

Chapter 7: Study Guide

Terminology

- Proteins
- Hormones
- Enzymes
- Antibodies
- Edema
- Acid-base balance
- Buffer
- Amino acids
- Amino or nitrogen-containing group
- R-group (Side chain)
- Acid group
- Nonessential amino acids
- Essential amino acids
- Legumes
- High-quality (Complete) protein
- Low-quality (Incomplete) protein
- DNA
- Peptide bond
- Peptides
- Polypeptides
- Gene
- Denaturation
- Pepsin
- Protein turnover
- Deamination
- Transamination
- Urea
- Nitrogen balance (equilibrium)
- Positive nitrogen balance
- Negative nitrogen balance
- Vegetarians
- Lactovegetarian
- Ovovegetarian
- Lactoovovegetarian
- Vegan
- Kwashiorkor
- Marasmus

Concept Questions

1. What is the chemical unit that makes up a protein?
2. List at least 4 different functions of the proteins in the body.
3. Identify the 3 groups of atoms that make up a typical amino acid.
4. What is the carbon skeleton of an amino acid?
5. How many kinds of amino acids are needed to make human proteins? How many of these amino acids are essential?
6. Explain the difference between a high quality protein and a low quality protein.
7. Identify at least 3 dietary sources of high quality protein and 3 of low dietary protein.
8. List at least 3 essential amino acids that are most likely limiting amino acids.
9. **Explain the basic steps involved in protein synthesis.**
10. Define denaturation, deamination, and transamination.
11. Describe conditions that can cause the body to be in negative nitrogen balance. Describe conditions that can cause the body to be in positive nitrogen balance.
12. A healthy young woman weighs 143 pounds. Calculate her RDA for protein.
13. Explain what happens to the proteins in beans as they undergo digestion and absorption in the human digestive tract.
14. List 3 common signs or symptoms of food allergy and celiac disease.

15. Discuss what parents of infants with PKU can do to help their children grow and develop normally.
16. What is the AMDR for adult protein intake?
17. Describe how Americans' food sources of protein have changed since the early 1900's.
18. Consider your usual food choices. Using the recommendations of the MyPlate food guide, discuss ways that you can reduce your intake of protein from animal foods.
19. Discuss how you can use information on a food products label to determine whether the food is a source of high quality protein.
20. Explain the difference between substituting high quality proteins and extending high quality proteins. Give examples of common foods that are high quality substitutes for meat and foods that extend a source of high quality protein.
21. Does a recipe that combines apples and oranges with peanuts provide a complementary mixture of proteins? Explain why or why not.
22. A recipe mixes cereals made from wheat, rice, and corn. What plant foods could you add to this combination of cereals to make the recipe a source of high quality protein?
23. Describe how the diets of semivegetarians differ from other vegetarian diets.
24. Identify nutrients that are most likely lacking in a vegan's diet
25. Explain why vegans must be careful when planning vegan meals for children.
26. In the US which groups of people are most likely to suffer from protein-energy malnutrition?
27. Why is protein malnutrition a devastating condition for young children?
28. Police bring a 2 year old child into a clinic, the child has a swollen belly and feet, but the arms and upper legs are so thin, the skin hangs from them. The police report indicates that the child was severely neglected. According to the information is the child suffering from PKU, severe protein energy malnutrition, sickle cell anemia, or anorexia nervosa? Choose one and explain your choice.
29. Explain why athletes should avoid taking amino acid supplements.