CHAPTER 1

Key Elements of Healthy Eating Patterns
Introduction

Over the course of any given day, week, or year, individuals consume foods and beverages in combination—an eating pattern. An eating pattern is more than the sum of its parts; it represents the totality of what individuals habitually eat and drink, and these dietary components act synergistically in relation to health. As a result, the eating pattern may be more predictive of overall health status and disease risk than individual foods or nutrients. Thus, eating patterns, and their food and nutrient components, are at the core of the 2015-2020 Dietary Guidelines for Americans. The goal of the Dietary Guidelines is for individuals throughout all stages of the lifespan to have eating patterns that promote overall health and help prevent chronic disease.

About This Chapter

This chapter defines the core concepts of healthy eating and physical activity patterns and focuses on the first three Guidelines:

1. **Follow a healthy eating pattern across the lifespan.** All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.

2. **Focus on variety, nutrient density, and amount.** To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.

3. **Limit calories from added sugars and saturated fats and reduce sodium intake.** Consume an eating pattern low in added sugars, saturated fats, and sodium. Cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.

4. **Shift to healthier food and beverage choices.** Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Consider cultural and personal preferences to make these shifts easier to accomplish and maintain.

5. **Support healthy eating patterns for all.** Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.

The chapter first presents Key Recommendations, which describe the elements of a healthy eating pattern and provide detail on how individuals can follow the Guidelines, followed by a description of the science supporting healthy eating patterns. Then, the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is provided as an example. A Closer Look Inside a Healthy Eating Pattern provides details on each of the food groups and other dietary components of public health importance in the United States. In addition, the chapter provides two variations of the Healthy U.S.-Style Eating Pattern as examples of additional healthy eating patterns—the Healthy Mediterranean-Style Eating Pattern and the Healthy Vegetarian Eating Pattern. Both of these patterns align with the Guidelines. Finally, this chapter provides an overview of healthy physical activity patterns.

[1] If not specified explicitly, references to “foods” refer to “foods and beverages.”
Key Recommendations: Components of Healthy Eating Patterns

The Dietary Guidelines’ Key Recommendations for healthy eating patterns should be applied in their entirety, given the interconnected relationship that each dietary component can have with others. As illustrated later in this chapter, there is more than one way to put these Key Recommendations into action; this is exemplified by the three eating patterns that translate and integrate the Key Recommendations into an overall healthy way to eat.

Key Recommendations:

Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils

A healthy eating pattern limits:

- Saturated fats and trans fats, added sugars, and sodium

Key Recommendations that are quantitative are provided for several components of the diet that should be limited. These components are of particular public health concern in the United States, and the specified limits can help individuals achieve healthy eating patterns within calorie limits:

- Consume less than 10 percent of calories per day from added sugars
- Consume less than 10 percent of calories per day from saturated fats
- Consume less than 2,300 milligrams (mg) per day of sodium
- If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age.

Definitions for each food group and subgroup are provided throughout the chapter and are compiled in Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Pattern.

The recommendation to limit intake of calories from added sugars to less than 10 percent per day is a target based on food pattern modeling and national data on intakes of calories from added sugars that demonstrate the public health need to limit calories from added sugars to meet food group and nutrient needs within calorie limits. The limit on calories from added sugars is not a Tolerable Upper Intake Level (UL) set by the Institute of Medicine (IOM). For most calorie levels, there are not enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits.

The recommendation to limit intake of calories from saturated fats to less than 10 percent per day is a target based on evidence that replacing saturated fats with unsaturated fats is associated with reduced risk of cardiovascular disease. The limit on calories from saturated fats is not a UL set by the IOM. For most calorie levels, there are not enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits.

The recommendation to limit intake of sodium to less than 2,300 mg per day is the UL for individuals ages 14 years and older set by the IOM. The recommendations for children younger than 14 years of age are the IOM age- and sex-appropriate ULs (see Appendix 7: Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes and Dietary Guidelines Recommendations).

It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix 9: Alcohol for additional information.
Healthy Eating Patterns: Dietary Principles

Healthy eating patterns support a healthy body weight and can help prevent and reduce the risk of chronic disease throughout periods of growth, development, and aging as well as during pregnancy. The following principles apply to meeting the Key Recommendations:

- **An eating pattern represents the totality of all foods and beverages consumed.** All foods consumed as part of a healthy eating pattern fit together like a puzzle to meet nutritional needs without exceeding limits, such as those for saturated fats, added sugars, sodium, and total calories. All forms of foods, including fresh, canned, dried, and frozen, can be included in healthy eating patterns.

- **Nutritional needs should be met primarily from foods.** Individuals should aim to meet their nutrient needs through healthy eating patterns that include nutrient-dense foods. Foods in nutrient-dense forms contain essential vitamins and minerals and also dietary fiber and other naturally occurring substances that may have positive health effects. In some cases, fortified foods and dietary supplements may be useful in providing one or more nutrients that otherwise may be consumed in less than recommended amounts (see Chapter 2. Shifts Needed To Align With Healthy Eating Patterns).

- **Healthy eating patterns are adaptable.** Individuals have more than one way to achieve a healthy eating pattern. Any eating pattern can be tailored to the individual’s socio-cultural and personal preferences.

Healthy Physical Activity Patterns

**Key Recommendation:**

**Meet the Physical Activity Guidelines for Americans**

In addition to consuming a healthy eating pattern, individuals in the United States should meet the Physical Activity Guidelines for Americans. Regular physical activity is one of the most important things individuals can do to improve their health. The Physical Activity Guidelines, released by the U.S. Department of Health and Human Services, provides a comprehensive set of recommendations for Americans on the amounts and types of physical activity needed each day (see Appendix 1. Physical Activity Guidelines for Americans). Adults need at least 150 minutes of moderate intensity physical activity and should perform muscle-strengthening exercises on 2 or more days each week. Youth ages 6 to 17 years need at least 60 minutes of physical activity per day, including aerobic, muscle-strengthening, and bone-strengthening activities. Establishing and maintaining a regular physical activity pattern can provide many health benefits. Strong evidence shows that regular physical activity helps people maintain a healthy weight, prevent excessive weight gain, and lose weight when combined with a healthy eating pattern lower in calories. Strong evidence also demonstrates that regular physical activity lowers the risk of early death, coronary heart disease, stroke, high blood pressure, adverse blood lipid profile, type 2 diabetes, breast and colon cancer, and metabolic syndrome; it also reduces depression and prevents falls. People can engage in regular physical activity in a variety of ways throughout the day and by choosing activities they enjoy. The Physical Activity Guidelines provides additional details on the benefits of physical activity and strategies to incorporate regular physical activity into a healthy lifestyle.

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The Science Behind Healthy Eating Patterns

The components of healthy eating patterns recommended in this edition of the Dietary Guidelines were developed by integrating findings from systematic reviews of scientific research, food pattern modeling, and analyses of current intake of the U.S. population:

- Systematic reviews of scientific research examine relationships between the overall diet, including its constituent foods, beverages, and nutrients, and health outcomes.
- Food pattern modeling assesses how well various combinations and amounts of foods from all food groups would result in healthy eating patterns that meet nutrient needs and accommodate limits, such as those for saturated fats, added sugars, and sodium.
- Analyses of current intakes identify areas of potential public health concern.

Together, these complementary approaches provide a robust evidence base for healthy eating patterns that both reduce risk of diet-related chronic disease and ensure nutrient adequacy.

Scientific evidence supporting dietary guidance has grown and evolved over the decades. Previous editions of the Dietary Guidelines relied on the evidence of relationships between individual nutrients, foods, and food groups and health outcomes. Although this evidence base continues to be substantial, foods are not consumed in isolation, but rather in various combinations over time—an “eating pattern.” As previously noted, dietary components of an eating pattern can have interactive, synergistic, and potentially cumulative relationships, such that the eating pattern may be more predictive of overall health status and disease risk than individual foods or nutrients. However, each identified component of an eating pattern does not necessarily have the same independent relationship to health outcomes as the total eating pattern, and each identified component may not equally contribute (or may be a marker for other factors) to the associated health outcome. An evidence base is now available that evaluates overall eating patterns and various health outcomes.

Associations Between Eating Patterns & Health

Evidence shows that healthy eating patterns, as outlined in the Guidelines and Key Recommendations, are associated with positive health outcomes. The evidence base for associations between eating patterns and specific health outcomes continues to grow. Strong evidence shows that healthy eating patterns are associated with a reduced risk of cardiovascular disease (CVD). Moderate evidence indicates that healthy eating patterns also are associated with a reduced risk of type 2 diabetes, certain types of cancers (such as colorectal and postmenopausal breast cancers), overweight, and obesity. Emerging evidence also suggests that relationships may exist between eating patterns and some neurocognitive disorders and congenital anomalies.

Within this body of evidence, higher intakes of vegetables and fruits consistently have been identified as characteristics of healthy eating patterns; whole grains have been identified as well, although with slightly less consistency. Other characteristics of healthy eating patterns have been identified with less consistency and include fat-free or low-fat dairy, seafood, legumes, and nuts. Lower intakes of meats, including processed meats; processed poultry; sugar-sweetened foods, particularly beverages; and refined grains have often been identified as characteristics of healthy eating patterns. Additional information about how food groups and dietary components fit within healthy eating patterns is discussed throughout the 2015-2020 Dietary Guidelines. For example, as discussed later in this chapter in the section About Meats and Poultry, evidence from food pattern modeling has demonstrated that lean meats can be part of a healthy eating pattern, but as discussed in Chapter 2, average intakes of meats, poultry, and eggs, a subgroup of the protein foods group, are above recommendations in the Healthy U.S.-Style Eating Pattern for teen boys and adult men.

Associations Between Dietary Components & Health

The evidence on food groups and various health outcomes that is reflected in this 2015-2020 edition of the Dietary Guidelines complements and builds on the evidence of the previous 2010 edition. For example, research has shown that vegetables and fruits are associated with a reduced risk of many chronic diseases, including CVD, and may be protective against certain types of cancers. Additionally, some evidence indicates that whole grain intake may reduce risk for CVD and is associated with lower body weight. Research also has linked dairy intake to improved bone health, especially in children and adolescents.
A Closer Look Inside Healthy Eating Patterns

The following sections describe a healthy eating pattern and how following such a pattern can help people meet the Guidelines and its Key Recommendations. Throughout, it uses the Healthy U.S.-Style Eating Pattern as an example to illustrate the specific amounts and limits for food groups and other dietary components that make up healthy eating patterns. The Healthy U.S.-Style Eating Pattern is one of three USDA Food Patterns and is based on the types and proportions of foods Americans typically consume, but in nutrient-dense forms and appropriate amounts. Because calorie needs vary based on age, sex, height, weight, and level of physical activity (see Appendix 2. Estimated Calorie Needs per Day, by Age, Sex, and Physical Activity Level), the pattern has been provided at 12 different calorie levels (see Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Pattern). The 2,000-calorie level of the Pattern is shown in Table 1-1.

The Healthy U.S.-Style Eating Pattern is the same as the primary USDA Food Patterns of the 2010 Dietary Guidelines. Two additional USDA Food Patterns—the Healthy Mediterranean-Style Eating Pattern and the Healthy Vegetarian Eating Pattern—are found at the end of this chapter and reflect other styles of eating (see Appendix 4. USDA Food Patterns: Healthy Mediterranean-Style Eating Pattern and Appendix 5. USDA Food Patterns: Healthy Vegetarian Eating Pattern). These three patterns are examples of healthy eating patterns that can be adapted based on cultural and personal preferences. The USDA Food Patterns also can be used as guides to plan and serve meals not only for the individual and household but in a variety of other settings, including schools, worksites, and other community settings.

Table 1-1. Healthy U.S.-Style Eating Pattern at the 2,000-Calorie Level, With Daily or Weekly Amounts From Food Groups, Subgroups, & Components

<table>
<thead>
<tr>
<th>Food Group*</th>
<th>Amountʻd in the 2,000-Calorie-Level Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td></td>
</tr>
<tr>
<td>Dark Green</td>
<td>1½ c-eq/wk</td>
</tr>
<tr>
<td>Red &amp; Orange</td>
<td>5½ c-eq/wk</td>
</tr>
<tr>
<td>Legumes (Beans &amp; Peas)</td>
<td>1½ c-eq/wk</td>
</tr>
<tr>
<td>Starchy</td>
<td>5 c-eq/wk</td>
</tr>
<tr>
<td>Other</td>
<td>4 c-eq/wk</td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td></td>
</tr>
<tr>
<td>Whole Grains</td>
<td>≥ 3 oz-eq/day</td>
</tr>
<tr>
<td>Refined Grains</td>
<td>≤ 3 oz-eq/day</td>
</tr>
<tr>
<td>Dairy</td>
<td></td>
</tr>
<tr>
<td>Dairy</td>
<td>3 c-eq/day</td>
</tr>
<tr>
<td>Protein Foods</td>
<td></td>
</tr>
<tr>
<td>Seafood</td>
<td>8 oz-eq/wk</td>
</tr>
<tr>
<td>Meats, Poultry, Eggs</td>
<td>26 oz-eq/wk</td>
</tr>
<tr>
<td>Nuts, Seeds, Soy Products</td>
<td>5 oz-eq/wk</td>
</tr>
<tr>
<td>Oils</td>
<td>27 g/day</td>
</tr>
<tr>
<td>Limit on Calories for Other Uses (% of Calories)c</td>
<td>270 kcal/day (14%)</td>
</tr>
</tbody>
</table>

[a] Definitions for each food group and subgroup are provided throughout the chapter and are compiled in Appendix 3.
[b] Food group amounts shown in cup-(c) or ounce-(oz) equivalents (eq). Oils are shown in grams (g). Quantity equivalents for each food group are defined in Appendix 3. Amounts will vary for those who need less than 2,000 or more than 2,000 calories per day. See Appendix 3 for all 12 calorie levels of the pattern.
[c] Assumes food choices to meet food group recommendations are in nutrient-dense forms. Calories from added sugars, added refined starches, solid fats, alcohol, and/or to eat more than the recommended amount of nutrient-dense foods are accounted for under this category.

NOTE: The total eating pattern should not exceed Dietary Guidelines limits for intake of calories from added sugars and saturated fats and alcohol and should be within the Acceptable Macronutrient Distribution Ranges for calories from protein, carbohydrate, and total fats. Most calorie patterns do not have enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits. Values are rounded.
The Healthy U.S.-Style Eating Pattern is designed to meet the Recommended Dietary Allowances (RDA) and Adequate Intakes for essential nutrients, as well as Acceptable Macronutrient Distribution Ranges (AMDR) set by the Food and Nutrition Board of the IOM. This eating pattern also conforms to limits set by the IOM or Dietary Guidelines for other nutrients or food components (see Appendix 6. Glossary of Terms and Appendix 7. Nutritional Goals for Age-Sex Groups Based on Dietary Reference Intakes and Dietary Guidelines Recommendations). Nutritional goals for almost all nutrients are met (see Appendix 3 for additional information).

Figure 1-1. 
**Cup- & Ounce-Equivalents**

Within a food group, foods can come in many forms and are not created equal in terms of what counts as a cup or an ounce. Some foods are more concentrated, and some are more airy or contain more water. Cup- and ounce-equivalents identify the amounts of foods from each food group with similar nutritional content. In addition, portion sizes do not always align with one cup-equivalent or one ounce-equivalent. See examples below for variability.

