

Homeostasis & Feedback Mechanisms Review

Homeostasis Quizlet: <https://quizlet.com/3481937/flashcards>

1. Define the terms below:

Homeostasis: _____

Receptor: _____

Effector: _____

Stimulus: _____

Endocrine gland: _____

Hormone: _____

Target cell: _____

Feedback Loop: _____

2. [Homeostasis](#) is vital for living organisms for what reason(s):

3. Describe the relationship between homeostasis and [feedback loops](#).

4. When a [feedback loop](#) is [positive](#), what does it mean? Provide one example of a positive feedback loop.

5. Complete the statement, without homeostasis in my body....

6. Complete the statement, if my human growth hormone (hGH) did not have a negative feedback mechanism, then...

7. In the scenarios below, indicate what the **stimulus** might be, what **variable** within the body may be involved, and what **hormone** may be involved:

(a) You hear a sudden and loud noise that completely scares you. Stimulus: _____

Variable: _____ Hormone: _____

(b) You just ate the best chocolate lava cake EVER! Stimulus: _____

Variable: _____ Hormone: _____

(c) You didn't eat lunch and you're lagging during period 6. Stimulus: _____

Variable: _____ Hormone: _____

(d) You are running in a half-marathon and you are starting to feel weak. It doesn't seem like you can take in enough oxygen for the speed you're running. Stimulus: _____

Variable: _____ Hormone: _____

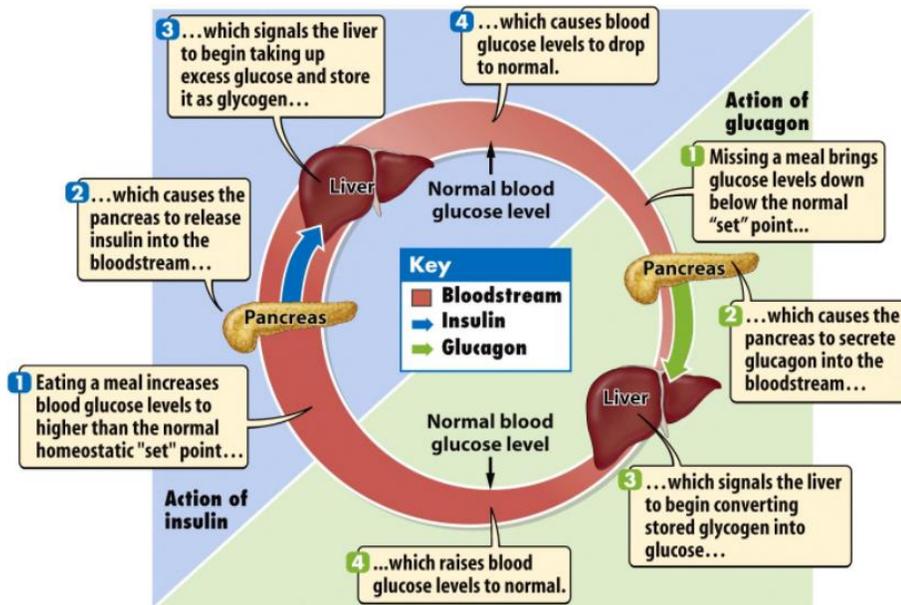
(e) A bright light is on the street just outside your bedroom window. You are finding that you can't fall asleep.

Think back to the [Endocrine Ed Simulation](#)... Stimulus: _____

Variable: _____ Hormone: _____

8. What is the relationship between the hypothalamus (control center) and set-points within the body?

9. Analyze the two feedback loops below and answer the questions below.



SCENARIO ONE

(a) What systems are interacting in the regulation (or homeostasis) of blood glucose levels.

(b) The stimulus is:

(c) Where are the **receptors** for these feedback loops? Note: there should be one for each half of the loop.

(d) What is the **endocrine gland** that is involved in correcting the blood sugar change?

(e) What **organ/structure** is the **effector** in each of the loops above?

