from emphysema but he was a smoker. Does it run in families?

There is a form of emphysema that runs in families and is due to the lungs having low amounts of a protein called alpha-1 anti-trypsin (AAT). This protein is part of the body’s natural defence against particles we breathe in. It is very rare, though, and if you do not smoke it is unlikely that you will get emphysema even if other members of your family have had it.

The information you've given me is helpful but I'm still not sure whether to ask my GP for a test for this alpha-1 antitrypsin protein!

Remember that this deficiency is very rare. If, however, emphysema is diagnosed in a family member before the age of 40 years and you are suffering from breathlessness yourself, it may be worth discussing this with your GP. Again, the most important thing you can do is to stop smoking if you are currently doing so.

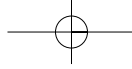
COPD and its symptoms

What are the symptoms of COPD? How do I know whether I've got it?

COPD affects both the airways and the lungs, so the most common symptoms are:

- cough – often associated with the production of phlegm,
- breathlessness – often limiting your ability to do things,
- wheeze – the noisy breath sounds that occur when the airways are narrowed.

Not everybody has all these symptoms. For example, some people first notice just a morning cough – the cough is often worse first thing in the morning. If you cough up phlegm, it is usually a white or light yellow colour. If the phlegm turns a darker yellow or increases in amount, this could mean that you have an infection and you should consult your GP. Breathlessness can be caused either by airway narrowing, limiting the flow of air into the lungs, or by damage to the air sacs, which leads to a problem with getting oxygen into the bloodstream. People often notice it first when they are trying to exercise – going upstairs, doing the shopping, walking up hill or that sort of thing – but there are people with severe COPD who are breathless even at rest (for more about severe COPD, see



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Chapter 3, ***How is COPD diagnosed?***). There are some other symptoms and signs associated with COPD, such as a feeling of chest tightness and ankle swelling, but, if you begin to experience any aches or pains or notice any features that are unusual for you, it is important that you mention these to the doctor or nurse.

So does everyone with a cough have COPD, then?

No, this is not the case. COPD is almost always associated with a long history of smoking cigarettes, so if you have never been a smoker it is very unlikely that your cough is due to COPD. Also, people who smoke can cough for reasons other than COPD. For example, coughing up blood or phlegm with specks of blood can sometimes be a result of having pneumonia, or a more permanent scarring condition of the lungs called *bronchiectasis*, or even something more serious such as a cancer of the lung. If you ever cough up blood or blood-specked phlegm, you should immediately make an appointment to see your doctor as you will probably require an x-ray of your chest to find out why this is happening.

I seem to be breathless compared with my mates. How do I know whether this is because of COPD?

Well, the truth is that you do not! This is why it is important to see your doctor so that the cause of your breathlessness can be determined. If you have been a smoker for a number of years, and have noticed a cough in the mornings where you bring up phlegm and that you have also been wheezy, it is possible that you have COPD. But remember that it will require a breathing test to confirm this diagnosis.

Also remember that people who smoke are also at an increased risk of heart disease. If your heart is not working well or is not getting enough oxygen due to narrowing of the arteries that supply it with blood, this can also make you breathless. The message is: if you are more breathless than your mates, you should be trying to find out why!

