Protein

1. Introduction (Page 201 ff)

   (Pull out handout on Protein)

   A. Structure

      i. Amino Acid

      ii. Proteins

   B. Function (Pages 201 - 202)

      i. Tissue Structure

      iii. Fluid Return to circulatory system

      iv. Enzymes / Metabolism

      v. Hormones: Cell/Tissue Communication

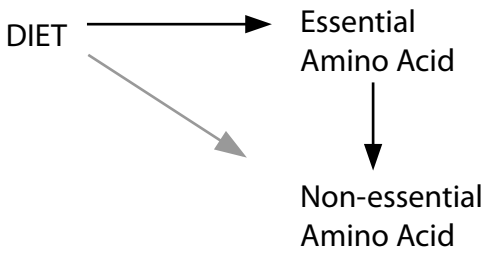
      vi. Antibodies

C. Energy: 4 Kcal/gm

D. Amino Acid Classification (Page 203)

i. Essential

ii. Nonessential



2. Protein Sources

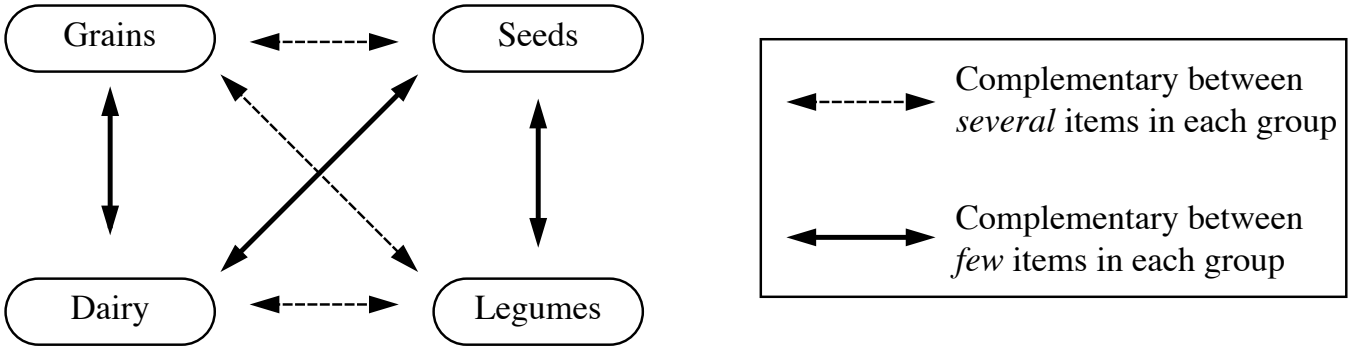
3. Protein Quality (Page 205 - 206)

A. High-quality (Complete Protein)

B. Low-quality (Incomplete Protein)

C. Complementary Proteins (Page 221 - 222)

Food	*Limiting Amino Acid*	*Complementary Food*
Beans	Methionine	Grains, nuts, Seeds
Grains	Lysine, Threonine	Legumes
Nuts & Seeds	Lysine	Legumes
Vegetables	Methionine	Grains, nuts, seeds
Corn	Tryptophan, Lysine	Legumes



Adapted from: http://chemistry.tutorvista.com/biochemistry/proteins.html

C. Protein Intake (Page 218 - 219)

5. Protein Denaturation (See handout)

6 . Protein Digestion (Page 209)

A. Stomach

i. Pepsin → Pepsinogen

ii. HCl

iii. Chyme

B. Small Intestine

i. Pancreatic Enzymes

ii. Absorption

iii. Hepatic Portal System

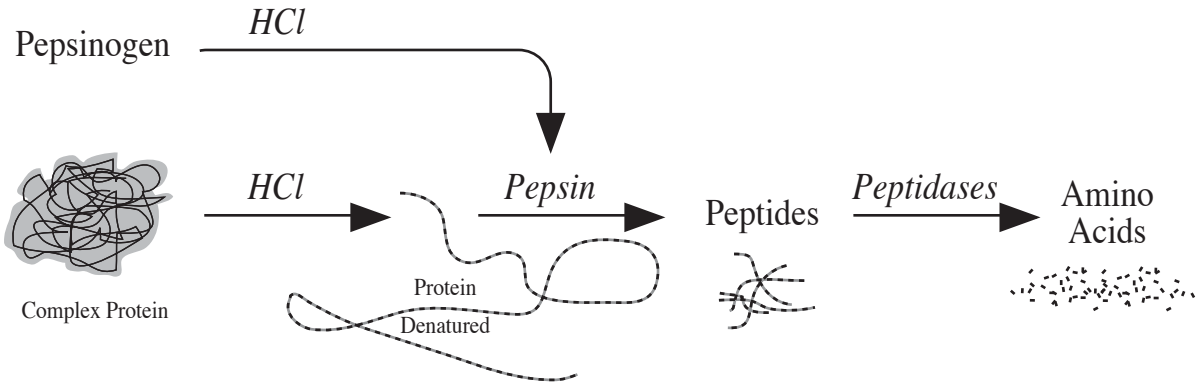
iv. Liver Activity

7 . Protein Breakdown and the Liver (Page 210 - 211)

A. Storage Capacity of Body

B. Amino Acid Breakdown Process

i. Deamination and Urea Production



8 . Protein Estimated Average Requirement = 0.66 gm / kgram body weight. (Page 212)

9 . Protein Related Diseases (Page 212 - 215)

- A. Allergies
  - i. What is an Allergy?
  - ii. Symptoms is an Allergy?
    - a. General
    - b. Anaphylactic Shock
  - iii. How to handle
  - iv. Labeling
    - a. 2004 Food Allergen Labeling and Consumer Protection Act
- B. Celiac Disease
  - i. Immune Response
  - ii. Effect on Digestive Tract
  - iii. Nutrient Mal-absorption

10 . Vegetarian (Page 223 - 226)

A. Pros

B. Cons

C. How to accommodate

11 . Protein-Energy Malnutrition (Page 227)

A. Kwashiorkor

B. Marasmus