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Reflection on Chapters 7 and 8

Chapters 7 and 8 deepened my understanding of how the body manages energy balance as well as the roles that vitamins play in maintaining health. Chapter 7 focused on energy balance. This chapter talked about the fact that energy intake from food equals the energy expended through basal metabolism, physical activity, and the thermic effect of food. I learned that even small imbalances over time can lead to huge changes in body weight. The section on basal metabolic rate was truly eye-opening, since it represents most of our daily energy use and is influenced by things like age, body composition, and hormones. It was also interesting to see how genetics and environment affect body weight. While genes may set the foundation, it is lifestyle choices that determine the outcome.

Chapter 8 talked about the vitamins and their functions in the body. I learned how fat-soluble vitamins (A, D, E, and K) can accumulate in body tissues and lead to toxicity if consumed in excess, while water-soluble vitamins (B-complex and C) are excreted more easily and must be replenished regularly. I found it fascinating that vitamins themselves do not provide energy but act as coenzymes that help release energy from carbohydrates, fats, and proteins. Understanding how each B vitamin contributes to metabolism and how deficiencies can disrupt energy production made me realize how connected these nutrients are.

One of the more challenging concepts for me was learning how to calculate total energy expenditure using BMR, physical activity levels, and the thermic effect of food. The formulas were detailed, but they clearly showed how even small increases in movement can make a big

difference in overall calorie needs. Another challenge was memorizing the functions and deficiency diseases of each vitamin.

From a personal perspective, I can apply what I learned about energy balance to my own daily habits. As a computer science student who spends long hours sitting at a desk, it reminded me to stay active and pay attention to how my energy intake matches my activity level. The information about vitamins also helps me choose foods that help me focus and gain mental energy, such as whole grains, fruits, and vegetables rich in B vitamins and antioxidants.

If I were teaching these topics, I would include an activity where students calculate their BMR and analyze a day's diet for vitamin content. Overall, these chapters helped me connect nutrition to physical well-being and daily productivity.