

Homeostasis Quiz Study Guide

Overarching questions:

1. *How does the body maintain stability in the face of internal and external changes?*
2. *How does the body use different mechanisms and the tools (organs, systems...) within it to re-establish homeostasis?*
3. *What happens when the body can no longer maintain balance?*
4. *How does the process of experimental design work?*
5. *How can you use models to understand a biological process?*
6. *Why is a cell membrane able to regulate substances that go into and leaves cells?*
7. *How is water balance achieved in cells and how does homeostasis of water work?*

Vocabulary we covered in this unit:

Homeostasis	Cell	Target cell	Receptor
Set point	Tissue	IV	Osmosis
Organ	DV	purpose	Hormone
Organ system	control variable	hypothesis	Effector
constant	question	Organism	cholesterol
Feedback loop	Positive feedback	Stimulus	diffusion
Negative feedback	Endocrine gland	Control center	Water
Equilibrium	balance	homeostasis	concentration
Solute	solvent	cell membrane	permeable
Semi-permeable	concentration gradient	impermeable	non-polar
Molecule	hydrophilic	hypotonic	plasmolysis
Isotonic	hypertonic	carrier protein	Hydrophobic
channel protein	net water movement	solution	phospholipid

Concepts:

Know and why the body uses/needs feedback mechanisms

Why maintaining homeostasis is such a vital element in staying alive

Be able to look at a set of symptoms and make predictions about the organs and systems involved with the change(s) to an organism's normal levels.

Be able to identify the interactions between different systems that maintain homeostasis from a diagram

Be able to dissect a feedback mechanism for the stimulus, receptor location, control center, and effector actions

Be comfortable with basic hormone regulation and how they impact homeostasis and the body (Endocrine Ed simulation)

Know the major differences between positive and negative feedback (Two loops activity)

Proper formatting of a scientific purpose, question, and hypothesis (Homeostasis experiment)

Know the proper elements of experimental design and be able to evaluate an experiment for it being correctly constructed

Know the functions of the cell membrane (bubble lab) and the different structures in it

The difference between active and passive transport in cells and what each requires and what each transport(s) (Amoeba sister's video)

Compare and contrast diffusion and osmosis as it occurs in cells and how the body uses them in homeostasis (Diffusion virtual lab, red onion lab)

Show your understandings of the relationships between different scales of a biological phenomenon and how cells do work for the systems they are part of.