Your notes

GCSE Biology: revision notes

The endocrine system

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The endocrine system

- The **endocrine system** is made of **glands** that secrete **hormones** directly into the bloodstream.
- The blood carries the **hormone** to a **target organ**, where it produces an effect.
- Compared with the nervous system, hormonal effects are slower but act for longer.

The main glands

- The **pituitary gland** in the brain is a 'master **gland**': it secretes several **hormones** that make other glands release hormones.
- The thyroid **gland** makes **thyroxine**; the adrenal **glands** make adrenaline.
- The pancreas makes insulin (and glucagon). The ovaries make oestrogen and progesterone; the testes make testosterone.

Adrenaline (Higher)

- **Adrenaline** is produced by the adrenal **glands** in times of fear or stress.
- It increases heart rate and boosts the delivery of oxygen and glucose to the brain and muscles, preparing the body for 'fight or flight'.

Thyroxine and negative feedback (Higher)

- **Thyroxine** from the thyroid **gland** stimulates the basal **metabolic rate**. It is important for growth and development.
- **Thyroxine** levels are controlled by **negative feedback**: when the level is too high, the pituitary releases less TSH, so less **thyroxine** is made; when it is too low, more is made.
- **Negative feedback** keeps a level steady by reversing any change.

Key terms

Endocrine system	The system of glands that secrete hormones into the blood.
Hormone	A chemical messenger carried in the blood to a target organ.
Gland	An organ that secretes a hormone or other substance.
Target organ	The organ that a hormone affects.
Pituitary gland	The 'master gland' in the brain that controls other glands.
Adrenaline	A hormone from the adrenal glands that prepares the body for 'fight or flight'.
Thyroxine	A hormone from the thyroid gland that controls the basal metabolic rate.
Negative feedback	A control mechanism that reverses a change to keep a level steady.
Metabolic rate	The speed at which chemical reactions happen in the body.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. How are hormones carried around the body?
2. How do hormonal effects compare with nervous effects?
3. Which gland is called the 'master gland'?
4. Which gland produces insulin?
5. Which hormone prepares the body for 'fight or flight'? (Higher)
6. What does adrenaline do to heart rate? (Higher)
7. What does thyroxine control? (Higher)
8. What is negative feedback?

Answers

1. In the blood
2. Slower but longer lasting
3. Pituitary gland
4. Pancreas
5. Adrenaline
6. Increases it
7. The basal metabolic rate
8. A mechanism that reverses a change to keep a level steady

What to do next

Practise 13 questions on this topic

Your notes

Try 5 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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