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Fruits</th>
<th>Grains</th>
<th>Dairy</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 cup portion of green beans is equal to 1/2 cup-equivalent vegetables</td>
<td>1/2 cup portion of strawberries is equal to 1/2 cup-equivalent fruit</td>
<td>1 slice of bread is equal to 1 ounce-equivalent grains</td>
<td>6 ounce portion of fat-free yogurt is equal to 3/4 cup-equivalent dairy</td>
<td>1 large egg is equal to 1 ounce-equivalent protein foods</td>
</tr>
<tr>
<td>1 cup portion of raw spinach is equal to 1/2 cup-equivalent vegetables</td>
<td>3/4 cup portion of 100% orange juice is equal to 3/4 cup-equivalent fruit</td>
<td>1/2 cup portion of cooked brown rice is equal to 1 ounce-equivalent grains</td>
<td>1 1/2 ounces portion of cheddar cheese is equal to 1 cup-equivalent dairy</td>
<td>2 tablespoons of peanut butter is equal to 2 ounce-equivalents protein foods</td>
</tr>
<tr>
<td>1/4 cup portion of raisins is equal to 1/2 cup-equivalent fruit</td>
<td>4 ounce portion of pork is equal to 4 ounce-equivalents protein foods</td>
<td></td>
<td></td>
<td>1 ounce portion of walnuts is equal to 2 ounce-equivalents protein foods</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/2 cup portion of black beans is equal to 2 ounce-equivalents protein foods</td>
</tr>
</tbody>
</table>
Importance of Calorie Balance Within Healthy Eating Patterns

Managing calorie intake is fundamental to achieving and maintaining calorie balance—the balance between the calories taken in from foods and the calories expended from metabolic processes and physical activity. The best way to determine whether an eating pattern is at an appropriate number of calories is to monitor body weight and adjust calorie intake and expenditure in physical activity based on changes in weight over time.

All foods and many beverages contain calories, and the total number of calories varies depending on the macronutrients in a food. On average, carbohydrates and protein contain 4 calories per gram, fats contain 9 calories per gram, and alcohol has 7 calories per gram. The total number of calories a person needs each day varies depending on a number of factors, including the person’s age, sex, height, weight, and level of physical activity (see Appendix 2). In addition, a need to lose, maintain, or gain weight and other factors affect how many calories should be consumed.

All Americans—children, adolescents, adults, and older adults—are encouraged to achieve and/or maintain a healthy body weight. General guidance for achieving and maintaining a healthy body weight is provided below, and Appendix 8. Federal Resources for Information on Nutrition and Physical Activity provides additional resources, including an evolving array of tools to facilitate Americans’ adoption of healthy choices.

• Children and adolescents are encouraged to maintain calorie balance to support normal growth and development without promoting excess weight gain. Children and adolescents who are overweight or obese should change their eating and physical activity behaviors to maintain or reduce their rate of weight gain while linear growth occurs, so that they can reduce body mass index (BMI) percentile toward a healthy range.

• Before becoming pregnant, women are encouraged to achieve and maintain a healthy weight, and women who are pregnant are encouraged to gain weight within gestational weight gain guidelines.[8]

• Adults who are obese should change their eating and physical activity behaviors to prevent additional weight gain and/or promote weight loss. Adults who are overweight should not gain additional weight, and those with one or more CVD risk factors (e.g., hypertension and hyperlipidemia) should change their eating and physical activity behaviors to lose weight. To lose weight, most people need to reduce the number of calories they get from foods and beverages and increase their physical activity. For a weight loss of 1 to ½ pounds per week, daily intake should be reduced by 500 to 750 calories. Eating patterns that contain 1,200 to 1,500 calories each day can help most women lose weight safely, and eating patterns that contain 1,500 to 1,800 calories each day are suitable for most men for weight loss. In adults who are overweight or obese, if reduction in total calorie intake is achieved, a variety of eating patterns can produce weight loss, particularly in the first 6 months to 2 years,[9] however, more research is needed on the health implications of consuming these eating patterns long-term.

• Older adults, ages 65 years and older, who are overweight or obese are encouraged to prevent additional weight gain. Among older adults who are obese, particularly those with CVD risk factors, intentional weight loss can be beneficial and result in improved quality of life and reduced risk of chronic diseases and associated disabilities.

Food Groups

Eating an appropriate mix of foods from the food groups and subgroups—within an appropriate calorie level—is important to promote health. Each of the food groups and their subgroups provides an array of nutrients, and the amounts recommended reflect eating patterns that have been associated with positive health outcomes. Foods from all of the food groups should be eaten in nutrient-dense forms. The following sections describe the recommendations for each of the food groups, highlight nutrients for which the food group is a key contributor, and describe special considerations related to the food group.

Vegetables

Healthy Intake: Healthy eating patterns include a variety of vegetables from all of the five vegetable subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other. These include all fresh, frozen, canned, and dried options in cooked or raw forms, including vegetable juices. The recommended amount of vegetables in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2½ cup-equivalents of vegetables per day. In addition, weekly amounts from each vegetable subgroup are recommended to ensure variety and meet nutrient needs.

Key Nutrient Contributions: Vegetables are important sources of many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B6, folate, iron, manganese, thiamin, niacin, and choline. Each of the vegetable subgroups contributes different combinations of nutrients, making it important for individuals to consume vegetables from all the subgroups. For example, dark-green vegetables provide the most vitamin K, red and orange vegetables the most vitamin A, legumes the most dietary fiber, and starchy vegetables the most potassium. Vegetables in the “other” vegetable subgroup provide a wide range of nutrients in varying amounts.

Considerations: To provide all of the nutrients and potential health benefits that vary across different types of vegetables, the Healthy U.S.-Style Eating Pattern includes weekly recommendations for each subgroup. Vegetable choices over time should vary and include many different vegetables. Vegetables should be consumed in a nutrient-dense form, with limited additions such as salt, butter, or creamy sauces. When selecting frozen or canned vegetables, choose those lower in sodium. When selecting canned fruit, choose options that are lowest in added sugars.

Fruits

Healthy Intake: Healthy eating patterns include fruits, especially whole fruits. The fruits food group includes whole fruits and 100% fruit juice. Whole fruits include fresh, canned, frozen, and dried forms. The recommended amount of fruits in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2 cup-equivalents per day. One cup of 100% fruit juice counts as 1 cup of fruit. Although fruit juice can be part of healthy eating patterns, it is lower than whole fruit in dietary fiber and when consumed in excess can contribute extra calories. Therefore, at least half of the recommended amount of fruits should come from whole fruits. When juices are consumed, they should be 100% juice, without added sugars. Also, when selecting canned fruit, choose options that are lowest in added sugars. One-half cup of dried fruit counts as one cup-equivalent of fruit. Similar to juice, when consumed in excess, dried fruits can contribute extra calories.

Key Nutrient Contributions: Among the many nutrients fruits provide are dietary fiber, potassium, and vitamin C.

About Legumes (Beans & Peas)

Legumes include kidney beans, pinto beans, white beans, black beans, garbanzo beans (chickpeas), lima beans (mature, dried), split peas, lentils, and edamame (green soybeans).

Legumes are excellent sources of protein. In addition, they provide other nutrients that also are found in seafood, meats, and poultry, such as iron and zinc. They are excellent sources of dietary fiber and of nutrients, such as potassium and folate that also are found in other vegetables.

Because legumes have a similar nutrient profile to foods in both the protein foods group and the vegetable group, they may be thought of as either a vegetable or a protein food and thus, can be counted as a vegetable or a protein food to meet recommended intakes.

Green peas and green (string) beans are not counted in the legume subgroup, because their nutrient compositions are not similar to legumes. Green peas are similar to starchy vegetables and are grouped with them. Green beans are grouped with the other vegetables subgroup, which includes onions, iceberg lettuce, celery, and cabbage, because their nutrient content is not similar to legumes.

[10] Definitions for each food group and subgroup are provided throughout the chapter and are compiled in Appendix 3.

Considerations: Juices may be partially fruit juice, and only the proportion that is 100% fruit juice counts (e.g., 1 cup of juice that is 50% juice counts as ½ cup of fruit juice). The remainder of the product may contain added sugars. Sweetened juice products with minimal juice content, such as juice drinks, are considered to be sugar-sweetened beverages rather than fruit juice because they are primarily composed of water with added sugars (see the Added Sugars section). The percent of juice in a beverage may be found on the package label, such as “contains 25% juice” or “100% fruit juice.” The amounts of fruit juice allowed in the USDA Food Patterns for young children align with the recommendation from the American Academy of Pediatrics that young children consume no more than 4 to 6 fluid ounces of 100% fruit juice per day. Fruits with small amounts of added sugars can be accommodated in the diet as long as calories from added sugars do not exceed 10 percent per day and total calorie intake remains within limits.

Grains

Healthy Intake: Healthy eating patterns include whole grains and limit the intake of refined grains and products made with refined grains, especially those high in saturated fats, added sugars, and/or sodium, such as cookies, cakes, and some snack foods. The grains food group includes grains as single foods (e.g., rice, oatmeal, and popcorn), as well as products that include grains as an ingredient (e.g., breads, cereals, crackers, and pasta). Grains are either whole or refined. Whole grains (e.g., brown rice, quinoa, and oats) contain the entire kernel, including the endosperm, bran, and germ. Refined grains differ from whole grains in that the grains have been processed to remove the bran and germ, which removes dietary fiber, iron, and other nutrients. The recommended amount of grains in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 6 ounce-equivalents per day. At least half of this amount should be whole grains (see the How To Make at Least Half of Grains Whole Grains call-out box).

Key Nutrient Contributions: Whole grains are a source of nutrients, such as dietary fiber, iron, zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B6, phosphorus, selenium, riboflavin, and vitamin A. Whole grains vary in their dietary fiber content. Most refined grains are enriched, a process that adds back iron and four B vitamins (thiamin, riboflavin, niacin, and folic acid). Because of this process, the term “enriched grains” is often used to describe these refined grains.

Considerations: Individuals who eat refined grains should choose enriched grains. Those who consume all of their grains as whole grains should include some grains, such as some whole-grain ready-to-eat breakfast cereals, that have been fortified with folic acid. This is particularly important for women who are or are capable of becoming pregnant, as folic acid fortification in the United States has been successful in reducing the incidence of neural tube defects during fetal development. Although grain products that are high in added sugars and saturated fats, such as cookies, cakes, and some snack foods, should be limited, as discussed in the Added Sugars and Saturated Fats sections, grains with some added sugars and saturated fats can fit within healthy eating patterns.

How To Make at Least Half of Grains Whole Grains

A food is a 100-percent whole-grain food if the only grains it contains are whole grains. One ounce-equivalent of whole grains has 16 g of whole grains. The recommendation to consume at least half of total grains as whole grains can be met in a number of ways.

The most direct way to meet the whole grain recommendation is to choose 100 percent whole-grain foods for at least half of all grains consumed. The relative amount of whole grain in the food can be inferred by the placement of the grain in the ingredients list. The whole grain should be the first ingredient—or the second ingredient, after water. For foods with multiple whole-grain ingredients, they should appear near the beginning of the ingredients list.

Many grain foods contain both whole grains and refined grains. These foods also can help people meet the whole grain recommendation, especially if a considerable proportion of the grain ingredients is whole grains. Another way to meet the recommendation to make at least half of grains whole grains is to choose products with at least 50 percent of the total weight as whole-grain ingredients. If a food has at least 8 g of whole grains per ounce-equivalent, it is at least half whole grains. Some product labels show the whole grains health claim or the grains of whole grain in the product. This information may help people identify food choices that have a substantial amount of whole grains.

[13] In the form of provitamin A carotenoids.
[14] Products that bear the U.S. Food and Drug Administration (FDA) health claim for whole grains have at least 51 percent of the total ingredients by weight as whole-grain ingredients; they also meet other criteria.
[15] Foods that meet the whole grain-rich criteria for the school meal programs contain 100 percent whole grain or a blend of whole-grain meal and/or flour and enriched meal and/or flour of which at least 50 percent is whole grain. The remaining 50 percent or less of grains, if any, must be enriched. http://www.fns.usda.gov/sites/default/files/WholeGrainResource.pdf. Accessed October 22, 2015.
Dairy

Healthy Intake: Healthy eating patterns include fat-free and low-fat (1%) dairy, including milk, yogurt, cheese, or fortified soy beverages (commonly known as “soymilk”). Soy beverages fortified with calcium, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium.

Key Nutrient Contributions: The dairy group contributes many nutrients, including calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium.

Considerations: Fat-free and low-fat (1%) dairy products provide the same nutrients but less fat (and thus, fewer calories) than higher fat options, such as 2% and whole milk and regular cheese. Fat-free or low-fat milk and yogurt, in comparison to cheese, contain less saturated fats and sodium and more potassium, vitamin A, and vitamin D. Thus, increasing the proportion of dairy intake that is fat-free or low-fat milk or yogurt and decreasing the proportion that is cheese would decrease saturated fats and sodium and increase potassium, vitamin A, and vitamin D provided from the dairy group. Individuals who are lactose intolerant can choose low-lactose and lactose-free dairy products. Those who are unable or choose not to consume dairy products should consume foods that provide the range of nutrients generally obtained from dairy, including protein, calcium, potassium, magnesium, vitamin D, and vitamin A (e.g., fortified soy beverages [soymilk]). Additional sources of potassium, calcium, and vitamin D are found in Appendix 10, Appendix 11, and Appendix 12, respectively.

Protein Foods

Healthy Intake: Healthy eating patterns include a variety of protein foods in nutrient-dense forms. The protein foods group comprises a broad group of foods from both animal and plant sources and includes several subgroups: seafood; meats, poultry, and eggs; and nuts, seeds, and soy products. Legumes (beans and peas) may also be considered part of the protein foods group as well as the vegetables group (see the About Legumes [Beans and Peas] call-out box). Protein also is found in some foods from other food groups (e.g., dairy). The recommendation for protein foods in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 5½ ounce-equivalents of protein foods per day.

Key Nutrient Contributions: Protein foods are important sources of nutrients in addition to protein, including B vitamins (e.g., niacin, vitamin B₁₂, vitamin B₆, and riboflavin), selenium, choline, phosphorus, zinc, copper, vitamin D, and vitamin E. Nutrients provided by various types of protein foods differ. For example, meats provide the most zinc, while poultry provides the most niacin. Meats, poultry, and seafood provide heme iron, which is more bioavailable than the non-heme iron found in plant sources. Heme iron is especially important for young children and women who are capable of becoming pregnant or who are pregnant. Seafood provides the most vitamin B₁₂ and vitamin D, in addition to almost all of the polyunsaturated omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), in the Patterns (see the About Seafood call-out box). Eggs provide the most choline, and nuts and seeds provide the most vitamin E. Soy products are a source of copper, manganese, and iron, as are legumes.

