

Combined Science - Biology - KS4

Homeostasis and Response

## **Diabetes**

## **Downloadable Resource**

Miss Ray

# Quick questions

1. What is the name of the hormone that reduces blood glucose levels?
2. Which type of diabetes is often diagnosed in childhood?
3. Which type of diabetes is strongly linked with obesity?



# Quick questions

4. Which type of diabetes is can be treated by controlling their diet and exercise regime?
5. Which chemical reaction that occurs in all body cells uses glucose as a reactant?



# Quick questions

1. What is the name of the hormone that reduces blood glucose levels? **Insulin**
2. Which type of diabetes is often diagnosed in childhood? **Type 1**
3. Which type of diabetes is strongly linked with obesity? **Type 2**



# Quick questions

4. Which type of diabetes is can be treated by controlling their diet and exercise regime? **2**

5. Which chemical reaction that occurs in all body cells uses glucose as a reactant?

**Respiration**



# Exam style questions

Compare the cause and treatment of each type of diabetes. [4]



# Exam style questions

Compare the cause and treatment of each type of diabetes. [4]

Type 1 not enough / no insulin produced whereas type 2 cells do not respond to insulin. Type 1 is treated with injections of insulin whereas type 2 is treated with diet and exercise or loss of weight.



**Explain how insulin injections are able to reduce blood sugar levels?**





# **Explain how insulin injections are able to reduce blood sugar levels?**

**Insulin is injected into the blood. Insulin stimulates the liver cells to convert glucose into glycogen. The concentration of glucose in the blood decreases.**





Type of insulin	Time taken for insulin to work (min)	Time taken for insulin to no longer be effective (hours)	Time taken for insulin to reach its maximum concentration in the blood (min)
1	15-20	2	30-60
2	45-60	6	120-150
3	90-150	18	360-600

**Which type of insulin should be injected:**

- **After a meal**
- **To last the duration of the day**



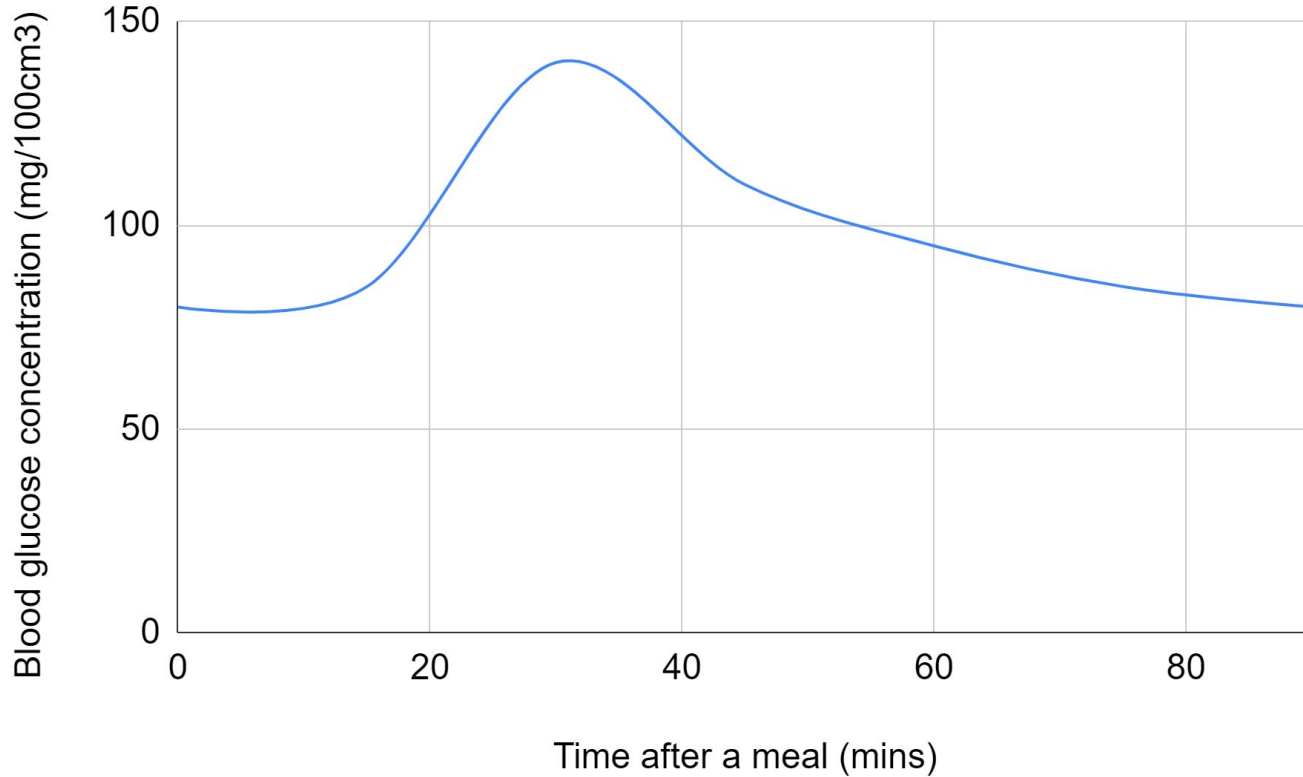


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**Which type of insulin should be injected:**

