Dietary Guidelines

• **idea**: give people easy to understand guidance about food choices

• **Who sets guidelines?**  Government agencies, such as…
  - **Food and Nutrition Board** (committee of the National Academy of Sciences)
  - Dept. Health & Human Services and US Dept. Agriculture

• **GOAL**: lower risk of disease as well as increase health

• **WHY?**
  - economically advantageous for population to be healthy!
  - more productive at work
  - less $$ spent on health care
HOW DO YOU GET ALL THESE NUTRIENTS?

The Five Food Groups

- Breads, Cereal, Rice, Pasta
- Fruit
- Vegetables
- Milk, Yogurt, Cheese
- Meat, Beans, Eggs, Nuts, Beans

• put food into groups based first on origins (e.g. cheese is milk-based so it goes into dairy group)
• secondarily- similarity in macronutrient, vitamin, and mineral contents
  • e.g. nuts high in protein, fat, so go with meats
• NOTE: not all foods within group have same SPECIFIC nutrient content
  • e.g. citrus fruits have lots of Vitamin C but others don’t

• five major groups:
  • bread, cereals, rice, pasta
  • fruit
  • vegetables
  • milk, yogurt, cheese
  • meats and nuts (also includes beans)
The Perfect Food

• Doesn’t exist!

• More important to focus on whole diet than on any one food type.
Philosophy of the Dietary Guidelines

• Eat a variety of foods
  – Keeps it interesting
  – Phytochemicals from fruits/vegies
• Balance
  – Eat food from each group everyday
• Moderation
  – Keep portion sizes reasonable
  – Remember no “good” or “bad” foods

• TEXT PAGES 37-40

• Variety - choose different foods from the same group
  • Not eating the “same old thing”
  • Choose a number of different foods within any given food group (e.g. some dark green AND colored veggies)
  • Ensures the diet contains sufficient nutrients
  • Inclusion of phytochemicals (see tables 2-1 and 2-2 in text)
    • plant chemicals - not nutrients officially but may have health benefits

• Balanced -
  • Not over consuming any one food
  • Eat foods from the five major food groups (balance amongst groups)

• Moderation -
  • Plan your entire day’s intake
  • Moderate, not eliminate - control portion size
  • No such thing as a ‘good’ food or ‘bad’ food
• **TEXT PAGES- 40-42**

• **Nutrient density**
  • Comparison of vitamin and mineral content to number of kcals
    • For example: a 12 oz. can of soda can contain ~100 kcals, but has no nutrients (these are “empty calories”)
    • An 8oz glass of milk might contain ~50 kcals, but will also contain many nutrients making it more nutrient rich per kcal

• **“Empty calories” i.e. “junk food”**
  • foods with low nutrient densities and/or high energy densities

• **Energy density**
  • Comparison of the kcal content to the weight of the food
  • Studies show people eat a pretty constant weight of food at each meal as opposed to a constant number of calories
  • Since calories in excess of energy requirements are stored as weight, it is sometime desirable to reduce caloric intake.
  • In this case, eating food that have a low energy density will result in eating less calories overall
  • See Table 2-3 on page 41 for a list of various foods and their densities
DRIs
- recommendations for individual nutrients rather than whole foods/food groups
  - 1941 - National Academy of Sciences’ “Food and Nutrition Board” first published RDAs (recommended daily allowances)
  - RDAs reviewed every 10 years up until 1989
  - now RDAs being replaced by DRIs
    - more comprehensive, based on increased knowledge of nutrition
- set of four values, goals:
  - prevent nutritional deficiency
  - improve long-term health/well-being of population
- in practice: each nutrient will have EITHER an EAR and RDA, OR an AI
  - most also have a UL value
- can be used to set public policy e.g. for WIC program, government uses values when deciding on vouchers for food; also for school lunch and breakfast programs

**EAR**
- defined: amount of nutrient estimated to meet needs of 50% of members of a specific population
  - population defined based on age, gender
  - NOTE: individuals don’t all have identical needs within group!
  - NOTE: half people not meeting needs!
- **BEST USE:** determining nutrient adequacy/inadequacy of GROUPS of people, or planning diet GROUP of people
  - [use one/several measurable markers for judging “dietary adequacy” for nutrients
    - normal growth
    - maintenance of normal levels of nutrients in plasma
    - could also be associated enzymes or breakdown products]

**RDA: Recommended Dietary Allowance**
- defined: amount of nutrient intake that **EXCEEDS** the needs of 97-98% of people in a group
  - calculated based on EAR, so if not enough data for EAR, not enough for RDA
- **BEST USE:** goals for nutrient intakes for individuals
  - Improvement in health is not expected if consume more than the RDA amounts
  - Goal is to eat close to the RDA level
  - Short term deficiencies appear harmless
  - Eating less regularly, the greater your risk of a nutritional deficiency

**AI** - nutrient has if not enough data for EAR/RDA
- defined: amount of nutrient required to sustain some nutritional state (e.g. normal growth)
- determined by observing healthy individuals and estimating their intake of that nutrient
  - NOT the same as RDA!
    - if individual intake ABOVE AI, pretty certainly adequate
    - if individual intake BELOW AI, ??????
  - HOWEVER, if NO RDA available, CAN be used to set goal for nutrient intake by individuals

**Tolerable Upper Intake Level**
- **defined:** maximum daily that doesn’t pose risk to health to individuals in specific age group
- many nutrients have defined UL
  - no UL = not enough data yet - not that there’s no risk!
  - NOT goal for intake!
- this DRI developed out of concern for increased use of dietary supplements, fortification of foods
  - NOTE: fortification = addition of vitamins/minerals that weren’t there to begin with
The newest version of the food pyramid is similar to the original, but is more specific about what types of carbs to eat (at the bottom) and suggest limiting the amount of foods high in saturated fats and cholesterol, such as red meat.