Considerations: For balance and flexibility within the food group, the Healthy U.S.-Style Eating Pattern includes weekly recommendations for the subgroups: seafood; meats, poultry, and eggs; and nuts, seeds, and soy products. A specific
recommendation for at least 8 ounce-equivalents of seafood per week also is included for the 2,000-calorie level (see the About Seafood call-out box). One-half ounce of nuts or seeds counts as 1 ounce-equivalent of protein foods, and because they are high in calories, they should be eaten in small portions and used to replace other protein foods rather than being added to the diet. When selecting protein foods, nuts and seeds should be unsalted, and meats and poultry should be consumed in lean forms. Processed meats and processed poultry are sources of sodium and saturated fats, and intake of these products can be accommodated as long as sodium, saturated fats, added sugars, and total calories are within limits in the resulting eating pattern (see the About Meats and Poultry call-out box). The inclusion of protein foods from plants allows vegetarian options to be accommodated.

**About Seafood**

Seafood, which includes fish and shellfish, received particular attention in the 2010 Dietary Guidelines because of evidence of health benefits for the general populations as well as for women who are pregnant or breastfeeding. For the general population, consumption of about 8 ounces per week of a variety of seafood, which provide an average consumption of 250 mg per day of EPA and DHA, is associated with reduced cardiac deaths among individuals with and without preexisting CVD. Similarly, consumption by women who are pregnant or breastfeeding of at least 8 ounces per week from seafood choices that are sources of DHA is associated with improved infant health outcomes.

The recommendation to consume 8 or more ounces per week (less for young children) of seafood is for the total package of nutrients that seafood provides, including its EPA and DHA content. Some seafood choices with higher amounts of EPA and DHA should be included.

Strong evidence from mostly prospective cohort studies but also randomized controlled trials has shown that eating patterns that include seafood are associated with reduced risk of CVD, and moderate evidence indicates that these eating patterns are associated with reduced risk of obesity. As described earlier, eating patterns consist of multiple, interacting food components and the relationships to health exist for the overall eating pattern, not necessarily to an isolated aspect of the diet.

Mercury is a heavy metal found in the form of methyl mercury in seafood in varying levels. Seafood choices higher in EPA and DHA but lower in methyl mercury are encouraged. Seafood varieties commonly consumed in the United States that are higher in EPA and DHA and lower in methyl mercury include salmon, anchovies, herring, shad, sardines, Pacific oysters, trout, and Atlantic and Pacific mackerel (not king mackerel, which is high in methyl mercury). Individuals who regularly consume more than the recommended amounts of seafood that are in the Healthy U.S-Style Pattern should choose a mix of seafood that emphasizes choices relatively low in methyl mercury.

Some canned seafood, such as anchovies, may be high in sodium. To keep sodium intake below recommended limits, individuals can use the Nutrition Facts label to compare sodium amounts.

Women who are pregnant or breastfeeding should consume at least 8 and up to 12 ounces of a variety of seafood per week, from choices that are lower in methyl mercury. Obstetricians and pediatricians should provide guidance on how to make healthy food choices that include seafood. Women who are pregnant or breastfeeding and young children should not eat certain types of fish that are high in methyl mercury.


[18] Cooked, edible portion

[19] The U.S. Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA) provide joint guidance regarding seafood consumption for women who are pregnant or breastfeeding and young children. For more information, see the FDA and EPA websites www.FDA.gov/fishadvice; www.EPA.gov/fishadvice.
About Meats & Poultry

Meat, also known as red meat, includes all forms of beef, pork, lamb, veal, goat, and non-bird game (e.g., venison, bison, and elk). Poultry includes all forms of chicken, turkey, duck, geese, guineas, and game birds (e.g., quail and pheasant). Meats and poultry vary in fat content and include both fresh and processed forms. Lean meats and poultry contain less than 10 g of fat, 4.5 g or less of saturated fats, and less than 95 mg of cholesterol per 100 g and per labeled serving size (e.g., 95% lean ground beef, pork tenderloin, and skinless chicken or turkey breast). Processed meats and processed poultry (e.g., sausages, luncheon meats, bacon, and beef jerky) are products preserved by smoking, curing, salting, and/or the addition of chemical preservatives.

Strong evidence from mostly prospective cohort studies but also randomized controlled trials has shown that eating patterns that include lower intake of meats as well as processed meats and processed poultry are associated with reduced risk of CVD in adults. Moderate evidence indicates that these eating patterns are associated with reduced risk of obesity, type 2 diabetes, and some types of cancer in adults. As described earlier, eating patterns consist of multiple, interacting food components, and the relationships to health exist for the overall eating pattern, not necessarily to an isolated aspect of the diet. Much of this research on eating patterns has grouped together all meats and poultry, regardless of fat content or processing, though some evidence has identified lean meats and lean poultry in healthy eating patterns. In separate analyses, food pattern modeling has demonstrated that lean meats and lean poultry can contribute important nutrients within limits for sodium, calories from saturated fats and added sugars, and total calories when consumed in recommended amounts in healthy eating patterns, such as the Healthy U.S.-Style and Mediterranean-Style Eating Patterns.

The recommendation for the meats, poultry, and eggs subgroup in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 26 ounce-equivalents per week. This is the same as the amount that was in the primary USDA Food Patterns of the 2010 Dietary Guidelines. As discussed in Chapter 2, average intakes of meats, poultry, and eggs for teen boys and adult men are above recommendations in the Healthy U.S.-Style Eating Pattern. For those who eat animal products, the recommendation for the protein foods subgroup of meats, poultry, and eggs can be met by consuming a variety of lean meats, lean poultry, and eggs. Choices within these eating patterns may include processed meats and processed poultry as long as the resulting eating pattern is within limits for sodium, calories from saturated fats and added sugars, and total calories.

Oils

Healthy Intake: Oils are fats that contain a high percentage of monounsaturated and polyunsaturated fats and are liquid at room temperature. Although they are not a food group, oils are emphasized as part of healthy eating patterns because they are the major source of essential fatty acids and vitamin E. Commonly consumed oils extracted from plants include canola, corn, olive, peanut, safflower, soybean, and sunflower oils. Oils also are naturally present in nuts, seeds, seafood, olives, and avocados. The fat in some tropical plants, such as coconut oil, palm kernel oil, and palm oil, are not included in the oils category because they do not resemble other oils in their composition. Specifically, they contain a higher percentage of saturated fats than other oils (see Dietary Fats: The Basics call-out box). The recommendation for oils in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 27 g (about 5 teaspoons) per day.

Key Nutrient Contributions: Oils provide essential fatty acids and vitamin E.

Considerations: Oils are part of healthy eating patterns, but because they are a concentrated source of calories, the amount consumed should be within the AMDR for total fats without exceeding calorie limits. Oils should replace solid fats rather than being added to the diet. More information on types of fats is provided in the Dietary Fats: The Basics call-out box, and information on the relationship between dietary fats and health is discussed in the Saturated Fats, Trans Fats, and Cholesterol section.
**Dietary Fats: The Basics**

Dietary fats are found in both plant and animal foods. They supply calories and help with the absorption of the fat-soluble vitamins A, D, E, and K. Some also are good sources of two essential fatty acids—linoleic acid and α-linolenic acid.

All dietary fats are composed of a mix of polyunsaturated, monounsaturated, and saturated fatty acids, in varied proportions (Figure 1-2). For example, most of the fatty acids in butter are saturated, but it also contains some monounsaturated and polyunsaturated fatty acids. Oils are mostly unsaturated fatty acids, though they have small amounts of saturated fatty acids.

**Figure 1-2.**

**Fatty Acid Profiles of Common Fats & Oils**

<table>
<thead>
<tr>
<th>Fatty Acid Composition (Percent of Total)</th>
<th>Saturated Fatty Acids</th>
<th>Monounsaturated Fatty Acids</th>
<th>Polyunsaturated Fatty Acids</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solid Fats</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coconut Oil*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Kernel Oil*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef Fat (Tallow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Oil*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pork Fat (Lard)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken Fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortening**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oils</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cottonseed Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmon Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peanut Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybean Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sesame Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olive Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avocado Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunflower Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safflower Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canola Oil</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Coconut, palm kernel, and palm oil are called oils because they come from plants. However, they are solid or semi-solid at room temperature due to their high content of short-chain saturated fatty acids. They are considered solid fats for nutritional purposes.

** Shortening may be made from partially hydrogenated vegetable oil, which contains trans fatty acids.

Dietary Fats: The Basics (continued...)

- **Polyunsaturated fatty acids (polyunsaturated fats)** are found in greatest amounts in sunflower, corn, soybean, and cottonseed oils; walnuts; pine nuts; and sesame, sunflower, pumpkin, and flax seeds. Only small amounts of polyunsaturated fats are found in most animal fats. Omega-3 (n-3) fatty acids are a type of polyunsaturated fats found in seafood, such as salmon, trout, herring, tuna, and mackerel, and in flax seeds and walnuts. EPA and DHA are long chain n-3 fatty acids found in seafood.

- **Monounsaturated fatty acids (monounsaturated fats)** are found in greatest amounts in olive, canola, peanut, sunflower, and safflower oils, and in avocados, peanut butter, and most nuts. Monounsaturated fats also are part of most animal fats such as fats from chicken, pork, beef, and wild game.

- **Saturated fatty acids (saturated fats)** are found in the greatest amounts in coconut and palm kernel oils, in butter and beef fats, and in palm oil. They also are found in other animal fats, such as pork and chicken fats and in other plant fats, such as nuts.

- **Trans fatty acids (trans fats)** are unsaturated fats found primarily in partially hydrogenated vegetable oils and foods containing these oils and in ruminant (animal) fats. They are structurally different from the unsaturated fatty acids that occur naturally in plant foods and differ in their health effects.

The proportions of fatty acids in a particular fat determine the physical form of the fat:

- Fats with a higher amount of polyunsaturated and monounsaturated fatty acids are usually liquid at room temperature and are referred to as “oils.”

- Fats with a higher amount of saturated fatty acids are usually solid at room temperature and are referred to as “solid fats.” Fats containing trans fatty acids are also classified as solid fats, although they may or may not be solid at room temperature.

A relevant detail in the complexity of making food-based recommendations that consider nutrients is the difference between the terms “saturated fats” and “solid fats.” Although they are closely related terms, saturated fats and solid fats are not synonymous. The term “saturated fats” refers to saturated fatty acids, a nutrient found in foods, while the term “solid fats” describes the physical manifestation of the fats in a food. Some solid fats, such as the strip of fat around a piece of meat, can easily be seen. Other solid fats are not so visible. For example, the solid fats in whole milk are suspended in the fluid milk by the process of homogenization.

Margarines and margarine-like vegetable oil spreads are food products composed of one or more oils or solid fats designed to replace butter, which is high in saturated fats. These products may be sold in sticks, tubs, bottles, or sprays. Margarine and vegetable oil spreads generally contain less saturated fats than butter. However, they vary in their total fat and calorie content and in the fat and oil blends used to make them and, thus, in the proportions of saturated, unsaturated, and trans fats they contain. It is important to read the Nutrition Facts label to identify the calorie and saturated and trans fats content of the spread and choose foods with no trans fats and lower amounts of saturated fats.

The Dietary Guidelines provides recommendations on saturated fats as well as on solid fats because its aim is to improve the health of the U.S. population through food-based guidance. It includes recommendations on saturated fats because of the strong relationship of this nutrient to a health outcome (CVD risk). It includes recommendations on solid fats because, as discussed in Chapter 2, they are abundant in the diets of the U.S. population, and reducing solid fats when making food choices is an important way to reduce saturated fats and excess calories.

[20] The term “fats” rather than “fatty acids” is generally used in this document when discussing categories of fatty acids (e.g., unsaturated, saturated, trans) for consistency with the Nutrition Facts label and other Federal materials.
limits. The USDA Food Patterns can be used to plan and serve meals for individuals, households, and in a variety of organizational settings (e.g., schools, worksites, and other community settings). The limit on calories for other uses can assist in determining how to plan and select foods that can fit within healthy eating patterns, such as how many calories are available to select foods from a food group that are not in nutrient-dense forms. As discussed in the next portion of the chapter, additional constraints apply related to other dietary components when building healthy eating patterns.

Other Dietary Components

In addition to the food groups, it is important to consider other food components when making food and beverage choices. The components discussed here include added sugars, saturated fats, trans fats, cholesterol, sodium, alcohol, and caffeine. For each component, information is provided on how the component relates to eating patterns and outlines considerations related to the component. See Chapter 2 for a further discussion of each of these components, current intakes, and shifts that are needed to help individuals align with a healthy eating pattern.

**Added Sugars**

**Healthy Intake:** Added sugars include syrups and other caloric sweeteners. When sugars are added to foods and beverages to sweeten them, they add calories without contributing essential nutrients. Consumption of added sugars can make it difficult for individuals to meet their nutrient needs while staying within calorie limits. Naturally occurring sugars, such as those in fruit or milk, are not added sugars. Specific examples of added sugars that can be listed as an ingredient include brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, invert sugar, lactose, malt syrup, maltose, molasses, raw sugar, sucrose, trehalose, and turbinado sugar.

Healthy eating patterns limit added sugars to less than 10 percent of calories per day. This recommendation is a target to help the public achieve a healthy eating pattern, which means meeting nutrient and food group needs through nutrient-dense food and beverage choices and staying within calorie limits. When added sugars in foods and beverages exceed 10 percent of calories, a healthy eating pattern may be difficult to achieve. This target also is informed by national data on intakes of calories from added sugars, which as discussed in Chapter 2, account on average for almost 270 calories, or more than 13 percent of calories per day in the U.S. population.

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[21] It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix 9. Alcohol for additional information.
Figure 1-3.
Hidden Components in Eating Patterns

Many of the foods and beverages we eat contain sodium, saturated fats, and added sugars. Making careful choices, as in this example, keeps amounts of these components within their limits while meeting nutrient needs to achieve a healthy eating pattern.

