What is the Endocrine System?

Worksheet

The endocrine system is a collection of glands - including the pituitary, thyroid, adrenal glands, and pancreas - that secrete hormones into the blood to control metabolism, growth, and homeostasis.

Questions

1. Which gland is known as the 'master gland' of the endocrine system?

A) Thyroid
B) Pituitary
C) Adrenal
D) Pancreas

2. Which hormone lowers blood glucose levels?

A) Glucagon
B) Cortisol
C) Insulin
D) Thyroxine

3. What is the main mechanism that keeps hormone levels stable?

A) Positive feedback
B) Negative feedback
C) Diffusion
D) Osmosis

4. Which gland releases cortisol during stress?

A) Thyroid
B) Pancreas
C) Adrenal cortex
D) Pituitary

5. How does the body respond to low blood sugar?

6. What happens during the body's stress response?

7. How does the thyroid regulate metabolism long-term?

8. Define: What is a hormone?

9. Define: Which gland is called the 'master gland'?

10. Define: What hormone regulates blood sugar by lowering it?

Answer Key

1. B) Pituitary - The pituitary gland regulates most other endocrine glands via hormones controlled by the hypothalamus.

2. C) Insulin - Insulin, from the pancreas, helps cells absorb glucose, lowering blood sugar.

3. B) Negative feedback - Negative feedback loops suppress hormone release once levels are sufficient.

4. C) Adrenal cortex - The adrenal cortex releases cortisol in response to ACTH from the pituitary.

5. The pancreas' alpha cells detect low glucose They release glucagon into the bloodstream Glucagon signals the liver to break down glycogen into glucose Blood glucose rises back to a normal range

6. The hypothalamus releases corticotropin-releasing hormone (CRH) The anterior pituitary responds by releasing ACTH ACTH stimulates the adrenal cortex to release cortisol Cortisol raises blood sugar and suppresses non-essential functions until the stressor passes

7. The hypothalamus releases TRH The pituitary releases TSH in response The thyroid gland releases T3 and T4 hormones Rising T3/T4 levels feed back to suppress TRH and TSH, keeping metabolism stable

8. A chemical messenger released by a gland directly into the bloodstream to regulate a target organ or tissue.

9. The pituitary gland, because it controls most other endocrine glands via the hypothalamus.

10. Insulin, released by the beta cells of the pancreas.