

1  **PROTEINS**2  **Protein Structure**

- Composition:
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- Shape and Function
- Essential vs Non-Essential Amino Acids
- Animal vs plant proteins
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3  **Protein Synthesis**

- Formation:
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- Signals for synthesis
- Importance of amino acid sequence
 - Sequencing errors:
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- Gene Expression:

4  **Protein Denaturation**

- Destabilization of unique 3D shape caused by:

- Destruction of protein shape causes loss of function

5  **Protein Functions**







- Produce vital body constituents:
 - Maintain fluid balance
 - Acid Base balance
 - Form hormones and enzymes
 - Transporters
 - Immune Function
 - Form Glucose
 - Provide energy
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6  **How the Body Uses Protein**

- Protein turnover
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- Amino acid recycling

7  **Protein Quality**

- In developed countries, most people receive all amino acids needed to maintain health
- Less developed countries, quality becomes more important
- Quality determined by 2 factors

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- 8  **Complementary Protein**
- 9  **Protein Requirements**
 - RDA
 - Endurance athletes, body builders need more to support lean tissue
 - Excess protein is not stored
 - Protein and amino acid supplements:
- 10  **Determining Protein Adequacy**
 - Nitrogen Balance
- 11  **Protein Deficiency**
 - Protein-Energy Malnutrition
 - Marasmus:
 - Kwashiorkor:
- 12  **Vegetarianism**
 - Most common forms:
 - Careful planning required to insure all nutrients are consumed
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 - Common deficiencies:
- 13  **Protein Supplements**
 - Amino acid supplements
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 - Protein Powders