

Diabetes

People who have a disease called **diabetes** cannot control their blood glucose levels very well. **Low** concentrations of blood glucose may cause **unconsciousness**. **High** concentrations of blood glucose cause **tiredness** and can **damage organs**, such as the **eyes**. If blood glucose concentrations are too **high**, the kidneys get rid of it by putting it into the urine.

There are **two** types of diabetes, called **type 1** and **type 2 diabetes**.

Type 1 Diabetes

This condition is caused when the pancreas produces **too little** or **no insulin**. The result is the person's blood glucose can rise to a level that can **kill them**.

Controlling Type 1 Diabetes

1. **Avoiding foods** rich in carbohydrates which can cause blood glucose levels to rise rapidly.
2. **Injecting insulin** into the blood at meal times, so the liver will **remove** the **glucose** as it enters the blood from the gut. This stops the level of glucose in the blood from getting too high and is a very effective treatment.

The insulin is injected into the **subcutaneous fat layer**, found just **underneath** the skin.

The **amount of insulin** injected depends on the **diet** and **activity** of the person. Eating a **healthy diet**, low in carbohydrates, and doing **regular exercise** both **reduce** the amount of **insulin** that needs to be injected.

Type 2 Diabetes

This condition is caused when the **pancreas** doesn't produce enough **insulin** or the person's **cells** become **resistant to insulin**, even though the hormone is being produced. In both cases the blood glucose level rises.

Type 2 diabetes can be **controlled** by a healthy diet, regular exercise and losing weight if needed. The condition can also be controlled by medication and insulin injections.

Factors that **increase** the risk of developing type 2 diabetes are **high fat diets**, **lack of exercise**, **getting older** and being **obese**. Obese people have a **body mass index (BMI)** of over 30.

$$\text{BMI} = \frac{\text{Body Mass (kg)}}{\text{Height}^2 \text{ (m)}}$$

Q1. Calculate your body mass index

$$\text{BMI} = \frac{\text{Body Mass (kg)}}{\text{Height}^2 \text{ (m)}} = \frac{85}{1.79 \times 1.79} = \frac{85}{3.2041} = 26.5$$

26.5

$$\begin{array}{r} 1.79 \\ \times 1.79 \\ \hline 1591 \\ 1252 \\ \hline 32041 \end{array}$$