What Is the Human Endocrine System?

Worksheet

The endocrine system uses hormones (chemical signals) released by glands to control long-term processes like growth, reproduction, and metabolism. The pituitary gland is often called the 'master gland' because it regulates other endocrine glands.

Questions

1. Which gland is called the 'master gland'?

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

2. Which hormone raises blood glucose?

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

3. Which gland produces adrenaline (epinephrine)?

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

4. What does the thyroid hormone do?

A) Lowers calcium
B) Increases metabolism
C) Decreases growth
D) Stops digestion

5. Describe how the hypothalamus-pituitary-thyroid (HPT) axis regulates thyroid hormones.

6. Why is the pituitary gland called the 'master gland'?

7. Explain the role of insulin in regulating blood glucose.

8. Define: What is a hormone?

9. Define: Name three major endocrine glands.

10. Define: What is negative feedback in endocrinology?

Answer Key

1. B) Pituitary - The pituitary gland controls the release of hormones from other endocrine glands.

2. B) Glucagon - Glucagon raises blood glucose by promoting glucose release from the liver.

3. C) Adrenal medulla - The adrenal medulla releases adrenaline in response to stress ('fight or flight').

4. B) Increases metabolism - Thyroid hormones (T3, T4) increase metabolic rate and heat production.

5. The hypothalamus releases TRH pituitary releases TSH thyroid releases T3 and T4. High T4 inhibits TRH and TSH (negative feedback), maintaining balance.

6. The anterior pituitary releases hormones (ACTH, TSH, FSH, LH, GH) that control other endocrine glands (adrenal, thyroid, gonads). The posterior pituitary releases ADH and oxytocin.

7. After eating, blood glucose rises pancreas detects this beta cells release insulin insulin allows cells to take up glucose blood glucose drops insulin release stops (negative feedback).

8. A chemical messenger produced by endocrine glands, released into the bloodstream to regulate body functions.

9. Pituitary, thyroid, and pancreas (also: hypothalamus, adrenal, gonads).

10. When a high hormone level inhibits further hormone release, maintaining stable levels.