Joy Muchtar
NSD 225 (Nutrition in Health) Section I
13th January 2015: Introduction to Nutrition

- Nutrition is
  - The science that links foods to health and disease
  - it includes the processes by which the human organism ingests, digests, absorbs, transports, and excretes human substances.
- Nutrients come from Food
  - "Eat food, not too much, mostly plants." – Michael Pollan
  - What should I eat to be healthy?
- Essential nutrient
  - Omission leads to decline
  - Regain normal function when restored to the diet
  - Has specific biological function
  - Go back to normal after you have enough of it
- Why study nutrition?
  - Poor diet and sedentary lifestyle are risk factors for chronic diseases:
    - Disease of the heart (24.6% of all deaths)
    - Cancer (23.3%)
    - Stroke (5.3%)
    - Diabetes (2.8%)
    - Accounts for ~2/3 of deaths
- Nutrient functional categories
  - Provide calories
  - For growth, development and maintenance
  - Regulate body processes

    → Table 1.3 in the book
- The six classes of nutrients

1. Carbohydrates (macro)
   - Source of calories: ~4 kcal/gm
   - A slice of bread: about 15grams of carbohydrates → 60 calories
     a. Simple sugars
     b. Complex carbohydrates
     c. Dietary fiber
2. Lipids (macro)
   - Source of calories: ~9 kcal/gm
   - Do not dissolve in water
   - Fats and oils
     a. Animal fats (solid)
     b. Plant oils (liquid)
     c. Essential Fatty Acids
3. Proteins (macro)
   - Source of calories: ~4 kcal/gm
   - Structural material
   - Most Americans consume excess protein

    a. Amino acids: building blocks of protein
4. Vitamins (micro)
    - Enable chemical reactions
    - Yield no energy
        a. Fat soluble: Vitamins A, D, E, K
        b. Water soluble: B Vitamins and Vitamin C

5. Minerals (micro)
    - Inorganic substances
    - Numerous functions in the body: structural components (calcium) or eletcrolytes, etc.
    - Yield no energy
        a. Major
        b. Trace functions
6. Water (Can't live without)
    - Numerous vital functions in the body
    - Majority of our body weight (~60%)
    - Recommended intake: 9-13 cups/day
    - Found in foods
    - Yield no energy

Other components in food

- Phytochemcicals
    - Chemicals found in plants: flavonoids
- More notes → look at PPT on BLCKBOARD

Energy Sources and Uses

- We need energy for body functions
    - Carbohydrates: (4 kcals per gram)
    - Fats (9 kcals per gram)
    - Proteins (4 kcals per gram)
    - Alcohol (7 kcals per gram)
- Energy is held in chemical bonds

What is a Calorie?

- Measurement of energy
- "The amount of heat it takes to raise the temperature of 1 gram of water by 1 degree Celsius"
- 1,000 calories = 1 kcal = 1 (food) Calorie

Sample Calculation of a Nutrition Label → Check PPT ON BLCKBOARD

Solution → Check PPT ON BLCKBOARD

<Dr. Sarah Short>

How do we make food choices?

- Food we like
- Can afford
- Available
- Culturally acceptable
- Finally, what we think we should eat.

R.D = registered dietitian → the ones to go to if you need a diet plan → anyone can write a nutrition book.

Supplements

- You can sell anything and call it a supplement

720 calories → 1 muffin = a bunch of fruits

Energy is calories!

Pepsi: 20g sugar → 80 caloriesß