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bagel with Peanut Butter &amp; Banana</strong></td>
<td><strong>Tuna Salad Sandwich with Lettuce &amp; Mayo</strong></td>
</tr>
<tr>
<td>Whole Wheat Bagel</td>
<td>100% Whole Wheat Bread</td>
</tr>
<tr>
<td>Creamy Peanut Butter</td>
<td>Canned Tuna</td>
</tr>
<tr>
<td>Banana</td>
<td>Mayonnaise</td>
</tr>
<tr>
<td></td>
<td>Chopped Celery</td>
</tr>
<tr>
<td></td>
<td>Lettuce</td>
</tr>
<tr>
<td>½ regular bagel (4 oz)</td>
<td>2 slices</td>
</tr>
<tr>
<td>2 tablespoons</td>
<td>2 ounces</td>
</tr>
<tr>
<td>1 medium</td>
<td>2 tablespoons</td>
</tr>
<tr>
<td><strong>Coffee with Milk &amp; Sugar</strong></td>
<td><strong>Carrots</strong> 4 Baby Carrots</td>
</tr>
<tr>
<td>Whole Milk</td>
<td><strong>Raisins</strong> ¼ Cup</td>
</tr>
<tr>
<td>Sugar</td>
<td><strong>Low-fat Milk</strong> (1%)</td>
</tr>
<tr>
<td>1 cup</td>
<td>1 Cup</td>
</tr>
<tr>
<td>2 teaspoons</td>
<td></td>
</tr>
</tbody>
</table>

726 Calories 507 Calories

*Sodium*, *Saturated Fats*, *Added Sugars*

*Foods very low in sodium not marked*
Sodium*  

<table>
<thead>
<tr>
<th>Dish</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaghetti &amp; Meatballs</td>
<td>Spaghetti 1 cup, cooked Spaghetti Sauce ¼ cup, diced tomatoes ¼ cup, canned, no salt added Meats 3 medium meatballs Parmesan Cheese 1 tablespoon</td>
</tr>
<tr>
<td>Garden Salad</td>
<td>Mixed Greens 1 cup Cucumber 3 slices Avocado ¼ cup, cubed Garbanzo Beans ¼ cup, canned, low sodium Cheddar Cheese 3 tablespoons, shredded Ranch Salad 1 tablespoon Dressing</td>
</tr>
<tr>
<td>Apple, Raw</td>
<td>½ medium</td>
</tr>
<tr>
<td>Water, Tap</td>
<td>1 cup</td>
</tr>
</tbody>
</table>

761 Calories

Total

Sodium: 2,253 mg  

Calories From Saturated Fats: 153 (8% of Total Calories)  
Calories From Added Sugars: 164 (8% of Total Calories)

1,995 Calories

* Foods very low in sodium not marked
The USDA Food Patterns show that an eating pattern with enough foods from all food groups to meet nutrient needs without eating too many calories has only limited room for calories from added sugars. At most lower calorie levels (i.e., 1,200 to 1,800 calories), the calories that remain after meeting food group recommendations in nutrient-dense forms (“limits on calories for other uses”) are less than 10 percent per day of calories; however, at higher calorie levels, the limits on calories for other uses are more than 10 percent per day. The recommendation to limit added sugars to no more than 10 percent of calories is a target that applies to all calorie levels to help individuals move toward healthy eating patterns within calorie limits.

Although the evidence for added sugars and health outcomes is still developing, the recommendation to limit calories from added sugars is consistent with research examining eating patterns and health. Strong evidence from mostly prospective cohort studies but also randomized controlled trials has shown that eating patterns that include lower intake of sources of added sugars are associated with reduced risk of CVD in adults, and moderate evidence indicates that these eating patterns are associated with reduced risk of obesity, type 2 diabetes, and some types of cancer in adults. As described earlier, eating patterns consist of multiple, interacting food components, and the relationships to health exist for the overall eating pattern, not necessarily to an isolated aspect of the diet. Moderate evidence indicates a relationship between added sugars and dental caries in children and adults.

**Considerations:** Added sugars provide sweetness that can help improve the palatability of foods, help with preservation, and/or contribute to functional attributes such as viscosity, texture, body, color, and browning capability. As discussed in Chapter 2, the two main sources of added sugars in U.S. diets are sugar-sweetened beverages and snacks and sweets. Many foods high in calories from added sugars provide few or no essential nutrients or dietary fiber and, therefore, may contribute to excess calorie intake without contributing to diet quality; intake of these foods should be limited to help achieve healthy eating patterns within calorie limits. There is room for Americans to include limited amounts of added sugars in their eating patterns, including to improve the palatability of some nutrient-dense foods, such as fruits and vegetables that are naturally tart (e.g., cranberries and rhubarb). Healthy eating patterns can accommodate other nutrient-dense foods with small amounts of added sugars, such as whole-grain breakfast cereals or fat-free yogurt, as long as calories from added sugars do not exceed 10 percent per day, total carbohydrate intake remains within the AMDR, and total calorie intake remains within limits.

It should be noted that replacing added sugars with high-intensity sweeteners may reduce calorie intake in the short-term, yet questions remain about their effectiveness as a long-term weight management strategy. High-intensity sweeteners that have been approved by the U.S. Food and Drug Administration (FDA) include saccharin, aspartame, acesulfame potassium (Ace-K), and sucralose. Based on the available scientific evidence, these high-intensity sweeteners have been determined to be safe for the general population. This means that there is reasonable certainty of no harm under the intended conditions of use because the estimated daily intake is not expected to exceed the acceptable daily intake for each sweetener. The FDA has determined that the estimated daily intake of these high-intensity sweeteners would not exceed the acceptable daily intake, even for high consumers of each substance.

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**Saturated Fats, Trans Fats, & Cholesterol**

**Saturated Fats**

**Healthy Intake:** Intake of saturated fats should be limited to less than 10 percent of calories per day by replacing them with unsaturated fats and while keeping total dietary fats within the age-appropriate AMDR. The human body uses some saturated fats for physiological and structural functions, but it makes more than enough to meet those needs. Individuals 2 years and older therefore have no dietary requirement for saturated fats.

Strong and consistent evidence shows that replacing saturated fats with unsaturated fats, especially polysaturated fats, is associated with reduced blood levels of total cholesterol and of low-density lipoprotein-cholesterol (LDL-cholesterol). Additionally, strong and consistent evidence shows that replacing saturated fats with polysaturated fats is associated with a reduced risk of CVD events (heart attacks) and CVD-related deaths.

Some evidence has shown that replacing saturated fats with plant sources of monounsaturated fats, such as olive oil and nuts, may be associated with a reduced risk of CVD. However, the evidence base...
for monounsaturated fats is not as strong
as the evidence base for replacement
with polyunsaturated fats. Evidence has
also shown that replacing saturated fats
with carbohydrates reduces blood levels
of total and LDL-cholesterol, but increases
blood levels of triglycerides and reduces
high-density lipoprotein-cholesterol
(HDL-cholesterol). Replacing total fat or
saturated fats with carbohydrates is not
associated with reduced risk of CVD.
Additional research is needed to determine
whether this relationship is consistent
across categories of carbohydrates (e.g.,
whole versus refined grains; intrinsic
versus added sugars), as they may have
different associations with various
health outcomes. Therefore, saturated
fats in the diet should be replaced with
polyunsaturated and monounsaturated fats.

Considerations: As discussed in Chapter 2,
the main sources of saturated fats in the U.S.
diet include mixed dishes containing cheese,
meat, or both, such as burgers, sandwiches,
and tacos; pizza; rice, pasta, and grain
dishes; and meat, poultry, and seafood
dishes. Although some saturated fats are
inherent in foods, others are added. Healthy
eating patterns can accommodate nutrient-
dense foods with small amounts of saturated
fats, as long as calories from saturated fats
do not exceed 10 percent per day, intake of
total fats remains within the AMDR, and
total calorie intake remains within limits.
When possible, foods high in saturated
fats should be replaced with foods high in
unsaturated fats, and other choices to reduce
solid fats should be made (see Chapter 2).

Trans Fats

Individuals should limit intake of trans fats
to as low as possible by limiting foods
that contain synthetic sources of trans
fats, such as partially hydrogenated oils
in margarines, and by limiting other solid
fats. A number of studies have observed
an association between increased intake of
trans fats and increased risk of CVD. This
increased risk is due, in part, to
its LDL-cholesterol-raising effect.

Trans fats occur naturally in some foods
and also are produced in a process called
hydrogenation. Hydrogenation is used
by food manufacturers to make products
containing unsaturated fatty acids solid at
room temperature (i.e., more saturated) and
therefore more resistant to becoming spoiled
or rancid. Partial hydrogenation means that
some, but not all, unsaturated fatty acids
are converted to saturated fatty acids; some
of the unsaturated fatty acids are changed
from a cis to trans configuration. Trans fatty
acids produced this way are referred to as
“artificial” or “industrially produced” trans
fatty acids. Artificial trans fatty acids are
found in the partially hydrogenated oils
used in some margarines, snack foods,
and prepared desserts as a replacement
for saturated fatty acids. Although food
manufacturers and restaurants have reduced
the amounts of artificial trans fats in many
foods in recent years, these fats can still
be found in some processed foods, such as
some desserts, microwave popcorn, frozen
pizza, margarines, and coffee creamers.

Naturally occurring trans fats, known as
“natural” or “ruminant” trans fats, are
produced by ruminant animals. Natural trans
fats are present in small quantities in dairy
products and meats, and consuming fat-free
or low-fat dairy products and lean meats and
poultry will reduce the intake of natural trans
fats from these foods. Because natural trans
fats are present in dairy products and meats
in only small quantities and these foods can
be important sources of nutrients, these foods
do not need to be eliminated from the diet.

Dietary Cholesterol

The body uses cholesterol for physiological
and structural functions but makes
more than enough for these purposes.
Therefore, people do not need to
obtain cholesterol through foods.

The Key Recommendation from the 2010
Dietary Guidelines to limit consumption
of dietary cholesterol to 300 mg per day
is not included in the 2015 edition, but
this change does not suggest that dietary
cholesterol is no longer important to consider
when building healthy eating patterns. As
recommended by the IOM
individuals
should eat as little dietary cholesterol as
possible while consuming a healthy eating
pattern. In general, foods that are higher
in dietary cholesterol, such as fatty meats
and high-fat dairy products, are also higher
in saturated fats. The USDA Food Patterns
are limited in saturated fats, and because of the
commonality of food sources of saturated
fats and dietary cholesterol, the Patterns are
also low in dietary cholesterol. For example,
the Healthy U.S.-Style Eating Pattern
contains approximately 100 to 300 mg of
cholesterol across the 12 calorie levels.
Current average intake of dietary cholesterol
among those 1 year and older in the United
States is approximately 270 mg per day.

Strong evidence from mostly prospective
cohort studies but also randomized
controlled trials has shown that eating
patterns that include lower intake of dietary
cholesterol are associated with reduced risk
of CVD, and moderate evidence indicates
that these eating patterns are associated
with reduced risk of obesity. As described
earlier, eating patterns consist of multiple,
interacting food components and the
relationships to health exist for the overall
eating pattern, not necessarily to an isolated
aspect of the diet. More research is needed

[23] The FDA has determined that partially hydrogenated oils, which are the primary dietary source of industrially produced trans fats, are no longer generally recognized as safe (GRAS), with compliance expected by June 18, 2018. FDA. Final Determination Regarding Partially Hydrogenated Oils. Federal Register. June 17, 2015;80(116):34650-34670. Available at: https://www.

Dietary Approaches to Stop Hypertension (DASH)

The DASH dietary pattern is an example of a healthy eating pattern and has many of the same characteristics as the Healthy U.S.-Style Eating Pattern. The DASH dietary pattern and several variations have been tested in randomized controlled clinical trials to study the effect of the DASH dietary pattern on CVD risk factors. The original DASH trial demonstrated that the DASH dietary pattern lowered blood pressure and LDL-cholesterol levels, resulting in reduced CVD risk, compared to diets that resembled a typical American diet. The DASH-Sodium trial confirmed the beneficial blood pressure and LDL-cholesterol effects of the DASH eating pattern at three levels of dietary sodium intake and also demonstrated a step-wise lowering of blood pressure as sodium intake was reduced. The OmniHeart Trial found that replacing some of the carbohydrates in DASH with the same amount of either protein or unsaturated fats lowered blood pressure and LDL-cholesterol levels more than the original DASH dietary pattern.

The DASH Eating Plan is high in vegetables, fruits, low-fat dairy products, whole grains, poultry, fish, beans, and nuts and is low in sweets, sugar-sweetened beverages, and red meats. It is low in saturated fats and rich in potassium, calcium, and magnesium, as well as dietary fiber and protein. It also is lower in sodium than the typical American diet, and includes menus with two levels of sodium, 2,300 and 1,500 mg per day. Additional details on DASH are available at http://www.nhlbi.nih.gov/health/health-topics/topics/dash.

Caffeine

Caffeine is not a nutrient; it is a dietary component that functions in the body as a stimulant. Caffeine occurs naturally in plants (e.g., coffee beans, tea leaves, cocoa beans, kola nuts). It also is added to foods and beverages (e.g., caffeinated soda, energy drinks). If caffeine is added to a food, it must be included in the listing of ingredients on the food label.[25] Most intake of caffeine in the United States comes from coffee, tea, and soda. Caffeinated beverages vary widely in their caffeine content. Caffeinated coffee beverages include drip/brewed coffee (12 mg/fl oz), instant coffee (8 mg/fl oz), espresso (64 mg/fl oz), and specialty beverages made from coffee or espresso, such as cappuccinos and lattes. Amounts of caffeine in other beverages such as brewed black tea (6 mg/fl oz), brewed green tea (2-5 mg/fl oz), and caffeinated soda[26] (1-4 mg/fl oz) also vary. Beverages within the energy drinks category have the greatest variability (3-35 mg/fl oz).

Much of the available evidence on caffeine focuses on coffee intake. Moderate coffee consumption (three to five 8-oz cups/day or providing up to 400 mg/day of caffeine) can be incorporated into healthy eating patterns. This guidance on coffee is informed by strong and consistent evidence showing that, in healthy adults, moderate coffee consumption is not associated with an increased risk of major chronic diseases (e.g., cancer) or premature death, especially from CVD. However, individuals who do not consume caffeinated coffee or other caffeinated beverages are not encouraged to incorporate them into their eating pattern. Limited and mixed evidence is available from randomized controlled trials examining the relationship between those energy drinks which have high caffeine content and cardiovascular risk factors and other health outcomes. In addition, caffeinated beverages, such as some sodas or energy drinks, may include calories from added sugars, and although coffee itself has minimal calories, coffee beverages often contain added calories from cream, whole or 2% milk, creamer, and added sugars, which should be limited. The same considerations apply to calories added to tea or other similar beverages.

Those who choose to drink alcohol should be cautious about mixing caffeine and alcohol together or consuming them at the same time; see Appendix 9. Alcohol for additional discussion. In addition, women who are capable of becoming pregnant or who are trying to, or who are pregnant, and those who are breastfeeding should consult their health care providers for advice concerning caffeine consumption.

[25] Some dietary supplements such as energy shots also contain caffeine, but the amount of caffeine in these products is not required to be disclosed.

regarding the dose-response relationship between dietary cholesterol and blood cholesterol levels. Adequate evidence is not available for a quantitative limit for dietary cholesterol specific to the Dietary Guidelines.

Dietary cholesterol is found only in animal foods such as egg yolk, dairy products, shellfish, meats, and poultry. A few foods, notably egg yolks and some shellfish, are higher in dietary cholesterol but not saturated fats. Eggs and shellfish can be consumed along with a variety of other choices within and across the subgroup recommendations of the protein foods group.

**Sodium**

**Healthy Intake:** The scientific consensus from expert bodies, such as the IOM, the American Heart Association, and Dietary Guidelines Advisory Committees, is that average sodium intake, which is currently 3,440 mg per day (see Chapter 2), is too high and should be reduced. Healthy eating patterns limit sodium to less than 2,300 mg per day for adults and children ages 14 years and older and to the age- and sex-appropriate Tolerable Upper Intake Levels (UL) of sodium for children younger than 14 years of age based on median intake of calories. Similar to adults, moderate evidence also indicates that the linear dose-response relationship between sodium intake and blood pressure is found in children as well.

The limits for sodium are the age- and sex-appropriate ULs. The UL is the highest daily nutrient intake level that is likely to pose no risk of adverse health effects to almost all individuals in the general population. The recommendation for adults and children ages 14 years and older to limit sodium intake to less than 2,300 mg per day is based on evidence showing a linear dose-response relationship between increased sodium intake and increased blood pressure in adults. In addition, moderate evidence suggests an association between increased sodium intake and increased risk of CVD in adults. However, this evidence is not as consistent as the evidence on blood pressure, a surrogate indicator of CVD risk.

