

Nervous control

What travels along neurones?

Nervous control

What is the central nervous system (CNS)?

Nervous control

What is the peripheral nervous system (PNS)?

Nervous control

What is the role of the nervous system?

Nervous control

Which neurone is found only inside the CNS?

Nervous control

Name the parts of a simple reflex arc in order.

Nervous control

Describe a reflex action.

Nervous control

What is a synapse?

The brain and the spinal cord.

Electrical impulses.

Coordination and regulation of body functions.

The nerves outside of the brain and spinal cord.

Receptor, sensory neurone, relay neurone, motor neurone, effector.

The relay neurone. It links the sensory neurone to the motor neurone.

A junction between two neurones.

A means of automatically and rapidly integrating and coordinating stimuli with the responses of effectors (muscles and glands).

Nervous control **Supplement**

Name three features of a synapse.

Nervous control **Supplement**

Describe the events at a synapse.

Nervous control **Supplement**

What do synapses ensure about the direction of impulses?

Sense organs

What is a sense organ?

Sense organs

Function of the cornea?

Sense organs

Function of the iris?

Sense organs

Function of the lens?

Sense organs

Function of the retina?

Impulse releases neurotransmitter from vesicles; it diffuses across the gap; binds to receptor proteins on the next neurone; an impulse starts there.

Vesicles containing neurotransmitter molecules, the synaptic gap and receptor proteins.

A group of receptor cells responding to specific stimuli: light, sound, touch, temperature and chemicals.

Impulses travel in one direction only.

Controls how much light enters the pupil.

Refracts light.

Contains light receptors, some sensitive to light of different colours.

Focuses light on to the retina.

Sense organs

What is the blind spot?

Sense organs

Function of the optic nerve?

Sense organs

What happens to the pupil in bright light, and why?

Sense organs **Supplement**

Which iris muscles contract in dim light?

Sense organs **Supplement**

Which iris muscles contract in bright light?

Sense organs **Supplement**

Focusing on a near object: ciliary muscles, ligaments and lens?

Sense organs **Supplement**

Focusing on a distant object: ciliary muscles, ligaments and lens?

Sense organs **Supplement**

Where are rods and cones found in the human retina?

Carries impulses to the brain.

Where the optic nerve leaves the eye.
There are no receptors there.

Radial muscles contract and circular muscles relax, so the pupil widens.

It gets smaller, so less light enters and the retina is protected.

Ciliary muscles contract; suspensory ligaments slacken; lens becomes thicker and refracts light more.

Circular muscles contract and radial muscles relax, so the pupil narrows.

Rods are spread over the retina, more towards the edges. Cones are packed in the fovea.

Ciliary muscles relax; suspensory ligaments pulled tight; lens becomes thinner and refracts light less.

Sense organs **Supplement**

Function of rods and cones?

Sense organs **Supplement**

What is the function of the fovea?

Hormones

Define a hormone.

Hormones

**Name the four glands and hormones
you must know.**

Hormones

**Compare the speed of nervous and
hormonal control.**

Hormones

**Compare the duration of effect of
nervous and hormonal control.**

Hormones

**Name three effects of adrenaline in
‘fight or flight’.**

Hormones **Supplement**

**How does adrenaline control
metabolic activity?**

It gives the sharpest vision because it has the highest density of cones.

Rods are more sensitive, for night vision.
Three kinds of cone absorb different colours, for colour vision.

Adrenal glands: adrenaline. Pancreas: insulin. Testes: testosterone. Ovaries: oestrogen.

A chemical substance, produced by a gland and carried by the blood, which alters the activity of one or more specific target organs.

Nervous effects are short-lived. Hormonal effects last longer.

Nervous control is very fast. Hormonal control is slower, because hormones travel in the blood.

It increases the blood glucose concentration and increases heart rate.

Increased breathing rate, increased heart rate and increased pupil diameter.

Homeostasis

Define homeostasis.

Homeostasis **Supplement**

What is a set point?

Homeostasis **Supplement**

Describe negative feedback in one sentence.

Homeostasis

What does insulin do to blood glucose concentration?

Homeostasis **Supplement**

Which organ secretes glucagon?

Homeostasis **Supplement**

How does the liver respond to insulin and to glucagon?

Homeostasis **Supplement**

Outline the treatment of Type 1 diabetes.

Homeostasis **Supplement**

Name the skin structures involved in temperature control.

The normal level of a factor, such as blood glucose or temperature. Negative feedback returns the level to it.

The maintenance of a constant internal environment.

It decreases it.

A change away from the set point is detected and a response reverses it, bringing the level back towards the set point.

Insulin: glucose is converted to glycogen.
Glucagon: glycogen is converted to glucose and released into the blood.

The pancreas.

Hairs, hair erector muscles, sweat glands, receptors, sensory neurones, blood vessels and fatty tissue.

Insulin injections, monitoring blood glucose concentration, and controlling the diet (carbohydrate intake).

Homeostasis **Supplement**

How do sweating and shivering help control body temperature?

Homeostasis **Supplement**

What is vasodilation?

Homeostasis **Supplement**

What is vasoconstriction?

Tropic responses

Define gravitropism.

Tropic responses

Define phototropism.

Tropic responses

Why are gravitropism seedlings kept in the dark?

Tropic responses **Supplement**

Where is auxin made and how does it move?

Tropic responses **Supplement**

What does auxin do and where does it collect in a shoot with light from one side?

Widening of the arterioles supplying skin surface capillaries, so more blood flows near the surface and more heat is lost.

Sweating: evaporation of sweat cools the body. Shivering: muscle contraction releases heat from respiration.

A response in which parts of a plant grow towards or away from gravity.

Narrowing of the arterioles supplying skin surface capillaries, so less blood flows near the surface and less heat is lost.

So that light does not affect the direction of growth and only gravity is the variable.

A response in which parts of a plant grow towards or away from the direction of the light source.

It stimulates cell elongation. It collects on the shaded side, so the shoot bends towards the light.

It is made in the shoot tip and diffuses through the plant from the tip.

Why are tropisms an example of chemical control?

Plant growth is controlled by the chemical auxin, which is unequally distributed in response to light and gravity.