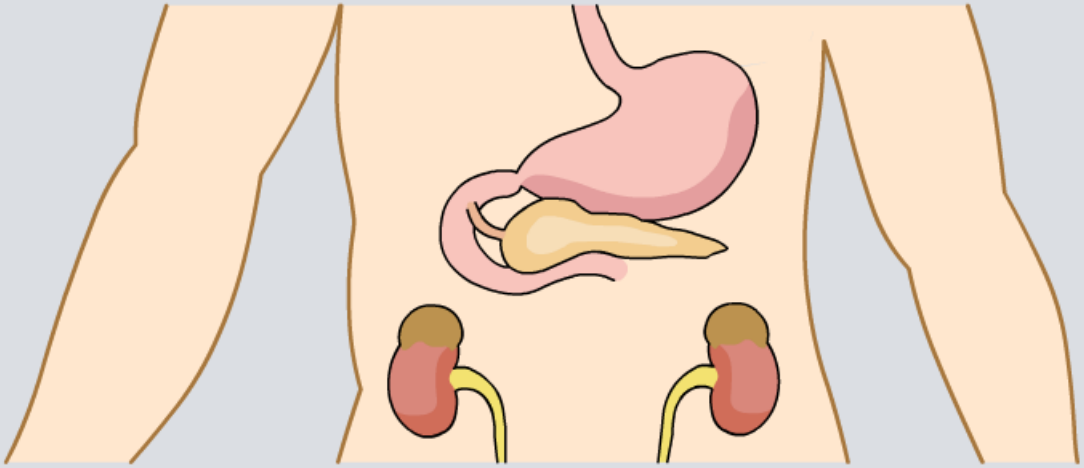
Glucoregulation



What is blood glucose?

Glucose is a type of sugar used by the body to provide energy.

Sometimes there is too much glucose in the blood, and sometimes there is not enough.

What affects the level of blood glucose?

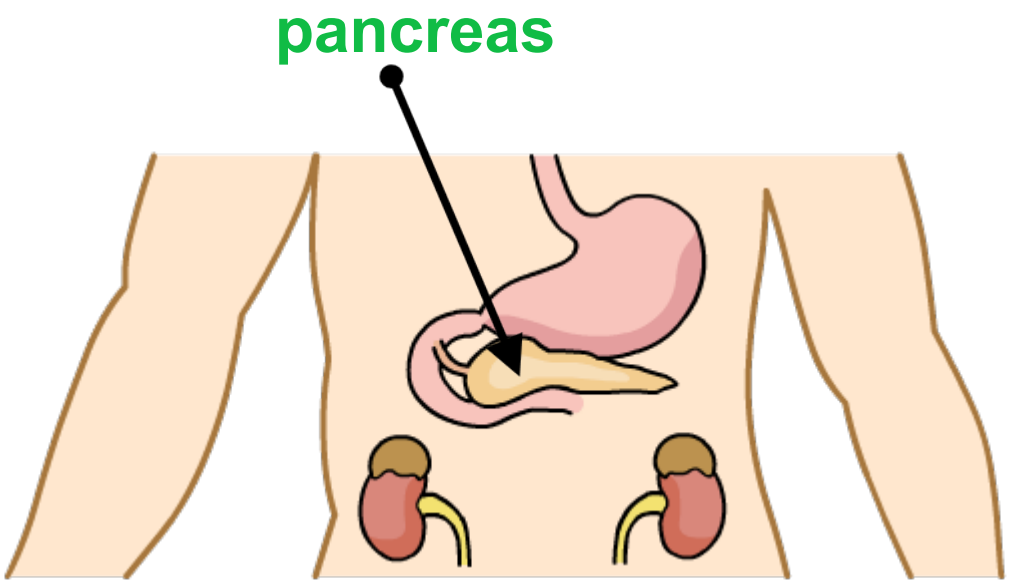
- **Eating** causes blood glucose levels to **rise**.
- **Vigorous exercise** causes blood glucose levels to **fall**.

How does the body regulate blood glucose levels?

The pancreas and blood glucose

Blood glucose levels are monitored and controlled by the **pancreas**.

The pancreas produces and releases different hormones depending on the blood glucose level.