Calorie intake is highly associated with sodium intake (i.e., the more foods and beverages people consume, the more sodium they tend to consume). Because children have lower calorie needs than adults, the IOM established lower ULs for children younger than 14 years of age based on median intake of calories. Adults with prehypertension and hypertension would particularly benefit from blood pressure lowering. For these individuals, further reduction to 1,500 mg per day can result in even greater blood pressure reduction. Because of the linear dose-response relationship between sodium intake and blood pressure, every incremental decrease in sodium intake that moves toward recommended limits is encouraged. Even without reaching the limits for sodium intake, strong evidence indicates that reductions in sodium intake can lower blood pressure among people with prehypertension and hypertension. Further, strong evidence has demonstrated that adults who would benefit from blood pressure lowering should combine the Dietary Approaches to Stop Hypertension (DASH) dietary pattern with lower sodium intake (see Dietary Approaches to Stop Hypertension call-out box).

**Considerations:** As a food ingredient, sodium has multiple uses, such as in curing meat, baking, thickening, enhancing flavor (including the flavor of other ingredients), as a preservative, and in retaining moisture. For example, some fresh meats have sodium solutions added to help retain moisture in cooking. As discussed in Chapter 2, sodium is found in foods across the food supply, including mixed dishes such as burgers, sandwiches, and tacos; rice, pasta, and grain dishes; pizza; meat, poultry, and seafood dishes; and soups. Multiple strategies should be implemented to reduce sodium intake to the recommended limits (see Chapter 3. Everyone Has a Role in Supporting Healthy Eating Patterns).

**Alcohol**

Alcohol is not a component of the USDA Food Patterns. The Dietary Guidelines does not recommend that individuals who do not drink alcohol start drinking for any reason. If alcohol is consumed, it should be in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age. There are also many circumstances in which individuals should not drink, such as during pregnancy. For the purposes of evaluating amounts of alcohol that may be consumed, the Dietary Guidelines includes drink-equivalents. One alcoholic drink-equivalent is described as containing 14 g (0.6 fl oz) of pure alcohol. The following are reference beverages that are one alcoholic drink-equivalent: 12 fluid ounces of regular beer (5% alcohol), 5 fluid ounces of wine (12% alcohol), or 1.5 fluid ounces of 80 proof distilled spirits (40% alcohol). The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns so that calorie limits are not exceeded. See Appendix 9. Alcohol for additional information.

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[27] The IOM set an Adequate Intake (AI) level for sodium to meet the sodium needs of healthy and moderately active individuals. Because of increased loss of sodium from sweat, the AI does not apply to highly active individuals and workers exposed to extreme heat stress, estimated to be less than 1 percent of the U.S. population. Institute of Medicine. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington (DC): The National Academies Press; 2005.


[29] Drink-equivalents are not intended to serve as a standard drink definition for regulatory purposes.

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Examples of Other Healthy Eating Patterns

The U.S. population consumes many different styles of eating patterns other than the “typical American pattern” that provides the basis for the Healthy U.S.-Style Eating Pattern (see Appendix 3 and Table 1-1). There are many ways to consume a healthy eating pattern, and the evidence to support multiple approaches has expanded over time. The Healthy Mediterranean-Style Eating Pattern and Healthy Vegetarian Eating Pattern, which were developed by modifying the Healthy U.S.-Style Eating Pattern, are two examples of healthy eating patterns individuals may choose based on personal preference. Similar to the Healthy U.S.-Style Eating Pattern, these patterns were designed to consider the types and proportions of foods Americans typically consume, but in nutrient-dense forms and appropriate amounts, which result in eating patterns that are attainable and relevant in the U.S. population. Additionally, healthy eating patterns can be flexible with respect to the intake of carbohydrate, protein, and fat within the context of the AMDR.

As with the Healthy U.S.-Style Eating Pattern, each provides recommended intakes at 12 different calorie levels (see Appendix 4 and Appendix 5). The 2,000 calorie level for each Pattern is shown here as an example (Table 1-2).

Healthy Mediterranean-Style Eating Pattern

A Healthy Mediterranean-Style Eating Pattern (Appendix 4) was designed by modifying the Healthy U.S.-Style Eating Pattern and Healthy Vegetarian Eating Pattern, which were developed by modifying the Healthy U.S.-Style Eating Pattern. As with the Healthy U.S.-Style Eating Pattern, each provides recommended intakes at 12 different calorie levels (see Appendix 4 and Appendix 5). The 2,000 calorie level for each Pattern is shown here as an example (Table 1-2).

Table 1-2. Composition of the Healthy Mediterranean-Style & Healthy Vegetarian Eating Patterns at the 2,000-Calorie Level, [a] With Daily or Weekly Amounts From Food Groups, Subgroups, & Components

<table>
<thead>
<tr>
<th>Food Group[a]</th>
<th>Healthy Mediterranean-Style Eating Pattern</th>
<th>Healthy Vegetarian Eating Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>2½ c-eq/day</td>
<td>2½ c-eq/day</td>
</tr>
<tr>
<td>Dark Green</td>
<td>1½ c-eq/week</td>
<td>1½ c-eq/week</td>
</tr>
<tr>
<td>Red &amp; Orange</td>
<td>5½ c-eq/week</td>
<td>5½ c-eq/week</td>
</tr>
<tr>
<td>Legumes (Beans &amp; Peas)</td>
<td>1½ c-eq/week</td>
<td>3 c-eq/week[a]</td>
</tr>
<tr>
<td>Starchy</td>
<td>5 c-eq/week</td>
<td>5 c-eq/week</td>
</tr>
<tr>
<td>Other</td>
<td>4 c-eq/week</td>
<td>4 c-eq/week</td>
</tr>
<tr>
<td>Fruits</td>
<td>2½ c-eq/day</td>
<td>2 c-eq/day</td>
</tr>
<tr>
<td>Grains</td>
<td>6 oz-eq/day</td>
<td>6½ oz-eq/day</td>
</tr>
<tr>
<td>Whole Grains</td>
<td>≥3 oz-eq/week</td>
<td>≥3½ oz-eq/week</td>
</tr>
<tr>
<td>Refined Grains</td>
<td>≥3 oz-eq/week</td>
<td>≥3 oz-eq/week</td>
</tr>
<tr>
<td>Dairy</td>
<td>2 c-eq/day</td>
<td>3 c-eq/day</td>
</tr>
<tr>
<td>Protein Foods</td>
<td>6½ oz-eq/day</td>
<td>3½ oz-eq/day[a]</td>
</tr>
<tr>
<td>Seafood</td>
<td>15 oz-eq/week[a]</td>
<td>—</td>
</tr>
<tr>
<td>Meats, Poultry, Eggs</td>
<td>26 oz-eq/week</td>
<td>3 oz-eq/week (eggs)</td>
</tr>
<tr>
<td>Nuts, Seeds, Soy Products</td>
<td>5 oz-eq/week</td>
<td>14 oz-eq/week</td>
</tr>
<tr>
<td>Oils</td>
<td>27 g/day</td>
<td>27 g/day</td>
</tr>
<tr>
<td>Limit on Calories for Other Uses (% of Calories)[a]</td>
<td>260 kcal/day (13%)</td>
<td>290 kcal/day (15%)</td>
</tr>
</tbody>
</table>

[a] Food group amounts shown in cup-(c) or ounce-(oz) equivalents (eq). Oils are shown in grams (g). Quantity equivalents for each food group are defined in Appendix 3. Amounts will vary for those who need less than 2,000 or more than 2,000 calories per day. See Appendix 4 and Appendix 5 for all 12 calorie levels of the patterns.

[b] Definitions for each food group and subgroup are provided throughout the chapter and are compiled in Appendix 3.

[c] Vegetarian patterns include 1½ cups per week of legumes as a vegetable subgroup, and an additional 6 oz-eq (1½ cup) per week of legumes as a protein food. The total amount is shown here as legumes in the vegetable group.

[d] The FDA and EPA provide additional guidance regarding seafood consumption for women who are pregnant or breastfeeding and young children. For more information, see the FDA or EPA websites: www.FDA.gov/fishadvice; www.EPA.gov/fishadvice.

[e] Assumes food choices to meet food group recommendations are in nutrient-dense forms. Calories from added sugars, solid fats, added refined starchy, and alcohol, and/or to eat more than the recommended amount of nutrient-dense foods are accounted for under this category.

NOTE: The total eating pattern should not exceed Dietary Guidelines limits for intake of calories from added sugars and saturated fats and alcohol and should be within the Acceptable Macronutrient Distribution Ranges for calories from protein, carbohydrate, and total fats. Most calorie patterns do not have enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits. Values are rounded.
Pattern, taking into account food group intakes from studies examining the associations between Mediterranean-Style eating patterns and health.

The Healthy Mediterranean-Style Eating Pattern contains more fruits and seafood and less dairy than does the Healthy U.S.-Style Eating Pattern. The healthfulness of the Healthy Mediterranean-Style Pattern was evaluated based on its similarity to Mediterranean-Style patterns described in studies with positive health outcomes rather than on meeting specified nutrient standards. However, nutrient content of the Pattern was assessed and found to be similar to the Healthy U.S.-Style Eating Pattern, except for calcium and vitamin D. Calcium and vitamin D are lower because the amounts of dairy were decreased, as shown in Appendix 4, to more closely match data from studies of Mediterranean-Style eating patterns.

Healthy Vegetarian Eating Pattern

A Healthy Vegetarian Eating Pattern (Appendix 5) replaces the previous Lacto-ovo Vegetarian Adaptation of the USDA Food Patterns from the 2010 Dietary Guidelines. The Healthy Vegetarian Eating Pattern was developed taking into account food choices of self-identified vegetarians in the National Health and Nutrition Examination Survey (NHANES) and provides recommendations to meet the Dietary Guidelines for those who follow a vegetarian pattern.

In comparison to the Healthy U.S.-Style Eating Pattern, the Healthy Vegetarian Eating Pattern includes more legumes (beans and peas), soy products, nuts and seeds, and whole grains. It contains no meats, poultry, or seafood, and is identical to the Healthy U.S.-Style Eating Pattern in amounts of all other food groups. The Pattern is similar in meeting nutrient standards to the Healthy U.S.-Style Pattern, but is somewhat higher in calcium and dietary fiber and lower in vitamin D, due to differences in the foods included in the protein foods group, specifically more tofu and beans and no seafood, as shown in Appendix 5.

Summary

The 2015-2020 Dietary Guidelines provides Guidelines and Key Recommendations with clear guidance for individuals to enhance eating and physical activity patterns. Implementation of these Guidelines will help promote health and prevent chronic disease in the United States. At the core of this guidance is the importance of consuming overall healthy eating patterns, including vegetables, fruits, grains, dairy, protein foods, and oils—eaten within an appropriate calorie level and in forms with limited amounts of saturated fats, added sugars, and sodium. Examples of how to put this guidance into practice are provided by the Healthy U.S.-Style Eating Pattern and its two variations, a Healthy Mediterranean-Style Eating Pattern and a Healthy Vegetarian Eating Pattern.
CHAPTER 2
Shifts Needed To Align With Healthy Eating Patterns
Introduction

Following healthy eating patterns is vital to health. This chapter provides a snapshot of current eating patterns of people in the United States in comparison to the recommendations in Chapter 1. Key elements of healthy eating patterns and describes shifts that are needed to align current intakes to recommendations. In some cases, the news is good—for certain aspects of eating patterns, some individuals are following the guidance or are close to meeting the recommendations. However, other aspects of the diet are far from the recommendations. Most Americans would benefit from shifting food choices both within and across food groups and from current food choices to nutrient-dense choices. Some shifts that are needed are minor and can be accomplished by making simple substitutions, while others will require greater effort to accomplish.

About This Chapter

This chapter focuses on the fourth dietary guideline:

1. Follow a healthy eating pattern across the lifespan. All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.

2. Focus on variety, nutrient density, and amount. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.

3. Limit calories from added sugars and saturated fats and reduce sodium intake. Consume an eating pattern low in added sugars, saturated fats, and sodium. Cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.

4. Shift to healthier food and beverage choices. Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Consider cultural and personal preferences to make these shifts easier to accomplish and maintain.

5. Support healthy eating patterns for all. Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.

The chapter includes quantitative information on intakes and common sources of food groups, their subgroups, and other dietary components, including nutrients. The chapter also includes strategies to help shift current eating patterns toward the healthy patterns described in Chapter 1. Complementary strategies to support individuals in their effort to make shifts are discussed in greater detail in Chapter 3. Everyone Has a Role in Supporting Healthy Eating Patterns.

Current Eating Patterns in the United States

The typical eating patterns currently consumed by many in the United States do not align with the Dietary Guidelines. As shown in Figure 2-1, when compared to the Healthy U.S.-Style Pattern:

- More than half of the population is meeting or exceeding total grain and total protein foods recommendations, but, as discussed later in the chapter, are not meeting the recommendations for the subgroups within each of these food groups.

- Most Americans exceed the recommendations for added sugars, saturated fats, and sodium.

In addition, the eating patterns of many are too high in calories. Calorie intake over time, in comparison to calorie needs, is best evaluated by measuring body weight status. The high percentage of the population that is overweight or obese suggests that many in the United States overconsume calories. As documented in the Introduction, Table I-1, more than two-thirds of all adults and nearly one-third of all children and youth in the United States are either overweight or obese.

Current eating patterns can be moved toward healthier eating patterns by making shifts in food choices over time. Making these shifts can help support a healthy body weight, meet nutrient needs, and lessen the risk for chronic disease.

The following sections highlight average intakes of the food groups and other dietary components for age-sex groups and show that, in some cases, individuals are close to meeting recommendations, but in others, more substantial change is needed. They also provide examples of foods commonly consumed. Understanding what current intakes are and how food groups and other dietary components are consumed can help inform shifts that are needed to support healthy eating patterns.

In this chapter, intakes of food groups and other dietary components are described in two ways:
Categories[1] provide insight into the sources of food group and nutrient intakes and are therefore useful in identifying strategies to improve eating patterns.

Figure 2-1. Dietary Intakes Compared to Recommendations. Percent of the U.S. Population Ages 1 Year & Older Who Are Below, At, or Above Each Dietary Goal or Limit

<table>
<thead>
<tr>
<th>Food Group of Dietary Component</th>
<th>Percent of Population Below Recommendation or Limit</th>
<th>Percent of Population Above Recommendation or Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td><img src="image" alt="Vegetables" /></td>
<td><img src="image" alt="Vegetables" /></td>
</tr>
<tr>
<td>Fruit</td>
<td><img src="image" alt="Fruit" /></td>
<td><img src="image" alt="Fruit" /></td>
</tr>
<tr>
<td>Total Grains</td>
<td><img src="image" alt="Total Grains" /></td>
<td><img src="image" alt="Total Grains" /></td>
</tr>
<tr>
<td>Dairy</td>
<td><img src="image" alt="Dairy" /></td>
<td><img src="image" alt="Dairy" /></td>
</tr>
<tr>
<td>Protein Foods</td>
<td><img src="image" alt="Protein Foods" /></td>
<td><img src="image" alt="Protein Foods" /></td>
</tr>
<tr>
<td>Oils</td>
<td><img src="image" alt="Oils" /></td>
<td><img src="image" alt="Oils" /></td>
</tr>
<tr>
<td>Added Sugars</td>
<td><img src="image" alt="Added Sugars" /></td>
<td><img src="image" alt="Added Sugars" /></td>
</tr>
<tr>
<td>Saturated Fat</td>
<td><img src="image" alt="Saturated Fat" /></td>
<td><img src="image" alt="Saturated Fat" /></td>
</tr>
<tr>
<td>Sodium</td>
<td><img src="image" alt="Sodium" /></td>
<td><img src="image" alt="Sodium" /></td>
</tr>
</tbody>
</table>

NOTE: The center (0) line is the goal or limit. For most, those represented by the orange sections of the bars, shifting toward the center line will improve their eating pattern.

