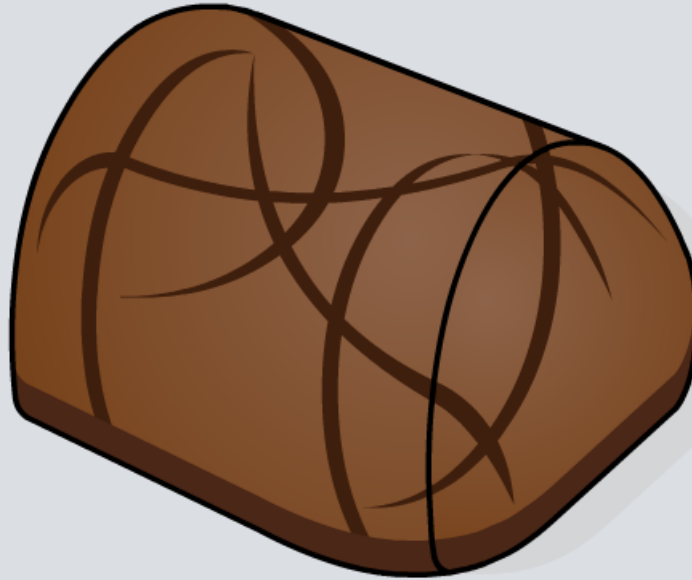


Diabetes



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?

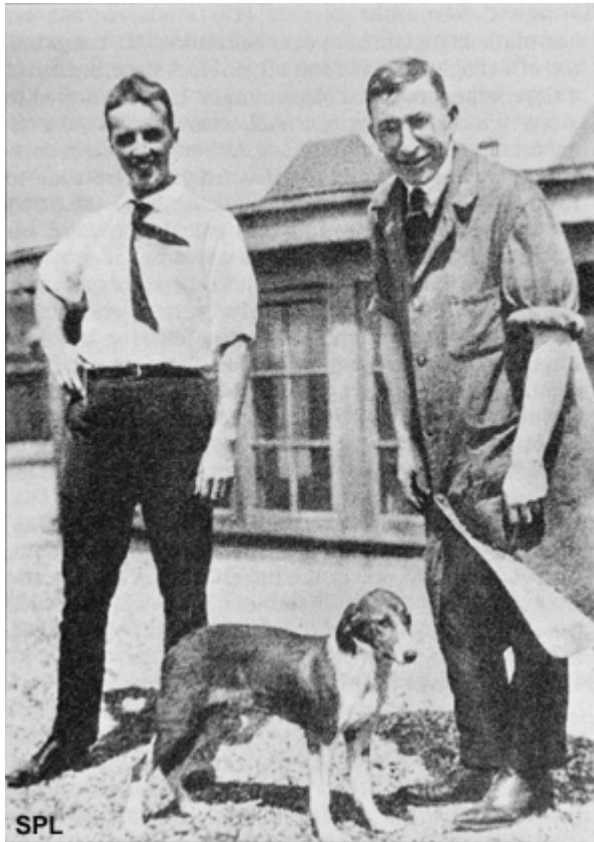
People with diabetes have to inject themselves with insulin before eating to keep their blood glucose at a safe level.

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



Dogs sacrificed to save human lives

Insulin treatment was discovered by the Canadian surgeon Frederick Banting and medical student Charles Best.



In 1921, they removed the pancreas from dogs so that they became diabetic.

The diabetic dogs were then injected with an extract from a healthy dog's pancreas, and their blood glucose levels returned to normal. One dog, Marjorie, was kept alive for 70 days with regular injections.

