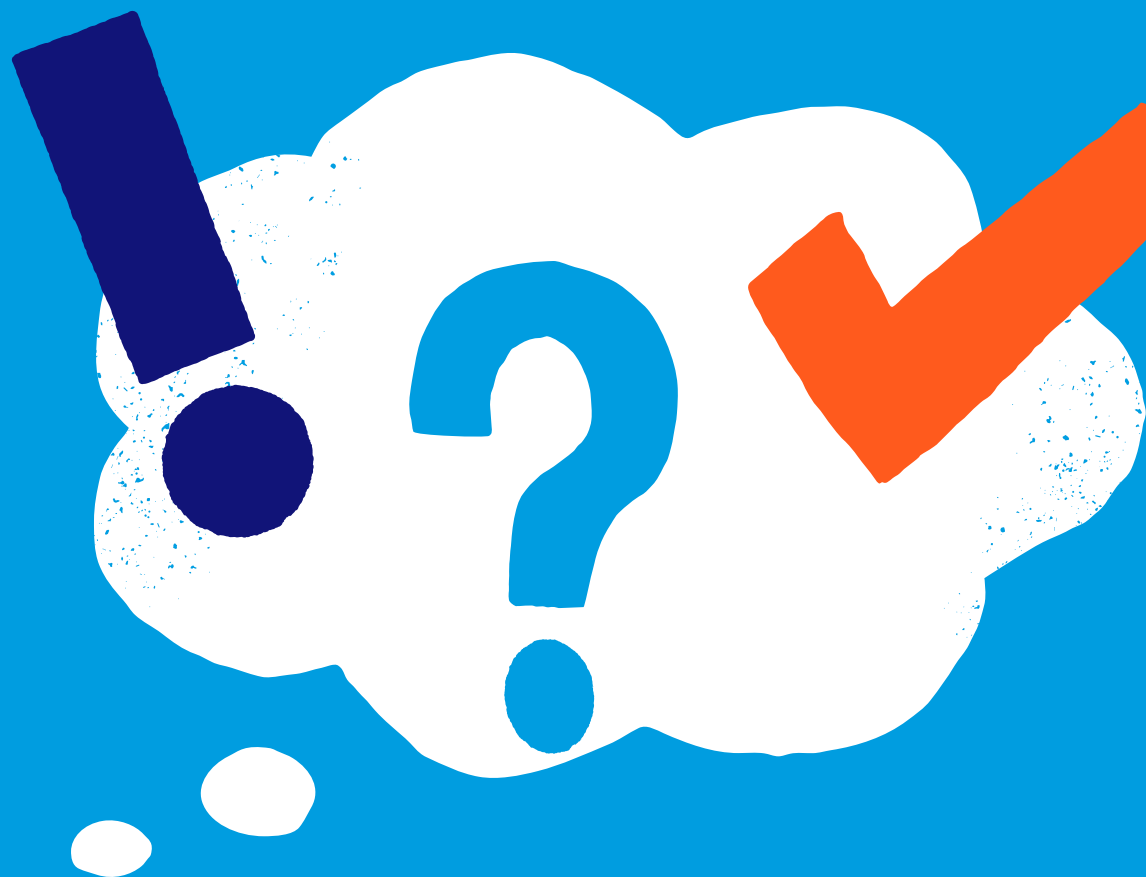


# DIABETES DISCOVERIES QUIZ

Celebrating 100 years  
of insulin



Answer sheet

**DiABETES UK**  
KNOW DIABETES. FIGHT DIABETES.

# ROUND 1

## Answers

**1. C A 'starvation' diet**

Explainer: The most effective treatment was to put people with diabetes on very strict diets with minimal carbohydrate, of around 500 calories a day. This could keep people alive for a few extra months or years but couldn't save them.

**2. True**

**3. A To purify the insulin**

Explainer: The first insulin extract has been described as "thick brown muck". Collip helped to develop a more refined and pure form of insulin, this time from the pancreases of cattle, so that it was ready to be given to people.

**4. False**

Explainer: Leonard Thompson has gone down in the history books as the first person to be given insulin. While he was the first person with type 1 diabetes to be treated it with, Banting and Best tested it on themselves first.