DATA SOURCES: What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.

Figure 2-2. **Empower People To Make Healthy Shifts**

Making changes to eating patterns can be overwhelming. That’s why it’s important to emphasize that every food choice is an opportunity to move toward a healthy eating pattern. Small shifts in food choices—over the course of a week, a day, or even a meal—can make a big difference. Here are some ideas for realistic, small shifts that can help people adopt healthy eating patterns.

- **High Calorie Snacks** → **Nutrient-Dense Snacks**
- **Fruit Products with Added Sugars** → **Fruit**
- **Refined Grains** → **Whole Grains**
- **Snacks with Added Sugars** → **Unsalted Snacks**
- **Solid Fats** → **Oils**
- **Beverages with Added Sugars** → **No-Sugar-Added Beverages**

### Changing Physical Activity Patterns for a Healthy Lifestyle

**Current Physical Activity:**

Only 20 percent of adults meet the Physical Activity Guidelines for aerobic and muscle-strengthening activity. Males are more likely to report doing regular physical activity compared to females (24% of males versus 17% of females meet recommendations), and this difference is more pronounced between adolescent boys and girls (30% of males versus 13% of females meet recommendations). Despite evidence that increments of physical activity as short as 10 minutes at a time can be beneficial, about 30 percent of adults report engaging in no leisure time physical activity. Disparities also exist; individuals with lower income and those with lower educational attainment have lower rates of physical activity and are more likely to not engage in leisure time physical activity.

Overall, physical activity associated with work, home, and transportation has declined in recent decades and can be attributed to less active occupations; reduced physical activity for commuting to work, school, or for errands; and increased sedentary behavior often associated with television viewing and other forms of screen time.

**Shift Physical Activity Choices:**

Most individuals would benefit from making shifts to increase the amount of physical activity they engage in each week. Individuals would also benefit from limiting screen time and decreasing the amount of time spent being sedentary.
Figure 2-3.
Average Daily Food Group Intakes by Age-Sex Groups, Compared to Ranges of Recommended Intake

**Vegetables**

<table>
<thead>
<tr>
<th>Age-Sex Group</th>
<th>Recommended Intake Ranges</th>
<th>Average Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup-Equivalents</td>
<td>Males (years)</td>
<td>Females (years)</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4 to 8 years</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9 to 13 years</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>14 to 18 years</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>19 to 30 years</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>31 to 50 years</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>51 to 70 years</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>71+ years</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

**Fruits**

<table>
<thead>
<tr>
<th>Age-Sex Group</th>
<th>Recommended Intake Ranges</th>
<th>Average Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup-Equivalents</td>
<td>Males (years)</td>
<td>Females (years)</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4 to 8 years</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9 to 13 years</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>14 to 18 years</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>19 to 30 years</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>31 to 50 years</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>51 to 70 years</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>71+ years</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
Total Grains

Dairy
A Closer Look at Current Intakes & Recommended Shifts

As described in Chapter 1, most foods in healthy eating patterns should come from the food groups. As Figure 2-3 shows, across the U.S. population, average intakes of foods from the food groups are far from amounts recommended in the Healthy U.S.-Style Eating Pattern.

Food Groups

The following sections describe total current intakes for each of the food groups and for oils, and the leading food categories contributing to this total. They also describe the shifts in food choices that are needed to meet recommendations and provide strategies that can help individuals make these shifts.

Vegetables

**Current Intakes:** Figure 2-3 shows the low average intakes of vegetables across age-sex groups in comparison to recommended intake levels. Vegetable consumption relative to recommendations is lowest among boys ages 9 to 13 years and girls ages 14 to 18 years. Vegetable intakes relative to recommendations are slightly higher during the adult years, but intakes are still below recommendations. In addition, with few exceptions, the U.S. population does not meet intake recommendations for any of the vegetable subgroups (Figure 2-4).

**DATA SOURCES:** What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intake ranges.
Calories in Nutrient-Dense Versus Current Typical Choices in the Food Groups

To stay within energy requirements while meeting nutritional needs, food choices in each food group should be in nutrient-dense forms. However, in many food groups, foods as they are typically eaten are not in nutrient-dense forms—they contain additional calories from components such as added sugars, added refined starches, solid fats, or a combination. For example, in the dairy group, nutrient-dense choices such as fat-free milk, plain fat-free yogurt, and low-fat cheese contain an average of about 80 calories per cup-equivalent. In contrast, many dairy products that are typically consumed, such as whole milk, sweetened yogurt, and regular cheese, contain almost 150 calories per cup-equivalent. Similarly, in the protein foods group, nutrient-dense (lean) choices of meats and poultry contain an average of about 50 calories per ounce-equivalent, but the higher fat choices that are typically consumed contain about 80 to 100 calories per ounce-equivalent. Grains and vegetables also are often consumed in forms that contain additional calories from added sugars or solid fats that are added in processing or preparing the food, rather than in nutrient-dense forms.

When typical instead of nutrient-dense choices are made in each food group, individuals consume extra calories when meeting their food group recommendations. Shifting from typical choices to nutrient-dense options is an important principle for maintaining calorie balance in a healthy eating pattern. A related principle, reducing the portion size of foods and beverages that are not in nutrient-dense forms, also can help to maintain calorie balance.

Figure 2-4. (continued...)

Average Vegetable Subgroup Intakes in Cup-Equivalents per Week by Age-Sex Groups, Compared to Ranges of Recommended Intakes per Week

Red & Orange Vegetables

Legumes (Beans & Peas)
### Starchy Vegetables

**DATA SOURCES:** What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intake ranges.

### Other Vegetables

**DATA SOURCES:** What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intake ranges.
Potatoes and tomatoes are the most commonly consumed vegetables, accounting for 21 percent and 18 percent of all vegetable consumption, respectively. Lettuce and onions are the only other vegetables that make up more than 5 percent each of total vegetable group consumption. Table 2-1 lists additional examples of vegetables in each of the subgroups. About 60 percent of all vegetables are eaten as a separate food item, about 30 percent as part of a mixed dish, and the remaining 10 percent as part of snack foods, condiments, and gravies. Vegetables are part of many types of mixed dishes, from burgers, sandwiches, and tacos to pizza, meat stews, pasta dishes, grain-based casseroles, and soups.

### Table 2-1. Examples of Vegetables in Each Vegetable Subgroup

<table>
<thead>
<tr>
<th>Vegetable Subgroup</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark-Green Vegetables</td>
<td>Broccoli, Spinach, Leafy Salad Greens (Including Romaine Lettuce), Collards, Bok Choy, Kale, Turnip Greens, Mustard Greens, Green Herbs (Parsley, Cilantro)</td>
</tr>
<tr>
<td>Red &amp; Orange Vegetables</td>
<td>Tomatoes, Carrots, Tomato Juice, Sweet Potatoes, Red Peppers (Hot and Sweet), Winter Squash, Pumpkin</td>
</tr>
<tr>
<td>Legumes (Beans &amp; Peas)</td>
<td>Pinto, White, Kidney, and Black Beans; Lentils; Chickpeas; Limas (Mature, Dried); Split Peas; Edamame (Green Soybeans)</td>
</tr>
<tr>
<td>Starchy Vegetables</td>
<td>Potatoes, Corn, Green Peas, Limas (Green, Immature), Plaintains, Cassava</td>
</tr>
<tr>
<td>Other Vegetables</td>
<td>Lettuce (Iceberg), Onions, Green Beans, Cucumbers, Celery, Green Peppers, Cabbage, Mushrooms, Avocado, Summer Squash (Includes Zucchini), Cauliflower, Eggplant, Garlic, Bean Sprouts, Olives, Asparagus, Peapods (Snowpeas), Beets</td>
</tr>
</tbody>
</table>

**Shift To Consume More Vegetables:**

For most individuals, following a healthy eating pattern would include an increase in total vegetable intake from all vegetable subgroups, in nutrient-dense forms, and an increase in the variety of different vegetables consumed over time (see Table 2-1). Strategies to increase vegetable intake include choosing more vegetables—from all subgroups—in place of foods high in calories, saturated fats, or sodium such as some meats, poultry, cheeses, and snack foods. One realistic option is to increase the vegetable content of mixed dishes while decreasing the amounts of other food components that are often overconsumed, such as refined grains or meats high in saturated fat and/or sodium. Other strategies include always choosing a green salad or a vegetable as a side dish and incorporating vegetables into most meals and snacks.

### Fruits

**Current Intakes:** As shown in Figure 2-3, average intake of fruits is below recommendations for almost all age-sex groups. Children ages 1 to 8 years differ from the rest of the population in that many do meet recommended intakes for total fruit. Average intakes of fruits, including juice, are lowest among girls ages 14 to 18 years and adults ages 19 to 50 years. Older women (ages 51 years and older) and young children consume fruits in amounts close to or meeting minimum recommended intakes (Figure 2-3).

About one-third of the intake of fruits in the U.S. population comes from fruit juice, and the remaining two-thirds from whole fruits (which includes cut up, cooked, canned, frozen, and dried fruits). The highest proportion of juice to whole fruits intake is among children ages 1 to 3 years, for whom about 47 percent of total fruit intake comes from fruit juice, and about 53 percent from whole fruits. Average juice intakes for young children are within the limits recommended by the American Academy of Pediatrics (see the Fruits section of Chapter 1).

Fruits and fruit juices are most likely to be consumed alone or in a mixture with other fruit, rather than as part of a mixed dish that includes foods from other food groups. Almost 90 percent of all fruit intake comes from single fruits, fruit salads, or fruit juices. The most commonly consumed fruits are apples, bananas, watermelon, grapes, strawberries, oranges, peaches, cantaloupe, pears, blueberries, raisins, and pineapple. Commonly consumed fruit juices are orange juice, apple juice, and grape juice.
**Figure 2-5.**

**Average Whole & Refined Grain Intakes in Ounce-Equivalents per Day by Age-Sex Groups, Compared to Ranges of Recommended Daily Intake for Whole Grains & Limits for Refined Grains***

![Graph showing average whole and refined grain intakes by age-sex groups, compared to ranges of recommended daily intake for whole grains and limits for refined grains.](image)

***NOTE: Recommended daily intake of whole grains is to be at least half of total grain consumption, and the limit for refined grains is to be no more than half of total grain consumption. The blue vertical bars on this graph represent one half of the total grain recommendations for each age-sex group, and therefore indicate recommendations for the minimum amounts to consume of whole grains or maximum amounts of refined grains. To meet recommendations, whole grain intake should be within or above the blue bars and refined grain intake within or below the bars.

DATA SOURCES: What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intake ranges.

**Shift To Consume More Fruits:**
To help support healthy eating patterns, most individuals in the United States would benefit from increasing their intake of fruits, mostly whole fruits, in nutrient-dense forms. A wide variety of fruits are available in the U.S. marketplace, some year-round and others seasonally. Strategies to help achieve this shift include choosing more fruits as snacks, in salads, as side dishes, and as desserts in place of foods with added sugars, such as cakes, pies, cookies, doughnuts, ice cream, and candies.

**Grains**

**Current Intakes:** Intakes of total grains are close to the target amounts (Figure 2-3) for all age-sex groups, but as shown in Figure 2-5, intakes do not meet the recommendations for whole grains and exceed limits for refined grains. Average intakes of whole grains are far below recommended levels across all age-sex groups, and average intakes of refined grains are well above recommended limits for most age-sex groups.

Examples of commonly consumed whole-grain foods are whole-wheat breads, rolls, bagels, and crackers; oatmeal; whole-grain ready-to-eat cereals (e.g., shredded wheat, oat rings); popcorn; brown rice; and whole-grain pasta. Examples of refined grain foods are white bread, rolls, bagels, and crackers; pasta; pizza crust; grain based...
desserts; refined grain ready-to-eat cereals (e.g., corn flakes, crispy rice cereal); corn and wheat tortillas; white rice; and cornbread. As noted in Chapter 1, most refined grain foods in the United States are made from enriched grains. Almost half of all refined grains intake is from mixed dishes, such as burgers, sandwiches, tacos, pizza, macaroni and cheese, and spaghetti with meatballs. About 20 percent of refined grain intake comes from snacks and sweets, including cakes, cookies, and other grain desserts. The remaining 30 percent of refined grain intake is eaten as a separate food item, such as cereals, breads, or rice. About 60 percent of whole-grain intake in the United States is from individual food items, mostly cereals, rather than mixed dishes.

**Shift To Make Half of All Grains Consumed Be Whole Grains:**

Shifting from refined to whole-grain versions of commonly consumed foods—such as from white to 100% whole-wheat breads, white to whole-grain pasta, and white to brown rice—would increase whole-grain intakes and lower refined grain intakes to help meet recommendations. Strategies to increase whole grains in place of refined grains include using the ingredient list on packaged foods to select foods that have whole grains listed as the first grain ingredient. Another strategy is to cut back on refined grain desserts and sweet snacks such as cakes, cookies, and pastries, which are high in added sugars, solid fats, or both, and are a common source of excess calories. Choosing both whole and refined grain foods in nutrient-dense forms, such as choosing plain popcorn instead of buttered bread instead of croissants, and English muffins instead of biscuits also can help in meeting recommendations for a healthy eating pattern.

**Dairy**

**Current Intakes:** As shown in Figure 2-3, average intakes of dairy for most age-sex groups are far below recommendations of the Healthy U.S.-Style Pattern. Average dairy intake for most young children ages 1 to 3 years meets recommended amounts, but all other age groups have average intakes that are below recommendations. An age-related decline in dairy intake begins in childhood, and intakes persist at low levels for adults of all ages. Fluid milk (51%) and cheese (45%) comprise most of dairy consumption. Yogurt (2.6%) and fortified soy beverages (commonly known as “soymilk”) (1.5%) make up the rest of dairy intake. About three-fourths of all milk is consumed as a beverage or on cereal, but cheese is most commonly consumed as part of mixed dishes, such as burgers, sandwiches, tacos, pizza, and pasta dishes.