- **After a meal**      **1 - It takes the shortest length of time to work**
- **To last the duration of the day**      **3 - It is effective for the longest time**





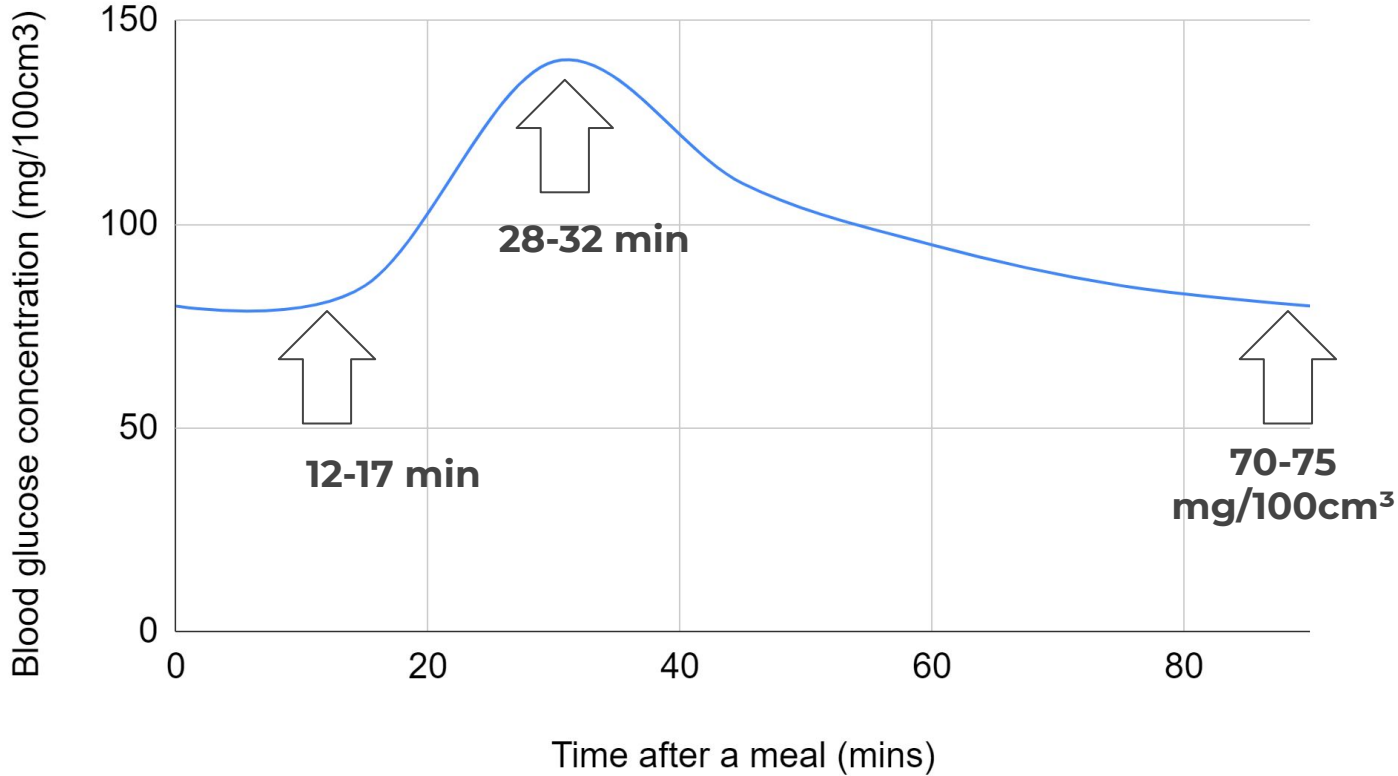
Graph - Ella Ray, Oak National Academy

At what time did the person:

- Start absorbing glucose into the blood
- Insulin begin to take an effect

What is this person's 'normal' blood glucose concentration?





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Graph - Ella Ray, Oak National Academy

