

RRM MH BIO 228 Chapter 25: Fluids. Please read 25.1-25.3

**25.1** Please use Learning Strategy 25. 1 on p. 994 and tell me:

1. What is ICF? Intracellular Fluid How much (a %) of our body fluid is made of ICF? 66.67%
2. What is ECF? Extracellular Fluid How much of ECF (which is outside of cells but in the vessels) is Interstitial fluid? 2/3 How much is plasma? 1/3
3. Using Fig 25.2, please give the % of each:

| Solutes  | Intracellular<br>(within cell) | Interstitial | Blood Plasma |
|----------|--------------------------------|--------------|--------------|
| K+       | 75                             | N/A          | N/A          |
| Mg++     | 17                             | N/A          | N/A          |
| PO4      | 20                             | N/A          | N.a          |
| Na+      | N/A                            | 94           | 94           |
| Cl-      | N/A                            | 77           | 69           |
| HCO3     | N/A                            | 18           | 16           |
| Proteins | 27                             | 0            | 10           |

**25.2.** Fluid balance exists when fluid intake is equal to fluid output.

A. Fluid intake: What are the two categories, and using Fig. 25.4, what is the average of each. Please give mechanisms by which we intake fluids and average amounts. I will get you started.

1. 1600 (approx.. 2500 ml/day)

a. food 700 ml

keep going, please

**p. 996:** What is the difference between *Obligatory* and *Facultative* water loss? Which did we focus on in our last chapter?

*Obligatory: Water loss that will occur regardless of how hydrated the body is.*

*Facultative: Controlled through the amount of urination that occurs.*

**Use page 999.**

1. Your patient, Karl, cut himself at work. He rode his moped to Urgent Care where you check him in. His chef coat is literally dripping with blood. What type of IV would you give a patient with hypovolemia? *A 0.9% Saline Solution.*

This site is super helpful. See the descriptions for each main category:

<https://nurseslabs.com/iv-fluids/#h-nursing-considerations-for-hypotonic-iv-solutions>

2. Of course, we can lower our blood concentration (more water, fewer solutes) by drinking water. What three things activate the thirst center?

- a. Decreased blood volume/pressure. What hormone is produced by the kidney? Renin
- b. Increased Blood Osmolarity. What hormones is released by the pituitary? ADH
- c. Decreased salivary secretions.

3. What 4 things inhibit the thirst center?

- a. Increased blood volume/Increased Blood Pressure
- b. Decreased blood osmolarity
- c. Increased salivary secretions
- d. Distension of the stomach

**See Fig 25.6.** What do our RAAS hormones do to Na concentration in the blood?

Increases the sodium concentration.

**See Fig 25.7** We have talked a lot (OK, ad nauseum) about the Na/K pump, but mostly in reference to Na. What is the role of K (potassium) in maintaining acid-base balance of the blood?

K<sup>+</sup> serves as the primary Cation in human blood, reestablished Resting Membrane Potential.

**Use T 25.1 for the rest:**

**Patient A:** Nate is a runner, and remembers to drink lots of water due to his work in A n P. unfortunately he hasn't supplemented his most recent long runs (from 20-26 miles, over one week) with any electrolytes. What is his "condition" called, and what are the symptoms you look for? How

will you treat him? Hypokalemia. I'm looking for Nausea, Vomiting, and Muscle Weakness. I would prescribe supplemental PO K+ tablets unless it's an emergency, due to the pain that is associated with IV K+.

**Patient B:** Dan has celiac disease and experiences diarrhea regularly. He is also a mild alcoholic, which keeps getting worse due to his worsening depression. What will you treat him for?

He's experiencing Hyponatremia. I would put him on a saline drip, and a few salt pills.