**Shift To Consume More Dairy Products in Nutrient-Dense Forms:**

Most individuals in the United States would benefit by increasing dairy intake in fat-free or low-fat forms, whether from milk (including lactose-free milk), yogurt, and cheese or from fortified soy beverages (soymilk). Some sweetened milk and yogurt products may be included in a healthy eating pattern as long as the total amount of added sugars consumed does not exceed the limit for added sugars, and the eating pattern does not exceed calorie limits. Because most cheese contains more sodium and saturated fats, and less potassium, vitamin A, and vitamin D than milk or yogurt, increased intake of dairy products would be most beneficial if more fat-free or low-fat milk and yogurt were selected rather than cheese. Strategies to increase dairy intake include drinking fat-free or low-fat milk (or a fortified soy beverage) with meals, choosing yogurt as a snack, or using yogurt as an ingredient in prepared dishes such as salad dressings or spreads. Strategies for choosing dairy products in nutrient-dense forms include choosing lower fat versions of milk, yogurt, and cheese in place of whole milk products and regular cheese.
Protein Foods

Current Intakes: Overall, average intakes of protein foods are close to amounts recommended for all age-sex groups (Figure 2-3). However, Figure 2-6 shows that the average intakes of protein foods subgroups vary in comparison to the range of intake recommendations. Overall, average intakes of seafood are low for all age-sex groups; average intakes of nuts, seeds, and soy products are close to recommended levels; and average intakes of meats, poultry, and eggs are high for teen boys and adult men. Legumes (beans and peas), a vegetables subgroup, also may be considered as part of the protein foods group (see the About Legumes (Beans and Peas) call-out box in Chapter 1). As shown in Figure 2-4, intakes of legumes are below vegetable group recommendations.

Commonly consumed protein foods include beef (especially ground beef), chicken, pork, processed meats (e.g., hot dogs, sausages, ham, luncheon meats), and eggs. The most common seafood choices are shrimp, tuna, and salmon; and the most common nut choices are peanuts, peanut butter, almonds, and mixed nuts. Slightly less than half (49%) of all protein foods are consumed as a separate food item, such as a chicken breast, a steak, an egg, a fish filet, or peanuts. About the same proportion are consumed as part of a mixed dish (45%), with the largest amount from burgers, sandwiches, and tacos.

Figure 2-6.
Average Protein Foods Subgroup Intakes in Ounce-Equivalents per Week by Age-Sex Groups, Compared to Ranges of Recommended Intake
Meats, Poultry, & Eggs
Figure 2-6. (continued...)  
**Average Protein Foods Subgroup Intakes in Ounce-Equivalents per Week by Age-Sex Groups, Compared to Ranges of Recommended Intake**

**Seafood**

 DATA SOURCES: What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intake ranges.
**Shift To Increase Variety in Protein Foods Choices and To Make More Nutrient-Dense Choices:**

Average intake of total protein foods is close to recommendations, while average seafood intake is below recommendations for all age-sex groups. Shifts are needed within the protein foods group to increase seafood intake, but the foods to be replaced depend on the individual’s current intake from the other protein subgroups. Strategies to increase the variety of protein foods include incorporating seafood as the protein foods choice in meals twice per week in place of meat, poultry, or eggs, and using legumes or nuts and seeds in mixed dishes instead of some meat or poultry. For example, choosing a salmon steak, a tuna sandwich, bean chili, or almonds on a main-dish salad could all increase protein variety.

Shifting to nutrient-dense options, including lean and lower sodium options, will improve the nutritional quality of protein food choices and support healthy eating patterns. Some individuals, especially teen boys and adult men, also need to reduce overall intake of protein foods (see Figure 2-3) by decreasing intakes of meats, poultry, and eggs and increasing amounts of vegetables or other underconsumed food groups.

**Oils**

**Current Intakes:** Average intakes of oils are below the recommendations for almost every age-sex group (Figure 2-7). However, intakes are not far from recommendations. In the United States, most oils are consumed in packaged foods, such as salad dressings, mayonnaise, etc.
prepared vegetables, snack chips (corn and potato), and as part of nuts and seeds. Oils also can be used in preparing foods such as stir-fries and sautés. The most commonly used oil in the United States is soybean oil. Other commonly used oils include canola, corn, olive, cottonseed, sunflower, and peanut oil. Oils also are found in nuts, avocados, and seafood. Coconut, palm, and palm kernel oils (tropical oils) are solid at room temperature because they have high amounts of saturated fatty acids and are therefore classified as a solid fat rather than as an oil. (See Chapter 1 for more information on tropical oils.)

*Shift From Solid Fats to Oils:*

To move the intake of oils to recommended levels, individuals should use oils rather than solid fats in food preparation where possible. Strategies to shift intake include using vegetable oil in place of solid fats (butter, stick margarine, shortening, lard, coconut oil) when cooking, increasing the intake of foods that naturally contain oils, such as seafood and nuts, in place of some meat and poultry, and choosing other foods, such as salad dressings and spreads, made with oils instead of solid fats.

*Other Dietary Components*

As described in Chapter 1, in addition to the food groups, other components also should be considered when building healthy eating patterns, including limiting the amounts of added sugars, saturated fats, and sodium consumed. Additionally, for adults who choose to drink alcohol, drinking should not exceed moderate intake, and the calories from alcoholic beverages should be considered within overall calorie limits.  

[3] It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix B: Alcohol for additional information.

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**Figure 2-8. Typical Versus Nutrient-Dense Foods & Beverages**

Achieving a healthy eating pattern means shifting typical food choices to more nutrient-dense options—that is, foods with important nutrients that aren’t packed with extra calories or sodium. Nutrient-dense foods and beverages are naturally lean or low in solid fats and have little or no added solid fats, sugars, refined starches, or sodium.

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[3] It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix B: Alcohol for additional information.
The following sections describe total intakes compared to limits for these components, and the leading food categories contributing to this total.

**Added Sugars**

**Current Intakes:** Added sugars account on average for almost 270 calories, or more than 13 percent of calories per day in the U.S. population. As shown in Figure 2-9, intakes as a percent of calories are particularly high among children, adolescents, and young adults. The major source of added sugars in typical U.S. diets is beverages, which include soft drinks, fruit drinks, sweetened coffee and tea, energy drinks, alcoholic beverages, and flavored waters (Figure 2-10). Beverages account for almost half (47%) of all added sugars consumed by the U.S. population (Figure 2-10). The other major source of added sugars is snacks and sweets, which includes grain-based desserts such as cakes, pies, cookies, brownies, doughnuts, sweet rolls, and pastries; dairy desserts such as ice cream, other frozen desserts, and puddings; candies; sugars; jams; syrups; and sweet toppings. Together, these food categories make up more than 75 percent of intake of all added sugars.
Figure 2-10. 
Food Category Sources of Added Sugars in the U.S. Population Ages 2 Years & Older

DATA SOURCE: What We Eat in America (WWEIA) Food Category analyses for the 2015 Dietary Guidelines Advisory Committee. Estimates based on day 1 dietary recalls from WWEIA, NHANES 2009-2010.

Shift To Reduce Added Sugars Consumption to Less Than 10 Percent of Calories per Day:

Individuals have many potential options for reducing the intake of added sugars. Strategies include choosing beverages with no added sugars, such as water, in place of sugar-sweetened beverages, reducing portions of sugar-sweetened beverages, drinking these beverages less often, and selecting beverages low in added sugars. Low-fat or fat-free milk or 100% fruit or vegetable juice also can be consumed within recommended amounts in place of sugar-sweetened beverages. Additional strategies include limiting or decreasing portion size of grain-based and dairy desserts and sweet snacks and choosing unsweetened or no-sugar-added versions of canned fruit, fruit sauces (e.g., applesauce), and yogurt. The use of high-intensity sweeteners as a replacement for added sugars is discussed in Chapter 1 in the Added Sugars section.

Saturated Fats

Current Intakes: Current average intakes of saturated fats are 11 percent of calories. Only 29 percent of individuals in the United States

[4] See Added Sugars section of Chapter 1 for more information and Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Patterns for specific limits on calories that remain after meeting food group recommendation in nutrient-dense forms (“calorie limits for other uses”).

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consume amounts of saturated fats consistent with the limit of less than 10 percent of calories (see Figure 2-1). As shown in Figure 2-11, average intakes do not vary widely across age-sex groups. Average intakes for both adult men and adult women are at 10.9 percent, and the average intake for children ranges from 11.1 percent up to 12.6 percent of calories.

The mixed dishes food category is the major source of saturated fats in the United States (Figure 2-12), with 35 percent of all saturated fats coming from mixed dishes, especially those dishes containing cheese, meat, or both. These include burgers, sandwiches, and tacos; pizza; rice, pasta, and grain dishes; and meat, poultry, and seafood dishes. The other food categories that provide the most saturated fats in current diets are snacks and sweets, protein foods, and dairy products.

**Shift To Reduce Saturated Fats Intake to Less Than 10 Percent of Calories Per Day:**

Individuals should aim to shift food choices from those high in saturated fats to those high in polyunsaturated and monounsaturated fats. Strategies to lower saturated fat intake include reading food labels to choose packaged foods lower in saturated fats and higher in polyunsaturated and monounsaturated fats, choosing lower fat forms of foods and beverages that contain solid fats (e.g., fat-free or low-fat milk instead of 2% or whole milk; low-fat cheese instead of regular cheese; lean rather than fatty cuts of meat), and consuming smaller portions of foods higher in saturated fats or consuming them less often. One realistic option is to change ingredients in mixed dishes to increase the amounts of vegetables, whole grains, lean meat, and low-fat or fat-free cheese, in place of some of the fatty meat and/or regular cheese in the dish. Additional strategies include preparing foods using oils that are high in polyunsaturated and monounsaturated fats, rather than solid fats, which are high in saturated fats (see Chapter 1, Figure 1-2), and using oil-based dressings and spreads on foods instead of those made from solid fats (e.g., butter, stick margarine, cream cheese) (see Solid Fats call-out box).

**Figure 2-11.**

*Average Intakes of Saturated Fats as a Percent of Calories per Day by Age-Sex Groups, in Comparison to the Dietary Guidelines Maximum Limit of Less Than 10 Percent of Calories*

<table>
<thead>
<tr>
<th></th>
<th>Recommended Maximum Limit</th>
<th>Average Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>4 to 8 years</td>
<td>2</td>
<td>12</td>
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<tr>
<td>9 to 13 years</td>
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<td>8</td>
<td>6</td>
</tr>
<tr>
<td>31 to 50 years</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>51 to 70 years</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>71+ years</td>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Females (years)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3 years</td>
<td>0</td>
<td>14</td>
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<tr>
<td>4 to 8 years</td>
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<tr>
<td>71+ years</td>
<td>14</td>
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</tr>
</tbody>
</table>

**DATA SOURCE:** What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group.
Solid Fats

Solid fats are the fats found in meats, poultry, dairy products, hydrogenated vegetable oils, and some tropical oils. They contain more saturated fatty acids and less mono- and polyunsaturated fatty acids, compared to oils (see Chapter 1, Figure 1-2). Solid fats, including the tropical oils, are solid at room temperature. In some foods, such as whole milk, the solid fat (butterfat) is suspended in the fluid milk by the process of homogenization.

The purpose of discussing solid fats in addition to saturated fats is that, apart from the effects of saturated fats on cardiovascular disease risk, solid fats are abundant in diets in the United States and contribute substantially to excess calorie intake. Solid fats, consumed as part of foods or added to foods, account for more than 325 calories or more than 16 percent of calories per day, on average, for the U.S. population but provide few nutrients. Food category sources of solid fats are similar to those for saturated fats: mixed dishes, snacks and sweets, protein foods, and dairy. Because solid fats are the major source of saturated fats, the strategies for reducing the intake of solid fats parallel the recommendations for reducing saturated fats. These strategies include choosing packaged foods lower in saturated fats; shifting from using solid fats to oils in preparing foods; choosing dressings and spreads that are made from oils rather than solid fats; reducing overall intake of solid fats by choosing lean or low-fat versions of meats, poultry, and dairy products; and consuming smaller portions of foods higher in solid fats or consuming them less often.
### Sodium

**Current Intakes:** As shown in Figure 2-13, average intakes of sodium are high across the U.S. population compared to the Tolerable Upper Intake Levels (ULs). Average intakes for those ages 1 year and older is 3,440 mg per day. Average intakes are generally higher for men than women. For all adult men, the average intake is 4,240 mg, and for adult women, the average is 2,980 mg per day. Only a small proportion of total sodium intake is from sodium inherent in foods or from salt added in home cooking or at the table. Most sodium consumed in the United States comes from salts added during commercial food processing and preparation.

Sodium is found in foods from almost all food categories (Figure 2-14). Mixed dishes—including burgers, sandwiches, and tacos; rice, pasta, and grain dishes; pizza; meat, poultry, and seafood dishes; and soups—account for almost half of the sodium consumed in the United States. The foods in many of these categories are often commercially processed or prepared.

**Shift Food Choices To Reduce Sodium Intake**

Because sodium is found in so many foods, careful choices are needed in all food groups to reduce intake. Strategies to lower sodium intake include using the Nutrition Facts label to compare sodium content of foods and choosing the product with less sodium and buying low-sodium, reduced sodium, or no-salt-added versions of products when available. Choose fresh, frozen (no sauce or seasoning), or no-salt-added canned vegetables, and fresh poultry, seafood, pork, and lean meat, rather than processed meat and poultry. Additional strategies include eating at home more often; cooking foods from scratch to control the sodium content of dishes; limiting sauces, mixes, and “instant” products, including flavored rice, instant noodles, and ready-made pasta, and flavoring foods with herbs and spices instead of salt.

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[5] The recommendation to limit intake of sodium to less than 2,300 mg per day is the UL for individuals ages 14 years and older set by the IOM. The recommendations for children younger than 14 years of age are the IOM age- and sex-appropriate ULs (see Appendix 7. Nutritional Goals for Age-Sex Groups, Based on Dietary Reference Intakes and Dietary Guidelines Recommendations).
Figure 2-14.
Food Category Sources of Sodium in the U.S. Population Ages 2 Years & Older

DATA SOURCE: What We Eat in America (WWEIA) Food Category analyses for the 2015 Dietary Guidelines Advisory Committee. Estimates based on day 1 dietary recalls from WWEIA, NHANES 2009-2010.

Alcohol
In 2011, approximately 56 percent of U.S. adults 21 years of age and older were current drinkers, meaning that they had consumed alcohol in the past month; and 44 percent were not current drinkers. Current drinkers include 19 percent of all adults who consistently limited intake to moderate drinking, and 37 percent of all adults who did not. Drinking in greater amounts than moderation was more common among men, younger adults, and non-Hispanic whites. Two in three adult drinkers do not limit alcohol intake to moderate amounts one or more times per month.

The Dietary Guidelines does not recommend that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Chapter 1 and Appendix 9. Alcohol for additional information.
Caffeine

More than 95 percent of all adults consume caffeine from foods and/or beverages.[6] Average intakes of caffeine among adults, by age-sex group, range from 110 mg (females ages 19 to 30 years) up to 260 mg (males ages 51 to 70 years) per day. These amounts are substantially less than 400 mg per day, which is the upper amount associated with moderate coffee consumption that can be incorporated into healthy eating patterns. However, daily intakes of caffeine exceed 400 mg per day for a small percent of the adult population. The 90th percentile of caffeine intake for men ages 31 to 70 years, and the 95th percentile of caffeine intake for women ages 31 years and older, is greater than 400 mg per day. Caffeine sources for adults are largely from coffee and tea, which provide about 70 to 90 percent of total caffeine intake across all adult age groups.