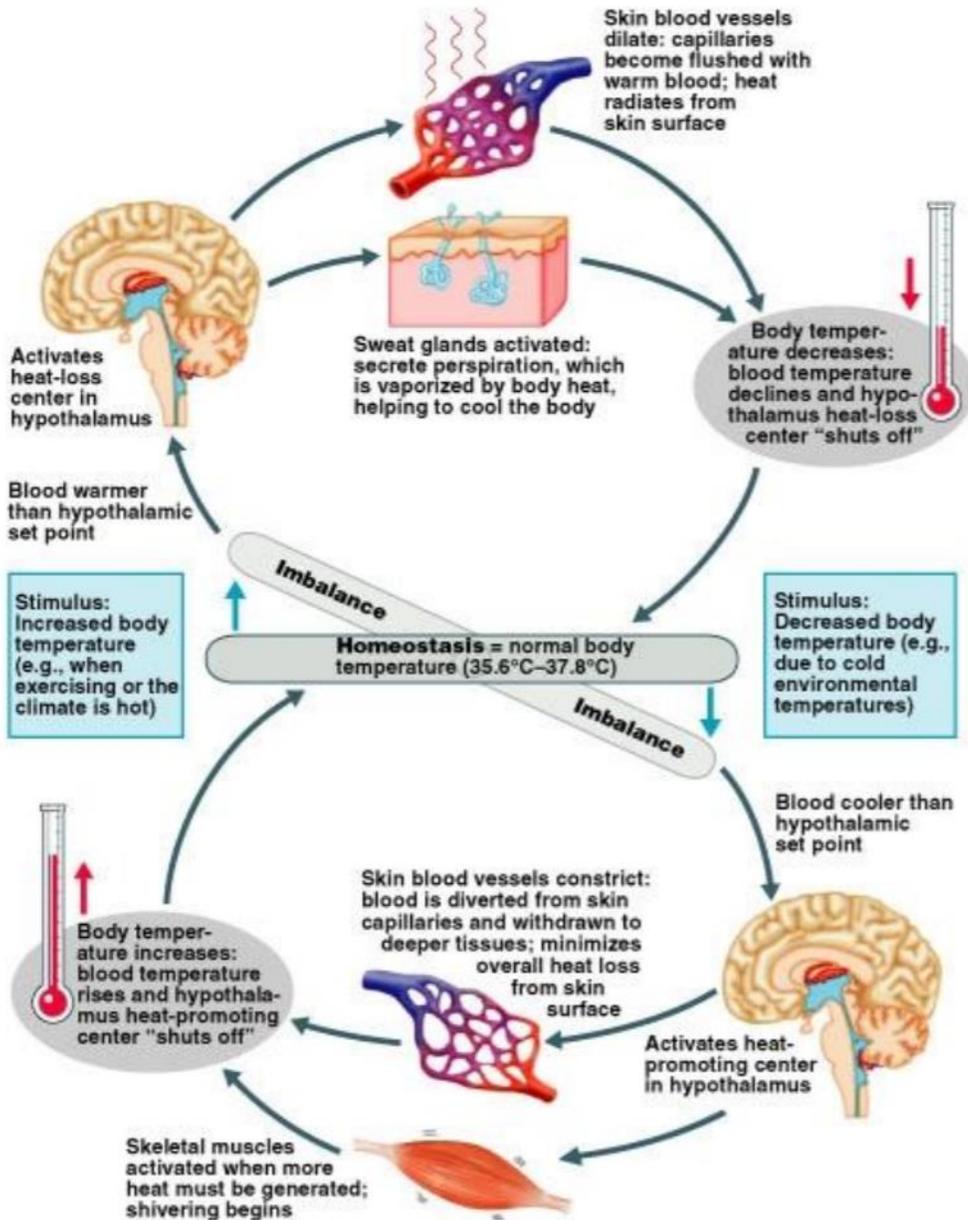
(f) Summarize: How does the body **remove excess glucose** from the blood, and how does it **increase glucose levels** in the blood?

SCENARIO TWO

(a) What **systems are interacting** in the regulation (or homeostasis) of body temperature levels.

(b) Stimulus:

(c) Where are the **receptors** for these feedback loops? Note: there should be one for each half of the loop.



(d) What is the knowledgeable **structure** involved in correcting the change in body temperature?

(e) What **organ/structures** are the **effectors** in each of the loops above?

(f) Summarize: How does the body remove excess heat, and how does it increase body temperature when it becomes too cold? Use specific information from the diagram.

