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Chapter 9-10 Reflection

These chapters helped me understand how water, minerals, and electrolytes are needed not only for general health but also for physical performance and mental function.

From Chapter 9, I learned that water makes up about 50–70% of the human body and is critical to things like regulating body temperature, transporting nutrients and waste, lubricating joints, and acting as a solvent for chemical reactions. I was very interested in how the body controls water balance through hormones like antidiuretic hormone, renin, angiotensin, and aldosterone. These hormones help the kidneys decide how much water and sodium to retain or excrete. I also found it surprising that thirst isn't always a reliable signal of dehydration, especially during exercise or in older adults.

This chapter also explained major and trace minerals. Sodium and potassium are electrolytes that help control fluid balance and nerve impulses, and calcium is necessary for bone strength and muscle contraction. Iron stood out to me because it carries oxygen in the blood as part of hemoglobin. Low iron can lead to fatigue, weakness, and poor athletic or mental performance.

Chapter 10 connected these concepts to fitness and exercise. I learned about the three main energy systems the body uses during physical activity. ATP-PC for quick bursts of energy, anaerobic glycolysis for short high-intensity activity, and aerobic metabolism for longer endurance activities. What stood out to me most was how important hydration is for athletic performance. Losing more than 2% of body weight through sweat can decrease strength, endurance, and focus. Athletes are encouraged to drink fluids before, during, and after exercise, and to replace both water and electrolytes. I also learned that drinking too

much water without electrolytes can cause hyponatremia, which is when blood sodium levels become dangerously low.

One of the challenges in these chapters was memorizing all the minerals, their functions, and deficiency symptoms.

As a computer science student who spends a lot of time sitting at a desk, I realized it's easy to forget to drink enough water. Learning about how hydration affects concentration, energy levels, and muscle function made me want to be more intentional about water and mineral intake. If I were teaching this material, I would include an activity where students estimate their daily water needs and track their fluid intake to see if they're drinking enough water throughout the day.

Overall, these chapters helped me see how important water and minerals are for both everyday health and physical performance. Nutrition is not just about calories or vitamins, it's about maintaining balance inside the body so it can function at its best.