**5. C It was only awarded to two of the four scientists behind the discovery**

Explainer: The Nobel Prize was only awarded to Banting and Macleod. Banting was outraged that Macleod and not Best had been selected, and he briefly threatened to refuse the award. He immediately announced that he was giving half of his share of the prize money to Best. Macleod followed suit and gave half of his money to Collip.

**6. D He didn't**

Explainer: Macleod, Best and Collip famously sold the patent to the University of Toronto for \$1. But Banting refused to add his name to the insulin patent because he considered it unethical for a doctor to benefit from a discovery that saved lives.

**7. A It's Banting's birthday**

**8. B A flame**

Explainer: The 'flame of hope' was ignited by the Queen in 1989. It will burn until the day a cure for diabetes has been found.

# ROUND 2

## Answers

1. **C Snake bile**

Explainer: The ancient Greeks recommended exercise on horseback in the first century AD. Opium was liberally prescribed throughout the 18th and 19th centuries. A mixture including a measuring glass of water filled from a bird pond was found in Ancient Egyptian manuscripts dating from 1500 BC.

2. **D 1889**

Explainer: It was only in 1889, when von Mering and Minkowski found that removal of the pancreas led to diabetes in dogs.

3. **D** The first oral diabetes medication becomes available **(1955)**  
**B** HbA1c is discovered as a way to measure longer term blood sugar levels **(1971)**  
**A** Synthetic human insulin is made in the lab **(1979)**  
**C** Bariatric surgery is shown to put type 2 into remission **(1995)**

4. **Professor Dorothy Hodgkin**

Explainer: Dorothy won the Nobel Prize for discovering the 3D structure of insulin in 1969. And remains the only British woman in science to have done so.

5. **D A mistake in a single gene**

6. **A Lizard venom**

# ROUND 3

## Answers

1. **£50**

Explainer: It went to Dr Kosterlitz to work with Professor John Macleod, one of the scientists who discovered insulin, to study how the liver produces glucose.

2a. **B 36g**

2b. **A 11g**

Explainer: Carb counts taken from the Carbs and Cals app.

3. **A Results were so good it was unethical to keep giving some people a placebo**

Explainer: The results showed one statin tablet a day reduced the risk of a serious heart problem by more than a third and the risk of stroke by almost half. The results were so clear that the decision was made to end CARDS two years early so that everyone on the trial could benefit from the drug. CARDS changed the way statins were used, not just in the NHS but across the world.

4. **Pancreas cells (islets)**

5. **False**

Explainer: A Diabetes UK researcher Dr Richard Oram showed in 2013 that most people with type 1, even those who've lived with it for decades, have some remaining beta cells and are still making tiny amounts of their own insulin. It raised the question of whether beta cells might be constantly regenerating – and whether we could find a way in the future to help more of them to regenerate so people could produce much more of their own insulin.

6. **B Mobile eye screening**

Explainer: He pioneered a new way to screen for eye damage and set up special retinal cameras in a fleet of old ambulances, driving over Newcastle to screen people with diabetes. The project was a massive success and improved how we spot early signs of retinopathy. It led to the roll out of a national eye screening programme and as a result in 2012 we learnt that diabetes is no longer the leading cause of sight loss in working age people.

7. **C 200**

8. **D Prof Alberti treats people with a device the size of a filing cabinet (1977)**

**A Trial with people with type 1 at home, without medical supervision (2007)**

**B Trial with women with type 1 during pregnancy (2016)**

**C Trial with people with type 2 during hospital stays (2018)**

9. **True**

Explainer: The green is liver fat that's been stripped away, helping to reboot the pancreas and helping some people with type 2 go into remission.

# ROUND 4

## Answers

- 1. B Exhausts the ‘killer’ immune cells that seek out beta cells and weakens their attack**
- 2. It responds to your blood sugar levels – turning on when you need insulin and turning off when you don’t.**
- 3. C Blood sugar levels of someone on a closed-loop trial**  
Explainer: The dotted black line shows blood sugars levels over a day before the trial. The solid red line shows blood sugars when using the hybrid closed-loop.
- 4. A Gut hormones**  
Explainer: Changes to levels of gut hormones have been suggested as one explanation for why some people go into remission after weight loss surgery. So scientists are exploring whether we might be able to develop drugs that replicate the effects on gut hormones seen after surgery.
- 5. D All of the above**