10. Label the following terms on the feedback mechanism below:

Negative feedback

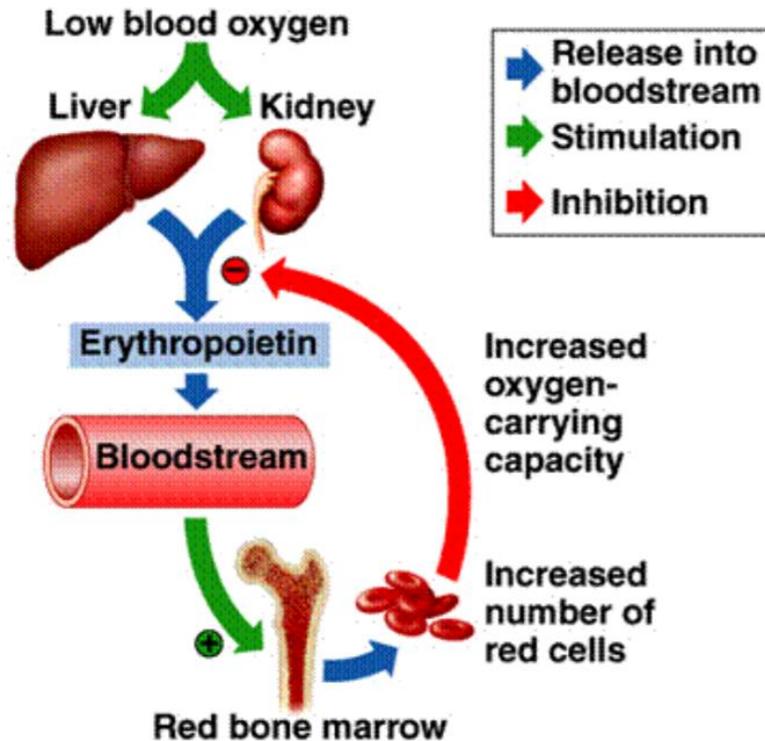
Effector

Hormone

Stimulus

Receptors

Response



11. Describe, using vocabulary from the diagram, what would happen in the body if there was a problem with the negative feedback loop.

Get your cell membrane [quizlet](#) flashcards here.

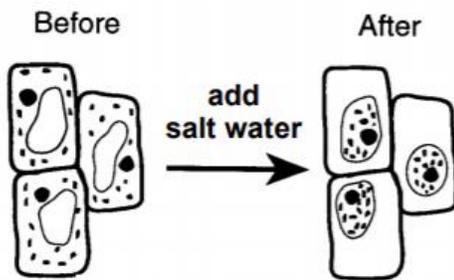
What does it mean for a cell membrane to be described as a [fluid mosaic](#)?

Passive Transport

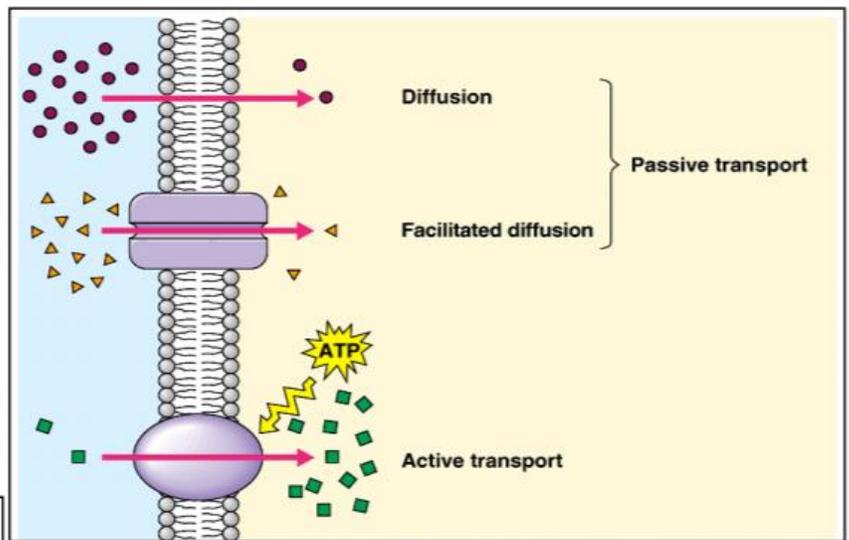
- Diffusion: _____
 - Since the flow of materials is from _____ concentration to _____ concentration, diffusion requires _____ energy.
 - Lipids move directly through the membrane, so we call that process **simple diffusion**
 - Other small molecules (like glucose) cannot flow directly across the lipid layer, so there must protein channels that allow them to diffuse through the cell membrane. We call this process **facilitated diffusion** (diffusion with help).
- Osmosis: _____
 - Since osmosis is just a special case of diffusion — the flow of **water** is still from _____ concentration of water to _____ concentration of water, osmosis requires _____ energy.

