

Breathing and Drugs

Gas exchange and breathing

- **Gas exchange** is the process of taking in oxygen and giving out carbon dioxide
- This occurs in the **respiratory system**
- The proportions of gases in the air we **inhale** and **exhale** changes due to using oxygen in **respiration** and producing carbon dioxide

Smoking is very harmful to health. It's estimated that nearly one in every five deaths (of adults aged over 35 in England) is connected to smoking. Tobacco smoke contains many harmful substances.

These include: • tar • nicotine • carbon monoxide

What happens when you breathe in and out

when you breathe in (inhale)	<ul style="list-style-type: none"> • muscles between the ribs contract • ribs are pulled up and out • diaphragm contracts and flattens • volume of the chest increases • pressure inside the chest decreases • air rushes into the lungs
when you breathe out (exhale)	<ul style="list-style-type: none"> • muscles between ribs relax • ribs are pulled in and down • diaphragm relaxes and moves up • volume in the chest decrease • pressure inside the chest increases • air is forced out of the lungs

Drugs

- **Drugs** are chemicals that affect the way that our body works
- **Medicinal drugs** are used in medicine, they benefit health
- If medicinal drugs are not taken in the correct way they can harm health
- Examples include antibiotics and pain killers

- **Recreational drugs** are taken by people for enjoyment
- Recreational drugs normally have no health benefits and can be harmful for health
- Examples include alcohol and tobacco

- Drug **addiction** is when your body gets so used to a drug, it feels it cannot cope without it
- If someone who has an addiction stops taking the drug, they will experience **withdrawal symptoms**

Tar - Causes lungs, mouth and throat cancer. It coats the inside of the lungs, including the alveoli, causing coughing. It damages the alveoli, making it more difficult for gas exchange to happen.

Smoke - Cells lining the airways produce sticky mucus. This traps dirt and microbes. Cilia (cells with little hairs) then move the mucus out of the lungs. However, hot smoke and tar from smoking damages the cilia. As a result of this, smokers cough to move the mucus and are more likely to get bronchitis.

Nicotine - is addictive and also increases the heart rate and blood pressure, and makes blood vessels narrower than normal. This can lead to heart disease.

Carbon monoxide - is a gas that takes the place of oxygen in red blood cells, reducing the amount of oxygen that the blood can carry. It means that the circulatory system has to work harder, causing heart disease.