

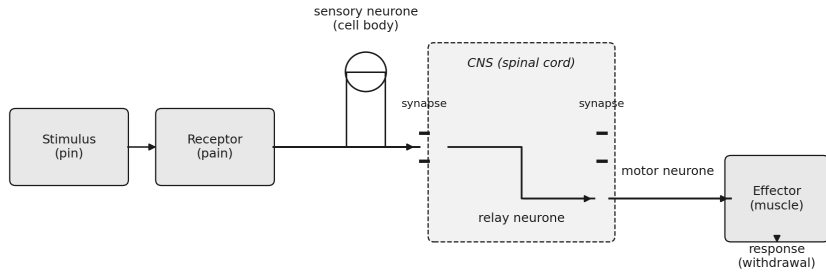
Exercise walk-through

5.1

Homeostasis and the nervous system (4.5.1–4.5.2, RP7 reaction time)

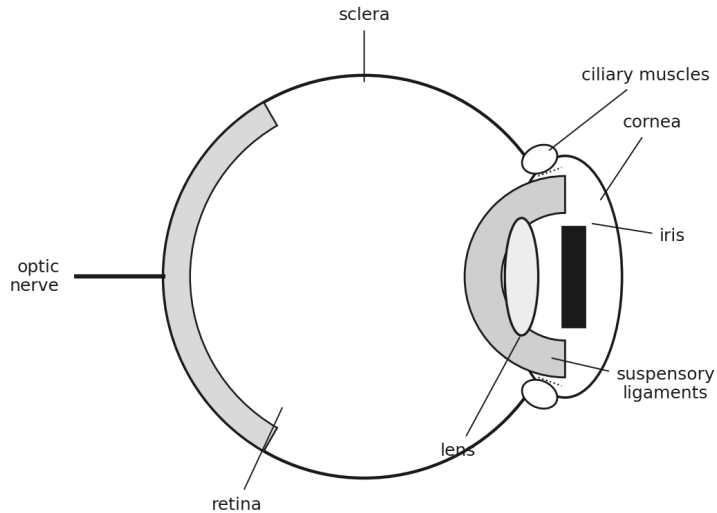
AQA · GCSE · Biology

The reflex arc



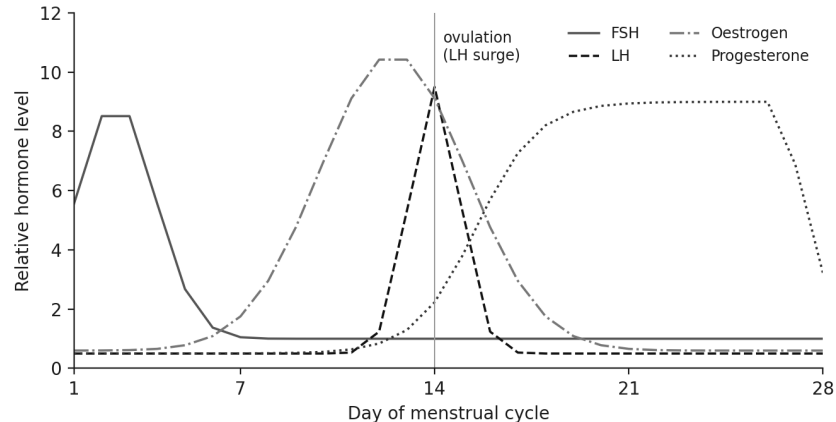
- Automatic and rapid — no conscious brain involved.
- Sensory neurone, synapse, relay neurone, motor neurone.
- At a synapse a chemical diffuses across the gap.

The eye and accommodation



- Named parts: retina, optic nerve, sclera, cornea, iris, ciliary muscles, suspensory ligaments.
- Near: ciliary muscles contract, ligaments loosen, lens thick.
- Distant: muscles relax, ligaments tight, lens thin.

The menstrual cycle



- FSH matures the egg; LH surge releases it — ovulation, about day 14.
- Oestrogen builds the lining; progesterone maintains it.
- (HT) read the four-hormone graph.

Exercises 2.1·2.3

2.1 Define homeostasis. [2]

2.2 Name the three components every automatic control system includes. [3]

2.3 Give two effectors and the response each brings about. [2]

Exercises 2.1·2.3

2.1 Define homeostasis. [2]

2.1 The regulation of the internal conditions of a cell or organism; to maintain optimum conditions for enzyme action/all cell functions, in response to internal and external changes.

2.2 Name the three components every automatic control system includes. [3]

2.2 Receptors; coordination centres; effectors.

2.3 Give two effectors and the response each brings about. [2]

2.3 Muscle – contracts; gland – secretes hormones.

Exercises 3.1·3.2

3.1 Describe the pathway of a reflex arc from stimulus to response, naming each structure involved. [5]

3.2 Explain how a synapse allows an impulse to pass from one neurone to the next. [3]

Exercises 3.1·3.2

3.1 Describe the pathway of a reflex arc from stimulus to response, naming each structure involved. [5]

3.1 Stimulus detected by receptors; electrical impulse passes along the sensory neurone; to the relay neurone in the CNS/spinal cord; along a motor neurone; to the effector (muscle), which contracts to give the response. Reflexes are automatic and rapid and do not involve the conscious brain.

3.2 Explain how a synapse allows an impulse to pass from one neurone to the next. [3]

3.2 When the impulse reaches the end of the neurone a chemical is released; the chemical diffuses across the gap/synapse; it triggers an electrical impulse in the next neurone.

Exercise 3.3

3.3 A student investigates whether listening to music affects reaction time, using the ruler-drop method. Describe how she should do this investigation, including the control variables and how results should be processed. [6]

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3.3 With partner's hand in a standard position, drop a ruler between finger and thumb without warning and record the catch distance; repeat, e.g. 5 times, and take a mean, converting distance to reaction time; take measurements in silence as the control; repeat while the partner listens to music; controls: same person/hand, same drop height and ruler, same time of day, no practice effect – change the order of tests; compare the two mean reaction times and conclude.