

Edexcel (A) Biology A-level

7.11 + 7.12 - Homeostasis and Exercise

Flashcards



What is homeostasis?



What is homeostasis?

The process of maintaining the internal environment in a state of dynamic equilibrium within narrow limits around an optimum.



Define negative feedback.



Define negative feedback.

Self-regulatory mechanisms return the internal environment to optimum when there is a fluctuation.



Define positive feedback.



Define positive feedback.

A fluctuation which triggers changes that result in an even greater deviation from the normal level.



Why is it important that core temperature remains stable?



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Maintain stable rate of enzyme-controlled reactions.

Temperature too low = enzyme & substrate molecules have insufficient kinetic energy.

Temperature too high = enzymes denature.



Why is homeostasis important during exercise?



Why is homeostasis important during exercise?

Maintains body in dynamic equilibrium.



How does the autonomic nervous system enable endotherms to thermoregulate?



How does the autonomic nervous system enable endotherms to thermoregulate?

Via negative feedback. Thermoreceptors in the hypothalamus detect changes in blood temperature.

Hypothalamus sends impulses to effectors. May result in: vasodilation / vasoconstriction, sweating, piloerection, shivering, an increase in metabolic rate.



Explain the role of the skin in thermoregulation.



Explain the role of the skin in thermoregulation.

Vasodilation / vasoconstriction of arterioles supplying skin capillaries controls heat loss to skin surface.

Hair erector muscles contract & follicles protrude to trap air for insulation.

Evaporation of sweat cools skin surface.

