1.8 Smoking

Learning objectives

After this topic you will be able to:

- describe the effects of tobacco smoke on health
- describe the effects of tobacco smoke on pregnancy.

Key Words

passive smoking, stimulant

▲ The chemicals in tobacco smoke can be deadly.

Most people know that smoking harms your health, yet many people still smoke. Even breathing in the smoke of someone else's cigarette can affect your health.

Why is smoking dangerous?

Smoking increases your chances of developing conditions such as breathing problems, cancer, heart attacks, and strokes. Smokers are much more likely to die prematurely than non-smokers. For example, male smokers are over 20% more likely to die from lung cancer than non-smokers.

A Name three conditions that a smoker is more likely to suffer from.

As well as affecting their own health, smokers endanger the health of others. By breathing in other people's smoke, your risk of developing circulatory and respiratory conditions increases. This is known as **passive smoking**.

Smoking in pregnancy greatly increases the risk of miscarriage. It can also increase the risk of low-birth-weight babies and affects the fetus's development. Parents who smoke after a baby is born increase the risk of sudden-infant-death syndrome ('cot death') and respiratory illness, such as bronchitis and pneumonia.

B State what is meant by passive smoking.

Deadly smoke

Use the graph to answer the following questions:

1. Which smoking-related diseases cause the greatest number of deaths?
2. How many more deaths occurred due to lung disease than heart disease?
3. How many times more likely is a smoker to die from lung and throat cancer, compared to a stroke?
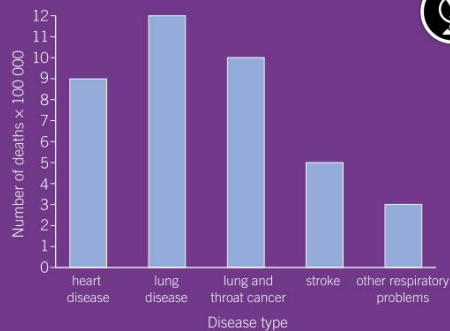
What's in tobacco smoke?

Cigarettes contain tobacco. Tobacco smoke contains over 4000 chemicals, many of which are harmful. These include:

- tar – a sticky black material that collects in the lungs. It irritates and narrows the airways. Some of the chemicals it contains cause cancer.
- nicotine – an addictive drug that speeds up the nervous system. It is a **stimulant**, which makes the heart beat faster and narrows blood vessels.
- carbon monoxide – a poisonous gas that stops the blood from carrying as much oxygen as it should. It binds to the red blood cells in the place of oxygen.

C Name the addictive drug in tobacco smoke.

How does smoking cause disease?

◀ This diseased lung is full of tar. Healthy lungs should be pink.

Some examples of the way smoking causes disease are listed below:

- Heart disease – smoking causes a person's arteries to become blocked. This prevents blood flowing properly, and can cause a heart attack or stroke.
- Emphysema (a lung disease) – chemicals in tobacco smoke affect the alveoli in your lungs. Their walls become weakened so they do not inflate properly when you inhale. They may also burst during coughing. This reduces the amount of oxygen that can pass into the blood, making the person breathless.
- Respiratory infections – the cells lining your windpipe produce mucus, which traps dirt and microorganisms. They also have cilia that sweep the mucus into your stomach, keeping your airways clean. Chemicals in tobacco smoke stop the cilia from moving. This allows mucus to flow into your lungs, making it harder to breathe and often causing infection. Smokers cough this mucus up, which can damage the lungs further.

Foul Fact

According to the World Health Organisation, approximately one person dies every six seconds due to tobacco. Deaths caused by tobacco accounts for 10% of adult deaths.
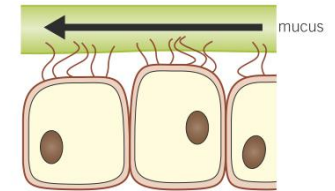
▲ Smoking makes it harder for ciliated cells to sweep mucus from your airways.

Summary Questions

1 🧪 Match the chemicals in tobacco smoke to their harmful effect.

tar	addictive and makes the heart beat faster
nicotine	reduces the amount of oxygen the blood can carry
carbon monoxide	contains chemicals that cause cancer

(3 marks)

2 🧪🧪 Suggest why smokers often cough a lot when they first wake in the morning.

(2 marks)

3 🧪🧪 Describe how tobacco smoke can cause problems during pregnancy.

(2 marks)

4 🧪🧪🧪 Explain in detail three ways that smoking can damage your health.

(6 marks)