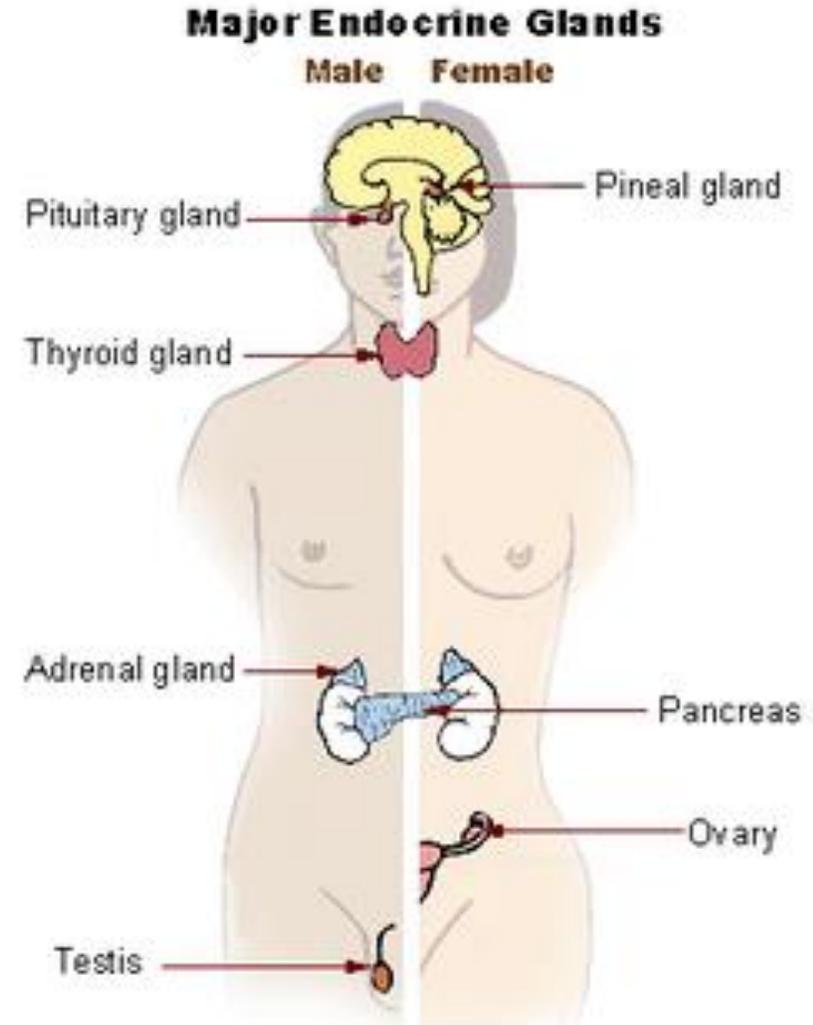


Key Terms

Knowledge Organiser – Hormonal control in humans

Gland	A structure in the body that produces hormones
Pituitary Gland	The master gland in your brain that produces a number of hormones, including TSH, FSH and LH & ADH
Insulin	A hormone produced in your pancreas that lowers blood glucose by converting it into glycogen and storing it in the liver
Glycogen	An insoluble molecule made from many glucose molecules
Glucagon	A hormone produced in the pancreas that raises blood glucose by breaking down glycogen stored in the liver
Negative feedback	A homeostatic mechanism by which the body detects a change and makes an adjustment to return itself to normal
Type I Diabetes	A medical condition that usually develops in younger people, preventing the production of insulin
Type II Diabetes	A medical condition that usually develops in later life, preventing the person producing enough insulin or preventing cells from responding to insulin
FSH	Hormone made by the pituitary gland that starts eggs developing in the ovaries
LH	Hormone made by the pituitary gland that causes egg release (ovulation)
Oestrogen	Hormone made in the ovaries that thickens the uterus lining and switches off FSH production
Progesterone	Hormone made in the ovaries that maintains the uterus lining and switches off LH production



Key Questions

1. What is a hormone?
2. How do hormones travel around the body?
3. Where are insulin and glucagon made?
4. What is diabetes?
5. Where is the pituitary gland?
6. Which hormone does the thyroid gland make?
7. Which 4 hormones control the menstrual cycle?
8. Explain what negative feedback is
9. What does insulin do? Which hormone stimulates egg development
10. Which hormone triggers ovulation?
11. Which 2 hormones are found in the female contraceptive pill?
12. Which hormone is used in the contraceptive implant?
13. Which 2 hormones are used in infertility treatment?

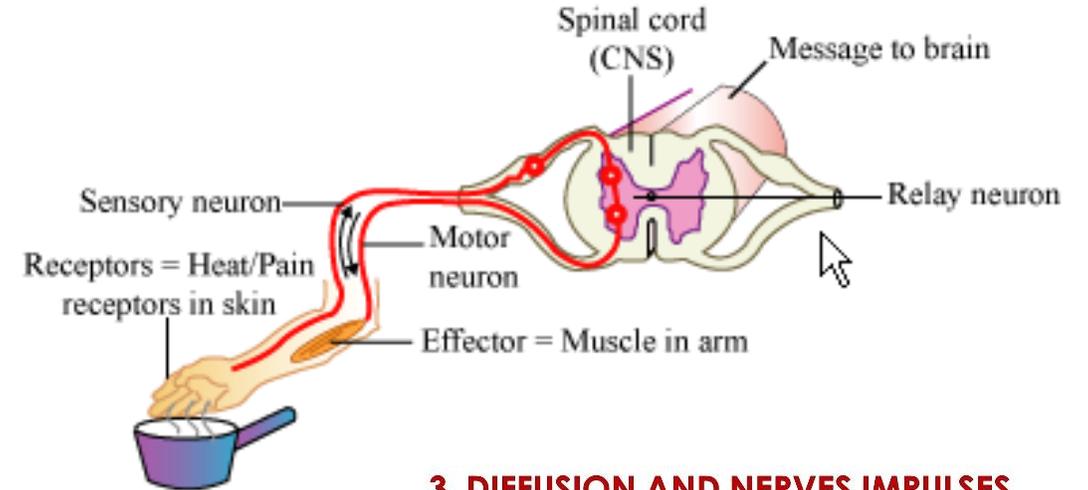
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Answers