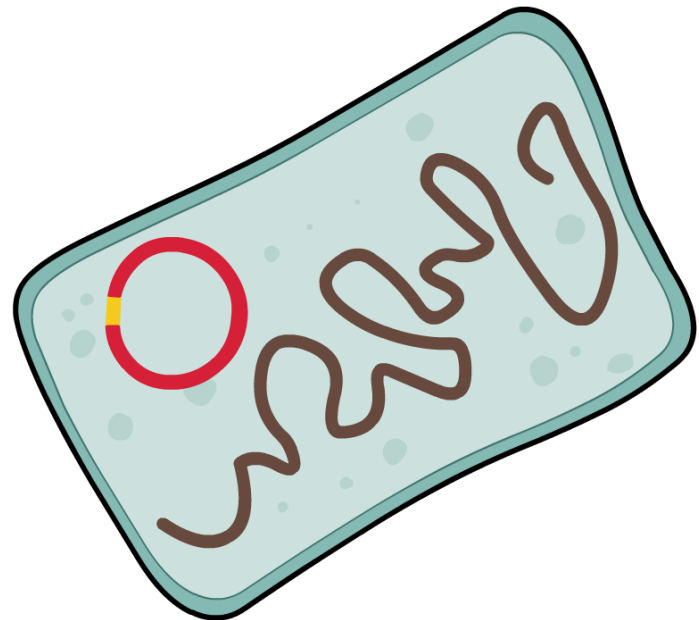
What conclusions could they draw from this?



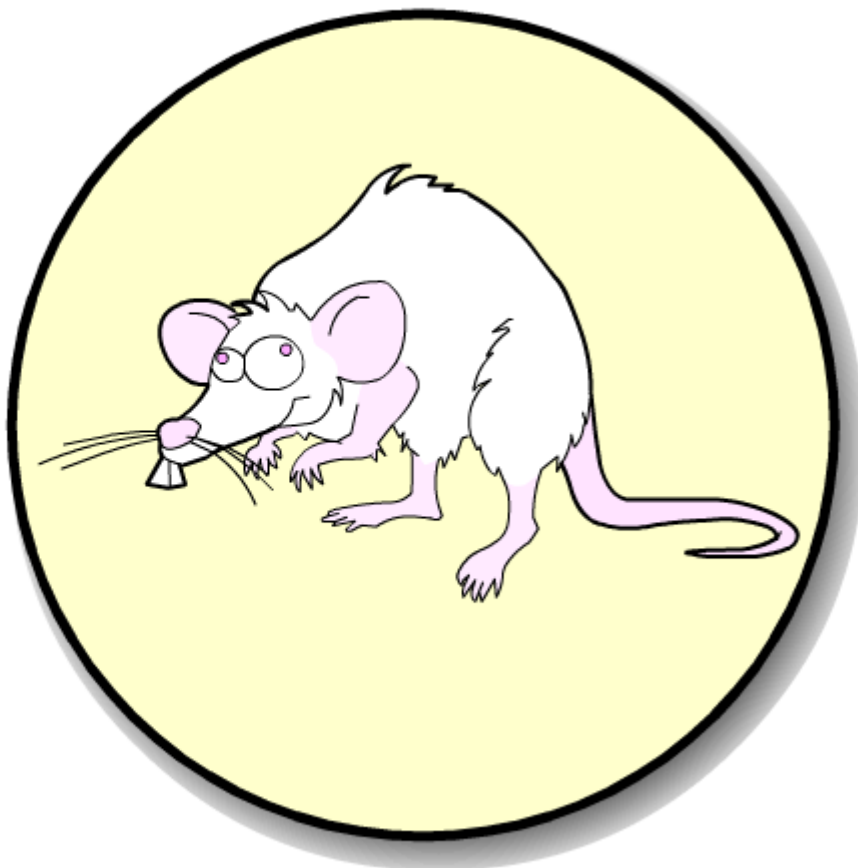
Banting and Best worked with biochemist James B Collip to purify a pancreas extract from cattle, finally obtaining a purer form of insulin.

The first human to be treated with insulin was the teenager Leonard Thompson in 1922. He made a dramatic recovery. Many other patients were treated and their lives were saved.

Insulin was initially obtained from cattle and pigs, but now it is made by genetically-engineered bacteria, which contain the human gene for insulin.



Should animals be used for medical research?



Complete the sentences – insulin

