Edexcel Biology GCSE

Topics 5.23 to 5.25 - Non-communicable disease

Flashcards

Give some examples of non-communicable diseases

Give some examples of non-communicable diseases

- Cancer
- Diabetes
- Cardiovascular diseases
- Chronic respiratory diseases e.g. asthma

What is a risk factor?

What is a risk factor?

A variable associated with a greater chance of developing a disease or infection

Outline the factors that can affect the risk of developing a non-communicable disease

Outline the factors that can affect the risk of developing a non-communicable disease

- **Lifestyle** factors e.g. diet, exercise, alcohol, smoking
- **Environmental** factors e.g. exposure to pollution
- **Genetics** e.g. alleles that increase the risk of cancer

"Correlation does not mean causation."
Explain this statement.

"Correlation does not mean causation." Explain this statement.

Correlation between a risk factor and a disease does not mean that the risk factor causes the disease. Other factors may be involved and some may be linked.

Describe how exercise affects the risk of some non-communicable diseases

Describe how exercise affects the risk of some non-communicable diseases

- Regular exercise decreases fat stores, reducing obesity (a risk factor of **CVD** and **type 2 diabetes**)
- It decreases heart rate, recovery time and blood pressure, lowering the risk of **CVD**

Describe how diet affects the risk of some non-communicable diseases

Describe how diet affects the risk of some non-communicable diseases

- Diet high in saturated fat raises blood cholesterol levels, increasing the deposition of fatty deposits in the arteries ∴ greater risk of **CVD**
- Obesity and the consumption of large amounts of simple-sugars increases the risk of **type 2 diabetes**
- Malnourishment increases the risk of **deficiency diseases**

Give an example of a deficiency disease

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- Scurvy (vitamin C deficiency)
- Anaemia (iron deficiency)

What is the Body Mass Index (BMI)?

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A value based on height and mass used to categorise an individual as underweight, normal weight, overweight or obese.

How is BMI calculated?

How is BMI calculated?

$$\text{BMI} = \frac{\text{mass (kg)}}{(\text{height (m)})^2}$$

Why isn’t BMI always an accurate measure of obesity?

Why isn't BMI always an accurate measure of obesity?

Fat and muscle tissue cannot be distinguished so athletes may be incorrectly categorised as obese.

How is an individual's waist-to-hip ratio calculated?

How is an individual's waist-to-hip ratio calculated?

$$\text{waist-to-hip ratio} = \frac{\text{waist circumeference (cm)}}{\text{hip circumeference (cm)}}$$

What does a waist-to-hip ratio higher than 1.0 in males or 0.85 in females indicate?

What does a waist-to-hip ratio higher than 1.0 in males or 0.85 in females indicate?

- Abdominal obesity
- Increased risk of developing type 2 diabetes

Describe how alcohol affects the risk of some non-communicable diseases

Describe how alcohol affects the risk of some non-communicable diseases

- Alcohol broken down into toxic products in the liver which build-up and cause **cirrhosis** (scarring of liver tissue)
- Alcohol raises blood pressure thus increasing the risk of **CVD**
- Toxic products in alcohol can cause mutations to DNA, increasing the risk of **cancer** (mouth, throat, liver etc.)

Describe how smoking affects the risk of some non-communicable diseases

Describe how smoking affects the risk of some non-communicable diseases

- Nicotine raises heart rate, increasing the risk of **CVD**
- Carbon monoxide lowers the ability of red blood cells to carry oxygen, heart rate increases, increasing the risk of **CVD**
- Carcinogens in tar can cause mutations to DNA, increasing the risk of **cancer** (mouth, throat, lung etc.)
- Smoking increases the risk of lung diseases e.g. **chronic bronchitis**

How do environmental factors affect the risk of some non-communicable diseases?

How do environmental factors affect the risk of some non-communicable diseases?

- Long-term exposure to pollution damages the airways, increasing the risk of **lung diseases** and **lung cancer**
- Exposure to UV radiation damages DNA, increasing the risk of DNA mutations and **skin cancer**

How do genetics affect the risk of some non-communicable diseases?

How do genetics affect the risk of some non-communicable diseases?

