

Hormones in human reproduction

4.5.3.4 · Homeostasis and response · revision notes

The hormones of puberty and the menstrual cycle: what FSH, LH, oestrogen and progesterone each do.

Key facts

- Oestrogen: ovaries; main female reproductive hormone
- Ovulation = release of an egg, about every 28 days
- LH (pituitary): egg released
- Testosterone: testes; stimulates sperm production
- FSH (pituitary): egg matures
- Oestrogen and progesterone: build up and maintain the uterus lining

Notes

Puberty

- During **puberty**, reproductive hormones cause **secondary sex characteristics** to develop.
- **Oestrogen** is the main female reproductive hormone, produced in the **ovaries**. At puberty, eggs begin to mature and one is released about every **28 days**. This is **ovulation**.
- **Testosterone** is the main male reproductive hormone, produced by the **testes**. It stimulates **sperm production**.

Hormones of the menstrual cycle

- **FSH** (follicle stimulating hormone, from the pituitary gland) causes an **egg to mature** in the ovary.
- **LH** (luteinising hormone, from the pituitary gland) stimulates the **release of the egg** (ovulation).
- **Oestrogen** (from the ovaries) makes the lining of the uterus build up.
- **Progesterone** (from the ovary, after ovulation) maintains the lining of the uterus.

The cycle in days

- Days 1 to about 5: the uterus lining breaks down and is lost (menstruation).
- About days 5 to 14: the lining builds up again while an egg matures.
- About day 14: ovulation. Days 14 to 28: the lining is maintained, ready for a fertilised egg to implant.

How to answer each type of question

Name the hormone

1 mark each

Grade 4

1. Match the effect to the hormone: mature (FSH), release (LH), build up (oestrogen), maintain (progesterone).
2. Give the name or the correct abbreviation.

Example. Name the hormone that:

- (a) causes an egg to mature in the ovary
- (b) stimulates the release of an egg
- (c) stimulates sperm production.

Model answer. (a) FSH (1)

(b) LH (1)

(c) Testosterone (1)

Don't lose marks

- ✗ Saying LH makes the egg mature. FSH matures it; LH releases it.
- ✗ Saying FSH and LH come from the ovaries. They come from the pituitary gland.
- ✗ Saying the cycle is exactly 28 days for everyone. It is about 28 days and varies.

More tips

Memory tricks

- FSH = Follicle Stimulating: gets the egg ready. LH = the Launch hormone: releases it.
- PROgesterone is PRO-pregnancy: it keeps the lining ready.

What each grade needs

What you need to be able to do, from the first marks up to the top grade.

Grade 3

Name the main male and female hormones

Testosterone from the testes; oestrogen from the ovaries.

Grade 4

Define ovulation

The release of a mature egg from an ovary, about every 28 days.

Grade 5

State the roles of the four cycle hormones

FSH matures an egg, LH triggers its release, and oestrogen and progesterone maintain the uterus lining.

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