A12 · Stress: epinephrine, cortisol and aldosterone · Worked examples and practice

Name: _____ Date: _____

Worked examples

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

Example 1 · Sort a stress response

A sprinter's heart pounds one second after the starting gun. Which response is this, and which hormone?

1. It starts within seconds, so nerves trigger it.
2. Sympathetic nerves make the adrenal medulla release epinephrine.

Answer: The short-term stress response; epinephrine.

Example 2 · Trace the cortisol loop

List the glands and hormones from long-term stress to a rise in blood sugar.

1. The hypothalamus sends a releasing hormone to the pituitary gland.
2. The pituitary gland releases ACTH.
3. The adrenal cortex releases cortisol.
4. Cortisol raises blood sugar.

Answer: Hypothalamus, pituitary gland (ACTH), adrenal cortex (cortisol).

Practice

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

EASY

1. Name the inner part of the adrenal gland.

EASY

2. Name the hormone released in the short-term stress response.

EASY

3. Name the hormone that makes the adrenal cortex release cortisol.

EASY

4. Name the organ that aldosterone acts on.

MEDIUM

5. State two changes that epinephrine causes in the body.

MEDIUM

6. Explain how cortisol raises blood sugar.

MEDIUM

7. Explain how aldosterone helps to keep blood pressure up.

MEDIUM

8. Compare the short-term and the long-term stress response. Give what starts each one.

HARDER

9. A tumour makes the pituitary gland release too much ACTH. Predict the level of cortisol and its effect on blood sugar. Explain.

HARDER

10. A person takes cortisol pills for many months. Use the loop to predict the level of their own ACTH. Explain.