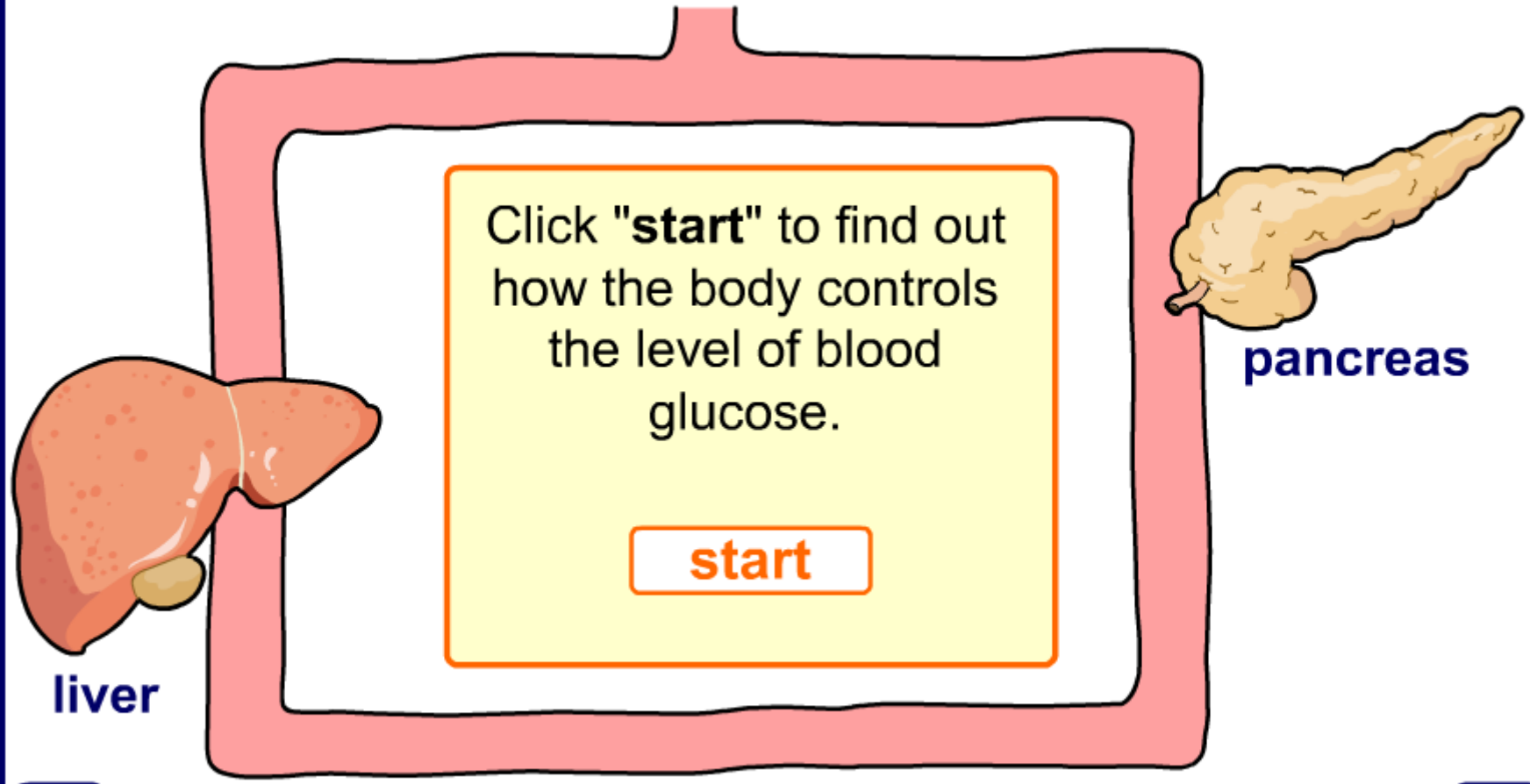


- **Insulin** is released when blood glucose levels are **high** – this causes the liver to store excess glucose as glycogen.

- **Glucagon** is released when blood glucose levels are **low** – this causes the liver to convert stored glycogen into glucose and release it into the blood.

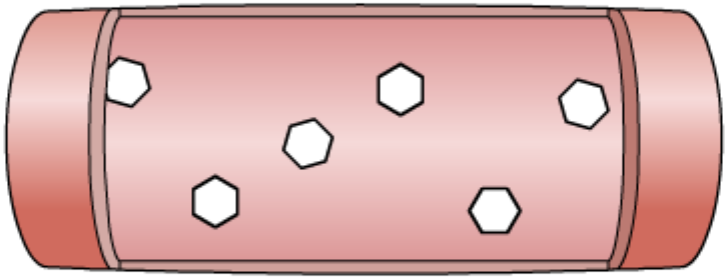
Maintaining safe glucose levels

How does the body control blood glucose levels?



Maintaining safe glucose levels

How does negative feedback control blood glucose?



What is diabetes?

Some people are unable to regulate their blood glucose levels because their pancreas doesn't produce enough insulin. This is called **diabetes**.

The lack of insulin means that blood glucose levels can rise dangerously high after eating, which can cause cell damage.

Symptoms of diabetes develop quickly and can be severe. Initial symptoms include:

- increased thirst, hunger and production of urine
- loss of weight, tiredness and nausea.

Later symptoms include vomiting and abdominal pain. If untreated, diabetes can lead to coma and even death.

How is diabetes treated?

People with diabetes have to inject themselves with insulin before eating to keep their blood glucose at a safe level.

Eating small amounts at regular intervals, and avoiding eating sugar is also important. This helps to reduce the peaks in blood glucose levels.

Complete the sentences – insulin