



PROTEINS

Protein Structure

- Composition:
- Shape and Function
- Essential vs Non-Essential Amino Acids
- Animal vs plant proteins

Protein Synthesis

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

Protein Denaturation

- Destabilization of unique 3D shape caused by:
- Destruction of protein shape causes loss of function

Protein Functions

- Produce vital body constituents:
- Maintain fluid balance
- Acid Base balance
- Form hormones and enzymes
- Transporters
- Immune Function
- Form Glucose
- Provide energy

How the Body Uses Protein

- Protein turnover
- Amino acid recycling

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

Complementary Protein

	Ile	Lys	Met	Trp
Legumes				
Grains				
Together				

Protein Requirements

- RDA
- Endurance athletes, body builders need more to support lean tissue
- Excess protein is not stored
- Protein and amino acid supplements:

Determining Protein Adequacy

- Nitrogen Balance

Protein Deficiency

- Protein-Energy Malnutrition
 - Marasmus:
 - Kwashiorkor:

Vegetarianism

- Most common forms:
- Careful planning required to insure all nutrients are consumed
- Common deficiencies:

Protein Supplements

- Amino acid supplements
- Protein Powders