Active Transport

- When cells need to move material in the opposite direction as diffusion, from _____ concentration to _____ concentration, they need to pump it, so this **requires energy**.
- _____ is the molecule that all cells use as energy.
- Proteins in the cell membrane act as the active transport pumps.

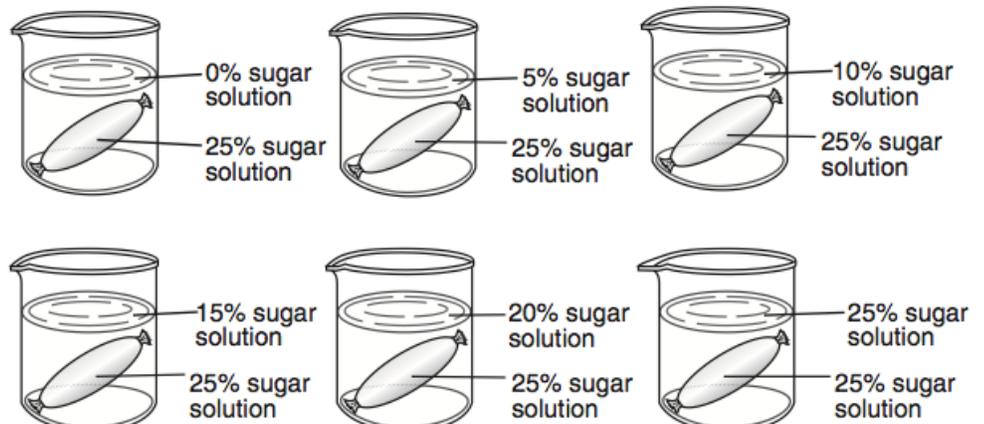


Osmosis: H₂O diffused out of the cells



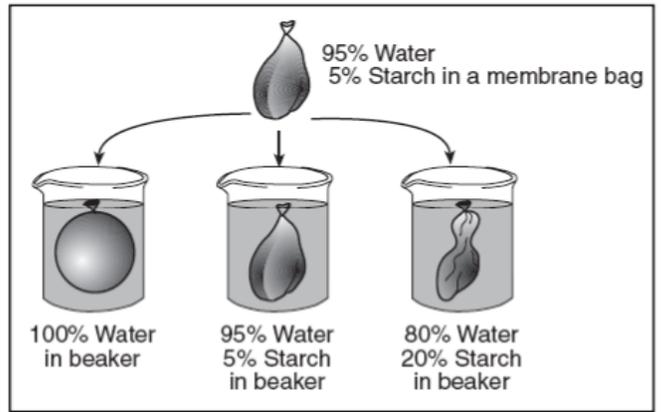
Draw arrows in the diagram to the right to show water movement in the submerged cells.

State whether the SOLUTION is hypertonic, hypotonic, or isotonic.



An investigation was set up to study the movement of water through a membrane. The results are shown in the diagram at the right.

Based on these results, which statement correctly predicts what will happen to red blood cells when they are placed in a beaker containing a water solution in which the salt concentration is much higher than the salt concentration in the red blood cells?



- a. The red blood cells will absorb water and increase in size.
- b. The red blood cells will lose water and decrease in size.
- c. The red blood cells will first absorb water, then lose water and maintain their normal size.
- d. The red blood cells will first lose water, then absorb water, and finally double in size.

Plan for Perfection!!

Plan your studying weekend to prepare for the Monday's test.

These are the subjects I need to spend more time reviewing:

This is the day I'll study them:

In closing, and one of the most important review questions in this packet, re-write the driving question from the Superhero Challenge below and answer it for yourself using the feedback loops you used in your project... Then you'll know you nailed it!!