The risks of some diseases such as **type 2 diabetes**, **lung cancer** and **CVD** are increased if a family member has had these conditions.

Faulty genes can be inherited which increase the risk of conditions such as **breast cancer**.

How do diseases interact with each other?

How do diseases interact with each other?

- Some diseases may cause other infections to develop e.g. HIV weakens the immune system, making an individual more susceptible to other infections such as TB.
- Some diseases reduce the risk of contracting other infections e.g. Trichinosis reduces the development of Crohn's disease.

Describe the effects of non-communicable disease on a local, national and global level

Describe the effects of non-communicable disease on a local, national and global level

- Increased incidence of non-communicable disease puts a strain on **local hospitals** which have limited resources
- Increased pressure on **NHS** to provide treatment to a larger number of patients. Sickness-related absence impacts a **country's economy**
- High prevalence of malnutrition in LEDCs slows the development of such countries which in turn impacts **global development**

What is cardiovascular disease (CVD)?

What is cardiovascular disease (CVD)?

- Group of diseases affecting the heart or blood vessels
- Build up of fatty deposits on the walls of the arteries forms atheromas which reduce blood flow to muscle tissue
- Blood clots may form, blocking the arteries and stopping blood flow completely. This can lead to a heart attack or stroke.

How can CVD lead to a heart attack?

How can CVD lead to a heart attack?

- Obstruction of a coronary artery (supplies heart muscle) due to an atheroma or blood clot
- Results in loss of blood supply to an area of heart muscle
- This causes death of the cells and leads to a heart attack

How can CVD be treated? (3)

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- Improving diet and lifestyle
- Medication
- Surgery

What changes to diet and lifestyle can be made to reduce the risk of CVD?

What changes to diet and lifestyle can be made to reduce the risk of CVD?

- Regular exercise
- Reduce intake of saturated fat
- Maintenance of a healthy weight
- Diet low in salt
- Reduce stress
- Stop smoking and drinking alcohol

How effective are changes to lifestyle and diet in treating CVD?

How effective are changes to lifestyle and diet in treating CVD?

Although not themselves effective in the treatment of CVD, they can enhance the efficiency of other methods of treatment.

Which medicines are used to treat CVD? (3)

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- Statins
- Anticoagulants
- Antihypertensives

Outline the benefits vs the risks of using **statins** to treat CVD

Outline the benefits vs the risks of using **statins** to treat CVD

- Statins lower the level of cholesterol in the blood
- However, they can cause liver damage, kidney failure or problems with memory

Outline the benefits vs the risks of using **anticoagulants** to treat CVD

Outline the benefits vs the risks of using **anticoagulants** to treat CVD

- Anticoagulants reduce blood clotting, lowering the risk of a heart attack or stroke
- However, they can cause excessive bleeding

Outline the benefits vs the risks of using **antihypertensives** to treat CVD

Outline the benefits vs the risks of using **antihypertensives** to treat CVD

- Antihypertensives lower blood pressure, reducing damage to artery walls and the build up of atheromas
- However, they can have unpleasant side-effects such as headaches, dizziness or fainting

What are stents?

What are stents?

- Small, hollow tubes inserted into the lumen of arteries to keep them open
- Require surgery to insert

What are the problems with the use of stents to treat CVD?

What are the problems with the use of stents to treat CVD?

- Stents cause the growth of scar tissue in the arteries over time, further narrowing the lumen
- Blood clots may stick to stents

What is a coronary bypass?

What is a coronary bypass?

Using a blood vessel from another region of the body (e.g. leg, arm) to divert blood around a blockage in the coronary artery.

What does a heart transplant involve?

What does a heart transplant involve?

- Replacing a damaged heart with a donated heart
- Immunosuppressant drugs taken to prevent organ rejection

Describe the benefits of heart surgery

Describe the benefits of heart surgery

- Lifesaving
- Can provide a permanent solution to a disease

Describe the risks of heart surgery

Describe the risks of heart surgery

- Involves many risks e.g. infection, excessive bleeding etc.
- Difficult to find a suitable donor
- Risk of rejection
- Immunosuppressant drugs must be taken for life
- Long recovery time
- Expensive