Forming a Plan for Good Nutrition
Chapter 6
Good Nutrition

- **Nutrition** is the study of nutrients and the way the body processes them.
- **The Daily Reference Intakes (DRIs)** serve as the framework for nutrition and is the major umbrella term for recommendations.
- **Recommended Dietary Allowance (RDA)** represents the nutrient intake that is sufficient to meet the needs of nearly all healthy people in an age and gender group.
- **Daily Values (DV)** are nutrient standards used on food labels.
**Essential Nutrients**

Nutrients that cannot be made by the body and must be supplied by the diet

- The **essential** nutrients are carbohydrates, fat, protein, vitamins, minerals, and water.

- The **energy** nutrients are carbohydrates, fat, and protein, which supply the body with calories.

- A **calorie** is a measure of food energy.
  - The amount of heat required to raise the temperature of a gram of water 1 degree centigrade.
Calories

- A gram of **carbohydrate** or **protein** provides 4 calories of energy.
- A gram of **fat** provides 9 calories.
- A gram of **alcohol** provides 7 calories, but is not an essential nutrient.
Where should your calories come from?

- 45-65% from carbohydrates (and at least half of those should be complex carbohydrates)

- No more than 25-30% from fat

- Approximately 15% from protein
Carbohydrates

- **Carbohydrates** are sugars and starches from plants

- **Monosaccharides** are simple carbohydrates, or sugars

- **Polysaccharides** are complex carbohydrates, or starches

- Whole-grain, high fiber starches help the body maintain normal blood-sugar levels
Protein

- Complete proteins contain all essential amino acids; high-quality proteins contain the amino acids in the proportions needed by the body (usually found in meat and dairy foods)

- Proteins are composed of amino acids and contain nitrogen

- Of the 20 amino acids, nine are essential (must be supplied by the diet)
Incomplete proteins do not contain amino acids in proportions needed (plant foods)

Legumes, such as soy, are complete proteins

Most people require 0.36 grams per pound of body weight of protein daily

Excess protein is stored as fat; high protein intake strains the kidneys and causes the body to excrete calcium
Fats (lipids) are composed of chains of carbon atoms with hydrogen atoms attached.

Saturated fats carry all the hydrogen atoms they can.

Mono-unsaturated fats have room for two hydrogen atoms.

Polyunsaturated fats have room for four or more hydrogen atoms.
Hydrogenated products have hydrogen atoms added into them so they are more resistant to spoilage (and more saturated).

Hydrogenation yields a new type of fat called transfatty acids.
Fat (3)

- **Cholesterol** is found only in animal products.
- The body requires 3 calories to digest 100 calories of dietary fat but 23 to 27 calories to digest 100 calories of carbohydrates.
- Dietary fat intake should be 20-30% of the total diet and should be low in saturated fat.
Comparison of dietary fats

<table>
<thead>
<tr>
<th>Fat Type</th>
<th>Cholesterol (mg/tbsp)</th>
<th>Percentage of saturated fat</th>
<th>Percentage of monounsaturated fat</th>
<th>Percentage of polyunsaturated fat</th>
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<tbody>
<tr>
<td>Coconut oil</td>
<td>86</td>
<td>62</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Palm kernel oil</td>
<td>81</td>
<td>112</td>
<td>0</td>
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<tr>
<td>Butter (fat)</td>
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<td>66</td>
<td>30</td>
<td>4</td>
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<tr>
<td>Beef tallow</td>
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<td>50</td>
<td>42</td>
<td>4</td>
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<tr>
<td>Palm oil</td>
<td>49</td>
<td>37</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Lard</td>
<td>39</td>
<td>45</td>
<td>11</td>
<td>47</td>
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<td>Chicken fat</td>
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<tr>
<td>Vegetable shortening</td>
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<td>Cottonseed oil</td>
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<td>Margarine</td>
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<tr>
<td>Peanut oils</td>
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<td>Soybean oils</td>
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<tr>
<td>Olive oils</td>
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<td>Corn oils</td>
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<td>Sunflower oils</td>
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<td>Safflower oils</td>
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<tr>
<td>Canola oils</td>
<td>6</td>
<td>62</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>
Comparison of recommended and actual diets

- Carbohydrates: 65% (Recommended) vs. 50% (Current)
- Fat: 35% (Recommended) vs. 33% (Current)
- Protein: 35% (Recommended) vs. 16% (Current)
Vitamins

Vitamins are organic compounds necessary in small amounts for good health; they do not supply energy.

Fat-soluble vitamins include A, D, E, and K; excess amounts are stored in the body.
- 75% of Americans don’t get enough vitamin D.
- Many experts believe that the current recommendation be increased to 800-1000 IU.
- If using extra calcium – may need to supplement with Vitamin D.

