

The brain and hormonal control

State two differences between nervous and hormonal control.

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Which part of the brain links the nervous and endocrine systems?

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Give an example of a response using both nervous and hormonal control.

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What do the cerebral hemispheres do?

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What are the functions of the hypothalamus?

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What does the pituitary gland do?

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What is the function of the cerebellum?

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What does the medulla oblongata control?

The hypothalamus, which controls the pituitary gland.

Nervous: fast, short-lived, along neurones.
Hormonal: slower, longer-lasting, carried in the blood.

Conscious thought, memory, language, voluntary movement and sensory processing.

Fight or flight: nervous impulses stimulate the adrenal glands to release adrenaline.

Secretes hormones that control other glands (anterior); releases ADH and oxytocin (posterior).

Regulates temperature, water balance, hunger and thirst; controls the pituitary gland.

Involuntary actions: heart rate, breathing rate, blood pressure.

Coordinates movement, balance and posture.

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How does CT work?

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How does MRI work?

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What is fMRI used for?

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How does PET work?

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Which chemical imbalance is associated with Parkinson's disease?

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Which chemical imbalance is associated with depression?

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How do SSRIs act?

A magnetic field and radio waves make hydrogen nuclei emit signals that differ between tissues.

X-rays rotate around the head; absorption is measured and a computer builds cross-sectional images.

A radioactive tracer (such as a glucose analogue) is injected; gamma rays from active areas are detected.

To show active areas of the brain by detecting changes in blood oxygen.

Low serotonin activity at synapses.

A lack of dopamine, as dopamine-producing neurones die.

They block reuptake of serotonin, so it remains in the synaptic cleft longer.