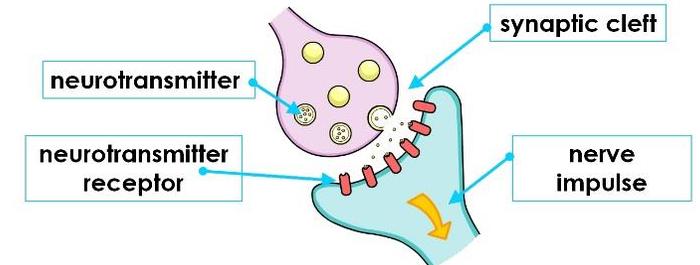
Chemical made by a gland
In blood
Pancreas
When a person can't control their blood sugar levels
Brain
Thyroxin
FSH, oestrogen, LH, progesterone
Returning a factor to its normal /original level
Lowers blood sugar levels
FSH
LH
Oestrogen & progesterone
Progesterone
FSH & LH

Homeostasis	The maintenance of a constant internal environment
Central nervous system (CNS)	The brain and spinal cord. Sometimes referred to as the coordinator
Neurones	Nerve cells – they link receptors and effectors to the CNS. Sensory neurones carry impulses from receptors to the CNS, relay neurones carry an impulse within the CNS and motor neurones carry the impulse from the CNS to an effector
Receptor	A cell or group of cells that detect a change and generate a nervous impulse
Effector	A muscle or gland that brings about a response
Synapse	A gap between neurones
Neurotransmitters	Chemicals which diffuse across the synapse and initiate a nervous impulse in the next neurone
Reflex response	An automatic response that you do not think about
Reflex Arc	The pathway of neurones in a reflex arc

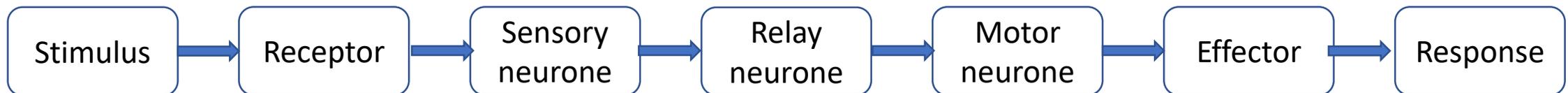


3. DIFFUSION AND NERVES IMPULSES

A **synapse** is a junction between two neurones across which electrical signals must pass.



Neurotransmitter molecules diffuse from vesicles towards the neurotransmitter receptors, moving from an area of high concentration to low concentration.



Key questions

1. What is homeostasis?
2. What is the CNS (central nervous system)?
3. Name 3 types of receptors
4. What is a synapse?
5. What is a reflex response?
6. Give 2 examples of a reflex response
7. What are effectors?
8. What type of signals do nerves use to transmit messages?
9. How do nervous impulses travel across synapses?
10. Describe a method you can use to measure your reaction time
11. What is a sensory neurone?
12. What is a motor neurone?

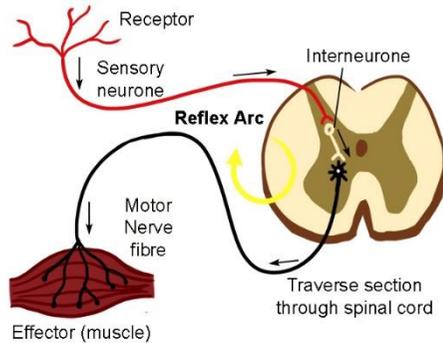
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Answers

The maintenance of a constant internal environment
Brain and spinal cord
Temperature, pressure, pain, light, chemical, sound
A gap between two nerves
An unconscious, automatic nervous response
Blinking, swallowing, pulling hand away from a hot object
Muscles or glands
Electrical
Chemicals called neurotransmitters diffuse across
Ruler drop test
A nerve that carries impulses from receptors to the CNS
A nerve that carries impulses from the CNS to muscles or glands

GCSE Homeostasis, Nerves and Hormones



What I know from KS3

- Yr7: Structure of the female reproductive system & events that occur in the female menstrual cycle
- Describe the process of IVF
- Hormones control puberty
- Yr8 & 10: The pancreas is part of the digestive system and makes enzymes

Homeostasis
The ways the body controls it's internal environment

Nervous System
Describe the general structure of the nervous system & a reflex arc (response).
Required Practical: Measure reaction times.

Control of blood sugar
Explain how insulin & glucagon, produced by the pancreas; control blood sugar levels
Describe what diabetes is & possible treatments

Control of the menstrual cycle
Describe how FSH, oestrogen & FSH hormones control the menstrual cycle.
Explain how hormone based contraceptives work
(H) Explain how fertility treatment works

(H) Adrenaline & Thyroxin
Describe the effects of adrenaline & thyroxin. How these hormones are controlled.

Future Learning
Yr11: Sexual reproduction & sex inheritance
Plant growth factors (auxins)

Vocabulary:

Stimulus Receptor Coordinator Effector Response Brain Spinal cord

Electrical impulse Synapse Sensory neurone Motor Neurone

Hormone Pituitary gland Oestrogen Pancreas Insulin Diabetes

Homeostasis Adrenaline Thyroxin

