

Year 9 Science – Biology Knowledge Organiser

9B – How can we reduce the risk of diseases?

Non-communicable diseases cannot be spread between organisms.

They are often caused by **poor diet** (deficiency or obesity), **genetic disorders** or **faulty body processes** (for example, uncontrolled cell division leads to cancer).

Smoking is **harmful** because cigarettes contain many harmful substances such as:

- Tar – carcinogenic (causes cancer)
- Nicotine – addictive, increases heart rate and narrows blood vessels.
- Carbon monoxide – poisonous gas, causes heart disease.
- Particulates – damage alveoli, causing emphysema.
- Other substances destroy cilia, causing smoker's cough and bronchitis.

Alcohol contains the drug **ethanol** which is a **depressant** – it slows the body's reactions.

Short term effects of excessive alcohol consumption – blurred vision, loss of balance, increased reaction times.

Long term effects of excessive alcohol consumption – cirrhosis (scarring) of the liver, heart disease and brain damage.

Cardiovascular disease (CVD) – disease of the heart or the blood vessels. It may be caused by:

- **Atherosclerosis** – fatty deposits in the arteries cause them to harden and narrow, reducing blood flow to brain, heart and body.
- **Thrombosis** – a blood clot. If a thrombosis occurs in the heart, it can cause a heart attack. If a thrombosis occurs in the brain, it can cause a stroke.

Factors **increasing the risk of CVD** include poor diet (e.g. consuming too much salt), taking too little exercise, smoking, drinking alcohol and having high blood pressure.

To **decrease the risk of CVD**, eat fewer processed foods, take regular exercise, stop smoking and reduce alcohol consumption.

CVD is **treated medically** by taking **statins** to reduce blood cholesterol, taking **antiplatelet drugs** to make platelets less sticky so there is less clotting, taking **beta blockers** to lower heart rate and improve blood flow and **nitrates** to widen blood vessels and improve blood flow.

CVD is **treated surgically** by **replacing faulty heart valves**, **widening** partially blocked **arteries** using a **stent** (this is an angioplasty) and **heart bypass surgery**.