Antioxidant vitamins (C, E, and carotenoids) help neutralize the activity of free radicals.
- Free radicals cause cellular damage that contribute to disease.
  - Cancer
  - Interact with cholesterol and form oxidized LDL
  - Rheumatoid arthritis, osteoarthritis, cardiovascular disease, diabetes

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Vitamins Supplements

- Healthy adults who eat a variety of foods do not need vitamin supplements

- Exceptions for specific supplements might include:
  - people who are 65 or older
  - consume fewer than 1000 calories per day
  - have a digestive tract disease
  - smoke; drink alcohol excessively
  - are pregnant or lactating; are vegetarians
Minerals

- Minerals are inorganic compounds that fulfill a variety of functions in the body.

- Macrominerals (major minerals) are required in large amounts—more than 100 mg/day.

- Microminerals (trace minerals) are required in small amounts—less than 100 mg/day.

- Calcium is the mineral most commonly deficient, especially in women.
Water

- Next to air, water is the substance most necessary for survival
- Sixty percent of the body’s weight is water
- **Recommended daily fluid** intake is 8 to 15 cups—preferably tap water
  - 15 for men
  - 11 for women
- Water in caffeinated beverages such as coffee, tea, and colas counts toward total water intake even though caffeine may have a diuretic effect
- Waiting for thirst is not a reliable indicator during physical activity and illness
Other Nutrients

- **Phytochemicals (also called phytonutrients)** are active compounds that exist naturally in all plant foods.

- **Botanicals (phytomedicinals),** usually called *herbs,* are considered dietary supplements and are not regulated by the FDA.

- **Soluble fiber** adds bulk to stomach contents.

- **Insoluble fiber** speeds transit time through the large and small intestines.
Dietary Guidelines for Americans

- Eat a variety of foods
- Balance food intake with physical activity; maintain or improve your weight
- Choose a diet with plenty of whole grain products, vegetables, and fruits
Dietary Guidelines for Americans (2)

- Choose the right fats
  - Poly- and monounsaturated
- Choose a diet moderate in sugars
- Choose less sodium and more potassium
- Drink alcoholic beverages in moderation—one drink per day for women and two drinks per day for men
Anatomy of MyPyramid

One size doesn’t fit all
USDA’s new MyPyramid symbolizes a personalized approach to healthy eating and physical activity. The symbol has been designed to be simple. It has been developed to remind consumers to make healthy food choices and to be active every day. The different parts of the symbol are described below.

Activity
Activity is represented by the steps and the person climbing them, as a reminder of the importance of daily physical activity.

Moderation
Moderation is represented by the narrowing of each food group from bottom to top. The wider base stands for foods with little or no solid fats or added sugars. These should be selected more often. The narrower top area stands for foods containing more added sugars and solid fats. The more active you are, the more of these foods can fit into your diet.

Proportionality
Proportionality is shown by the different widths of the food group bands. The widths suggest how much food a person should choose from each group. The widths are just a general guide, not exact proportions. Check the Web site for how much is right for you.

Variety
Variety is symbolized by the 6 color bands representing the 5 food groups of the Pyramid and oils. This illustrates that foods from all groups are needed each day for good health.

Personalization
Personalization is shown by the person on the steps, the slogan, and the URL. Find the kinds and amounts of food to eat each day at MyPyramid.gov.

Gradual Improvement
Gradual improvement is encouraged by the slogan. It suggests that individuals can benefit from taking small steps to improve their diet and lifestyle each day.

MyPyramid.gov
STEPS TO A HEALTHIER YOU

USDA
U.S. Department of Agriculture
Center for Nutrition Policy and Promotion
April 2005 CNPP-16

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Other Nutrition Concerns

- Pregnancy imposes a greater demand for some nutrients
- Carbohydrates are the main energy source for anaerobic and high-intensity aerobic exercises
- Food labels provide helpful information about nutrients associated with common chronic health problems
Food labels provide helpful information about nutrients associated with common chronic health problems.

Nutrition information is now required on virtually all processed food products.

The % Daily Value shows how a food fits into an overall daily diet but does not necessarily represent goals for diet planning. Upper limits are a better way to view the concept of 100% Daily Value, except for carbohydrate, dietary fiber, vitamins, and minerals.

Protein generally will not show a % Daily Value because determining % Daily Value would require expensive testing of protein quality of the product by the manufacturer.

Although the dietary guidelines recommend that Americans moderate their consumption of sugars, no specific recommendation for a maximum daily intake (in grams) has been made, so no Daily Value for sugars is available.

Serving size is set for various food products in household units by labeling laws. If you eat double the serving size listed, you need to double the % Daily Value and the calorie value. If you eat one-half the serving size shown, cut the % Daily Value and the calorie value in half.

Number of calories from fat

% Daily Values are determined by dividing the nutrient content in one serving of the food by the Daily Value listed for the respective nutrient on the bottom panel.
American Eating Patterns

- **Eating on the go**
  - On average Americans dine out six times a week
  - Americans tend to skip meals

- **Pre packaged foods**
  - Deceptive in promotion of products
  - Read labels carefully

- **Snacking a problem**
  - Eating between meals
  - Tends to be high in calories
  - Often lead to excess calories, fat and sodium being consumed.
Nutrition Strategy for Wellness

- Assess your current nutrition
- Make small adjustments
  - Think of balancing your diet over the long term