A10 · Hormones, feedback and the endocrine glands · Practice key

This is the worked key. Every practice question is worked step by step.

Worked examples

Read these first. There is one for each kind of question in this lesson.

Example 1 · Trace a negative feedback loop

An air conditioner is set to 22 °C. The room warms to 25 °C. Trace the loop.

1. Step 1: the room temperature rose.
2. Steps 2 and 3: the thermostat responds and sends a signal.
3. Step 4: the air conditioner cools the room.
4. Step 5: the room cools back to 22 °C.
5. Step 6: the thermostat switches off.

Answer: The response (cooling) is opposite to the change (warming).

Example 2 · Tell negative from positive feedback

A response makes the change that started it bigger. Which kind of feedback is it?

1. In negative feedback the response reverses the change.
2. Here the response adds to the change.

Answer: Positive feedback.

Practice

Questions 1 to 4 are easy. Questions 5 to 8 are medium. Questions 9 and 10 are harder.

EASY

1. State what a hormone is.

1. It is a chemical messenger.
2. An endocrine gland releases it into the blood.

EASY

2. Name the cells that respond to a hormone.

1. They have receptors that the hormone fits.
2. They are target cells.

EASY

3. Name the gland that sits on top of each kidney.

1. Renal means to do with the kidney.
2. It is the adrenal gland.

EASY

4. Name the part of the brain that controls the pituitary gland.

1. The pituitary gland hangs just below it.
2. It is the hypothalamus.

MEDIUM

5. State which system acts faster, the nervous system or the endocrine system. Say which has longer-lasting effects.

1. The nervous system is faster.
2. The effects of the endocrine system last longer.

MEDIUM

6. Name the three hormones made by the anterior lobe of the pituitary gland.

1. hGH and TSH.
2. ACTH.

MEDIUM

7. Explain why the posterior lobe of the pituitary gland is said to store hormones, not make them.

1. The hypothalamus makes the hormones, such as ADH.
2. Nerve cells carry them to the posterior lobe, which stores and releases them.

MEDIUM

8. Explain why negative feedback keeps a level steady.

1. A change causes a response that reverses the change.
2. When the level is back to normal, the response is turned off.

HARDER

9. Hormone Y lowers the level of a substance in the blood. The level rises above normal. Use the six steps to predict what happens to hormone Y.

1. The level of the substance rose.
2. The gland releases more hormone Y.
3. The target lowers the level back to normal.
4. The gland is inhibited, so it releases less hormone Y.

HARDER

10. A cell has no receptors for insulin. Insulin is in the blood around it. Predict whether the cell responds. Explain.

1. Only target cells respond to a hormone.
2. A target cell has receptors that the hormone fits.
3. This cell has none, so it does not respond.