- U.S. Food Pyramid
  - gives specific numbers of servings - more specific than D.G.A.
  - NOTE: Don’t need to memorize pyramid servings- this food pyramid on way out
- relationship to Dietary Guidelines for Americans
  - pyramid is basically dietary guidelines illustrated
- Limitations:
  - Not for children under the age of 2
  - Each food is deficient in at least one essential nutrient
  - Variety is key
  - Calorie and nutrient content may vary within a food group
  - serving sizes?
Dietary Guidelines for Americans (revised q 5 years!)

- document produced as joint effort between DHHS (Dept. Health & Human Services) and USDA (US Dept. Agriculture)

- overriding goal: decrease # Americans who develop chronic diseases that are diet-related
  
  - hypertension (high sodium)
  - diabetes (r/t obesity)
  - cardiovascular disease (r/t obesity, fat, cholesterol)
  - obesity
  - alcoholism
  - cancer (fat intake)
Servings for different energy intake levels

<table>
<thead>
<tr>
<th>Table 2. Sample Food Patterns for a Day at Three Calorie Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,600 calories is about right for many sedentary women and some older adults.</td>
</tr>
<tr>
<td>Bread Group Servings</td>
</tr>
<tr>
<td>Fruit Group Servings</td>
</tr>
<tr>
<td>Vegetable Group Servings</td>
</tr>
<tr>
<td>Meat Group</td>
</tr>
<tr>
<td>Milk Group Servings</td>
</tr>
<tr>
<td>Total fat (grams)*</td>
</tr>
<tr>
<td>Total added sugars (tablespoons)*</td>
</tr>
</tbody>
</table>

* Women who are pregnant or breastfeeding, teenagers, and young adults to age 24 need 3 servings.


- Notice on pyramid that RANGE of servings is given
- can pick servings based on est. calorie needs
- note: 1 serving meat ~3 oz.
### 2005 Dietary Guidelines (2000 kcal diet shown)

<table>
<thead>
<tr>
<th>Food category</th>
<th>2005 Dietary Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milk, yogurt, cheese</strong></td>
<td>3 cups per day of fat-free or low-fat milk (or equivalent products)</td>
</tr>
<tr>
<td><strong>Meat, poultry, fish, dry beans, eggs, nuts</strong></td>
<td>5.5 oz. equivalents per day of LEAN meats or beans</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
<td>2 cups of fruit daily</td>
</tr>
<tr>
<td><strong>Vegetable</strong></td>
<td>2.5 cups vegetables per day Include variety: Dark green, orange, starchy, others</td>
</tr>
<tr>
<td><strong>Bread, cereal, rice, pasta</strong></td>
<td>6 ounce equivalents daily AT LEAST half from enriched or whole grain products</td>
</tr>
<tr>
<td><strong>Fats, oils, sweets</strong></td>
<td>minimal</td>
</tr>
</tbody>
</table>

- legumes are in both vegetable and meat group but should be COUNTED in only one
- for meats - 1 oz ~ size of matchbox
- for cheese - 1 oz ~ thumb-sized or four stacked dice

Food items included in each group and subgroup:

**Fruits** - All fresh, frozen, canned, and dried fruits and fruit juices: for example, oranges and orange juice, apples and apple juice, bananas, grapes, melons, berries, raisins. In developing the food patterns, only fruits and juices with no added sugars or fats were used.

**Vegetables** - In developing the food patterns, only vegetables with no added fats or sugars were used.

**Dark green vegetables** - All fresh, frozen, and canned dark green vegetables, cooked or raw: for example, broccoli; spinach; romaine; collard, turnip, and mustard greens.

**Orange vegetables** - All fresh, frozen, and canned orange and deep yellow vegetables, cooked or raw: for example, carrots, sweet potatoes, winter squash, and pumpkin.

**Legumes** - All cooked dry beans and peas and soybean products: for example, pinto beans, kidney beans, lentils, chickpeas, tofu. (dry beans and peas) (See comment under meat and beans group about counting legumes in the vegetable or the meat and beans group.)

**Starchy vegetables** - All fresh, frozen, and canned starchy vegetables: for example, white potatoes, corn, green peas.

**Other vegetables** - All fresh, frozen, and canned other vegetables, cooked or raw: for example, tomatoes, tomato juice, lettuce, green beans, onions.

**Grains** - In developing the food patterns, only grains in low-fat and low-sugar forms were used.

**Whole grains** - All whole-grain products and whole grains used as ingredients: for example, whole-wheat and rye breads, whole-grain cereals and crackers, oatmeal, and brown rice.

**Other grains** - All refined grain products and refined grains used as ingredients: for example, white breads, enriched grain cereals and crackers, enriched pasta, white rice.

**Meat, poultry, fish, dry beans, eggs, and nuts (meat & beans)** - All meat, poultry, fish, dry beans and peas, eggs, nuts, seeds. Most choices should be lean or low-fat. Dry beans and peas and soybean products are considered part of this group as well as the vegetable group, but should be counted in one group only.

**Milk, yogurt, and cheese (milk)** - All milks, yogurts, frozen yogurts, dairy desserts, cheeses (except cream cheese), including lactose-free and lactose-reduced products. Most choices should be fat-free or low-fat. In developing the food patterns, only fat-free milk was used. Calcium-fortified soy beverages are an option for those who want a non-dairy calcium source.