Average intakes for children (5 to 32 mg/d) and adolescents (63 to 80 mg/d) are low. Caffeine sources for children and adolescents are distributed among coffee, tea, and sugar-sweetened beverages in roughly equal amounts. For young children, desserts and sweets also are a notable source of caffeine from certain ingredients such as chocolate, but intake of caffeine is low from all sources.

Underconsumed Nutrients & Nutrients of Public Health Concern

In addition to helping reduce chronic disease risk, the shifts in eating patterns described in this chapter can help individuals meet nutrient needs. This is especially important for nutrients that are currently underconsumed. Although the majority of Americans consume sufficient amounts of most nutrients, some nutrients are consumed by many individuals in amounts below the Estimated Average Requirement or Adequate Intake levels. These include potassium, dietary fiber, choline, magnesium, calcium, and vitamins A, D, E, and C. Iron also is underconsumed by adolescent girls and women ages 19 to 50 years. Low intakes for most of these nutrients occur within the context of unhealthy overall eating patterns, due to low intakes of the food groups—vegetables, fruits, whole grains, and dairy—that contain these nutrients. Shifts to increase the intake of these food groups can move intakes of these underconsumed nutrients closer to recommendations. Of the underconsumed nutrients, calcium, potassium, dietary fiber, and vitamin D are considered nutrients of public health concern because low intakes are associated with health concerns. For young children, women capable of becoming pregnant, and women who are pregnant, low intake of iron also is of public health concern.

Shift to eating more vegetables, fruits, whole grains, and dairy to increase intake of nutrients of public health concern.

Low intakes of dietary fiber are due to low intakes of vegetables, fruits, and whole grains. Low intakes of potassium are due to low intakes of vegetables, fruits, and dairy. Low intakes of calcium are due to low intakes of dairy. If a healthy eating pattern, such as the Healthy U.S.-Style Eating Pattern, is consumed, amounts of calcium and dietary fiber will meet recommendations. Amounts of potassium will increase but depending on food choices may not meet the Adequate Intake recommendation. To increase potassium, focus on food choices with the most potassium, listed in Appendix 10. Food Sources of Potassium, such as white potatoes, beet greens, white beans, plain yogurt, and sweet potato.

Although amounts of vitamin D in the USDA Food Patterns are less than recommendations, vitamin D is unique in that sunlight on the skin enables the body to make vitamin D. Recommendations for vitamin D assume minimum sun exposure. Strategies to achieve higher levels of intake of dietary vitamin D include consuming seafood with higher amounts of vitamin D, such as salmon, herring, mackerel, and tuna, and more foods fortified with vitamin D, especially fluid milk, soy beverage (soy milk), yogurt, orange juice, and breakfast cereals. In some cases, taking a vitamin D supplement may be appropriate, especially when sunshine exposure is limited due to climate or the use of sunscreen.

The best food sources of potassium, calcium, vitamin D, and dietary fiber are found in Appendix 10, Appendix 11, Appendix 12, and Appendix 13, respectively.

Substantial numbers of women who are capable of becoming pregnant, including adolescent girls, are at risk of iron-deficiency anemia due to low intakes of...
iron. To improve iron status, women and adolescent girls should consume foods containing heme iron, such as lean meats, poultry, and seafood, which is more readily absorbed by the body. Additional iron sources include legumes (beans and peas) and dark-green vegetables, as well as foods enriched or fortified with iron, such as many breads and ready-to-eat cereals. Absorption of iron from non-heme sources is enhanced by consuming them along with vitamin C-rich foods. Women who are pregnant are advised to take an iron supplement when recommended by an obstetrician or other health care provider.

**Beverages**

Beverages are not always remembered or considered when individuals think about overall food intake. However, they are an important component of eating patterns. In addition to water, the beverages that are most commonly consumed include sugar-sweetened beverages, milk and flavored milk, alcoholic beverages, fruit and vegetable juices, and coffee and tea. Beverages vary in their nutrient and calorie content. Some, like water, do not contain any calories. Some, like soft drinks, contain calories but little nutritional value. Finally, some, like milk and fruit and vegetable juices, contain important nutrients such as calcium, potassium, and vitamin D, in addition to calories.

Beverages make a substantial contribution to total water needs as well as to nutrient and calorie intakes in most typical eating patterns. In fact, they account for almost 20 percent of total calorie intake. Within beverages, the largest source of calories is sweetened beverages, accounting for 35 percent of calories from beverages. Other major sources of calories from beverages are milk and milk drinks, alcoholic beverages, fruit and vegetable juices, and coffee and tea.

When choosing beverages, both the calories and nutrients they may provide are important considerations. Beverages that are calorie-free—especially water—or that contribute beneficial nutrients, such as fat-free and low-fat milk and 100% juice, should be the primary beverages consumed. Milk and 100% fruit juice should be consumed within recommended food group amounts and calorie limits. Sugar-sweetened beverages, such as soft drinks, sports drinks, and fruit drinks that are less than 100% juice, can contribute excess calories while providing few or no key nutrients. If they are consumed, amounts should be within overall calorie limits and limits for calories from added sugars (see Chapter 1). The use of high-intensity sweeteners, such as those used in “diet” beverages, as a replacement for added sugars is discussed in Chapter 1 in the Added Sugars section.

For adults who choose to drink alcohol, limits of only moderate intake (see Appendix 9) and overall calorie limits apply. It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix 9 for additional information.

**Opportunities for Shifts in Food Choices**

To support a healthy body weight, meet nutrient needs, and lessen the risk of chronic disease, shifts are needed in

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**Folic Acid for Women Capable of Becoming Pregnant & Who Are Pregnant**

The RDAs for folate are based on the prevention of folate deficiency, not on the prevention of neural tube defects. The RDA for adult women is 400 micrograms (mcg) Dietary Folate Equivalents (DFE) and for women during pregnancy, 600 mcg DFE daily from all sources.

Folic acid fortification of enriched grain products in the United States has been successful in reducing the incidence of neural tube defects. Therefore, to prevent birth defects, all women capable of becoming pregnant are advised to consume 400 mcg of synthetic folic acid daily, from fortified foods and/or supplements. This recommendation is for an intake of synthetic folic acid in addition to the amounts of food folate contained in a healthy eating pattern. All enriched grains are fortified with synthetic folic acid. Sources of food folate include beans and peas, oranges and orange juice, and dark-green leafy vegetables, such as spinach and mustard greens.

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[7] Dietary Folate Equivalents (DFE) adjust for the difference in bioavailability of food folate compared with synthetic folic acid. Food folate, measured as micrograms DFE, is less bioavailable than folic acid. 1 DFE = 1 mcg food folate = 0.6 mcg folic acid from supplements and fortified foods taken with meals.

[8] It is not recommended that individuals begin drinking or drink more for any reason. The amount of alcohol and calories in beverages varies and should be accounted for within the limits of healthy eating patterns. Alcohol should be consumed only by adults of legal drinking age. There are many circumstances in which individuals should not drink, such as during pregnancy. See Appendix 9 for additional information.
overall eating patterns—across and
within food groups and from current
typical choices to nutrient-dense options.
Eating patterns are the result of choices
on multiple eating occasions over time,
both at home and away from home. As a
result, individuals have many opportuni-
ties to make shifts to improve eating
patterns.

The majority of the U.S. population
consumes three meals a day plus more
than one snack. Children ages 2 to 5
years are most likely to consume three
meals a day, with 84 percent consuming
three meals and most often, two or more
snacks. In contrast, only half of adolescent
females and young adult males consume
three meals a day, but most also have two
or more snacks per day. Also, among most
age groups, 40 to 50 percent consume two
to three snacks a day, and about one-third
consume four or more snacks a day.

About two-thirds (67%) of the calories
consumed by the U.S. population are
purchased at a store, such as a grocery
store or supermarket, and consumed in
the home. However, Americans have
increased the proportion of food they
consume away from home from 18 percent

These data suggest that multiple
opportunities to improve food choices exist
throughout the day and in varied settings
where food is obtained and consumed.
Small shifts made at each of these many
eating occasions over time can add up to
real improvements in eating patterns.

Summary

The U.S. population, across almost every
age and sex group, consumes eating
patterns that are low in vegetables, fruits,
whole grains, dairy, seafood, and oil and
high in refined grains, added sugars,
saturated fats, sodium, and for some age-
sex groups, high in the meats, poultry, and
eggs subgroup. Although most Americans
urgently need to shift intakes to achieve
the healthy eating patterns described
in Chapter 1, young children and older
Americans generally are closer to the
recommendations than are adolescents
and young adults. For some aspects of
eating patterns, maintaining the intake
levels of young children as they grow into
adolescence and adulthood could result
in healthy eating patterns across the
lifespan and improved health over time.
CHAPTER 3

Everyone Has a Role in Supporting Healthy Eating Patterns
Introduction

The previous chapters describe the characteristics of healthy eating and physical activity patterns, and it is clear that across all population groups, the vast majority of people in the United States are not meeting these recommendations. In general, Americans are consuming too many calories, are not meeting food group and nutrient recommendations, and are not getting adequate physical activity. In practice, aligning with the Dietary Guidelines [see Aligning With the Dietary Guidelines for Americans: What Does This Mean in Practice? in the Introduction] at the population level requires broad, multisectoral coordination and collaboration. This collective action is needed to create a new paradigm in which healthy lifestyle choices at home, school, work, and in the community are easy, accessible, affordable, and normative. Everyone has a role in helping individuals shift their everyday food, beverage, and physical activity choices to align with the Dietary Guidelines.

The Dietary Guidelines provides recommendations that professionals, especially policymakers, can translate into action to support individuals. This chapter discusses a number of considerations related to translating the Dietary Guidelines into action, including the significance of using multiple strategies across all segments of society to promote healthy eating and physical activity behaviors; the development of educational resources that deliver information in a way that is compelling, inspiring, empowering, and actionable for individuals; and the need to focus on individuals where they are making food and beverage choices.

About This Chapter

This chapter focuses on the fifth Guideline:

1. Follow a healthy eating pattern across the lifespan. All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.

2. Focus on variety, nutrient density, and amount. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.

3. Limit calories from added sugars and saturated fats and reduce sodium intake. Consume an eating pattern low in added sugars, saturated fats, and sodium. Cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.

4. Shift to healthier food and beverage choices. Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Consider cultural and personal preferences to make these shifts easier to accomplish and maintain.

5. Support healthy eating patterns for all. Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.

The Social-Ecological Model (Figure 3-1) is used as a framework to illustrate how sectors, settings, social and cultural norms, and individual factors converge to influence food and physical activity choices. The chapter describes contextual factors that influence eating as well as physical activity behaviors and identifies opportunities for professionals, including policymakers, to implement strategies that can help individuals align with the Dietary Guidelines.

Creating & Supporting Healthy Choices

As shown in the Social-Ecological Model, a multitude of choices, messages, individual resources, and other factors affect the food and physical activity choices an individual makes, and these decisions are rarely made in isolation. The following section describes the various components in the Social-Ecological Model and how they play a role in influencing the decisions individuals make about foods and physical activity. Ideas for engaging these components in collaborative ways to influence individual decisions, and ultimately social and cultural norms and values to align with the Dietary Guidelines, are provided.

The Social-Ecological Model

Consistent evidence shows that implementing multiple changes at various levels of the Social-Ecological Model is effective in improving eating and physical activity behaviors. For example, strong evidence from studies with varying designs and generally consistent findings demonstrates that school policies designed to enhance the school food setting leads to improvements in the purchasing behavior of children, resulting in higher dietary quality of the food consumed during the school day. For adults, moderate evidence indicates...
that worksite nutrition policies can improve dietary intake, and approaches targeting dietary intake and physical activity can favorably affect weight-related outcomes. These examples demonstrate how support and active engagement from various segments of society are needed to help individuals change their eating and physical activity behaviors and achieve positive outcomes. Approaches like these have the potential to improve population health if they can be incorporated into existing organizational structures and maintained over time. Among the components of the Social-Ecological Model, sectors and settings influence change at the population level and are addressed first in this discussion.

**Sectors**

Sectors include systems (e.g., governments, education, health care, and transportation), organizations (e.g., public health, community, and advocacy), and businesses and industries (e.g., planning and development, agriculture, food and beverage, retail, entertainment, marketing, and media).

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**Figure 3-1. A Social-Ecological Model for Food & Physical Activity Decisions**

The Social-Ecological Model can help health professionals understand how layers of influence intersect to shape a person’s food and physical activity choices. The model below shows how various factors influence food and beverage intake, physical activity patterns, and ultimately health outcomes.

These sectors all have an important role in helping individuals make healthy choices because they either influence the degree to which people have access to healthy food and/or opportunities to be physically active, or they influence social norms and values. Positive influences on social norms and values can occur through effective health promotion and marketing strategies.

Professionals in these sectors have many opportunities to identify and develop strategies that help individuals align their choices with the Dietary Guidelines. Strategies could include supporting policy and/or program changes, fostering coalitions and networks, developing or modifying products and menus, and/or creating opportunities to be physically active. To ensure widespread adoption of these sectoral efforts, complementary efforts can include training, education, and/or motivational strategies.

**Settings**

Individuals make choices in a variety of settings, both at home and away from home. Away-from-home settings include early care and education programs (e.g., child care, preschool), schools, worksites, community centers, and food retail and food service establishments. These organizational settings determine what foods are offered and what opportunities for physical activity are provided. Strategies to align with the Dietary Guidelines that are implemented in these settings can influence individual choices and have the potential for broader population-level impact if they are integrated with strategies by multiple sectors. In combination, sectors and settings can influence social norms and values.

**Social & Cultural Norms & Values**

Social and cultural norms are rules that govern thoughts, beliefs, and behaviors. They are shared assumptions of appropriate behaviors, based on the values of a society, and are reflected in everything from laws to personal expectations. With regard to nutrition and physical activity, examples of norms include preferences for certain types of foods, attitudes about acceptable ranges of body weight, and values placed on physical activity and health. Because norms and values are prevalent within a community or setting, changing them can be difficult. However, changes to sectors and settings—as previously discussed—can have a powerful effect on social and cultural norms and values over time and can align with the Dietary Guidelines.

**Individual Factors**

Individual factors are those that are unique to the individual, such as age, sex, socioeconomic status, race/ethnicity, the presence of a disability, as well as other influences, such as physical health, knowledge and skills, and personal preferences. Education to improve individual food and physical activity choices can be delivered by a wide variety of nutrition and physical activity professionals working alone or in multidisciplinary teams. Resources based on systematic reviews of scientific evidence, such as the Dietary Guidelines and the Physical Activity Guidelines for Americans, provide the foundation for nutrition and public health professionals to develop programs and materials that can help individuals enhance their knowledge, attitudes, and motivation to make healthy choices.

All food and beverage choices are part of an individual’s eating pattern. Professionals can work with individuals in a variety of settings to adapt their choices to develop a healthy eating pattern tailored to accommodate physical health, cultural, ethnic, traditional, and personal preferences, as well as personal food budgets and other issues of accessibility. Eating patterns tailored to the individual are more likely to be motivating, accepted, and maintained over time, thereby having the potential to lead to meaningful shifts in dietary intake, and consequently, improved health.

**Opportunities To Align Food Products & Menus With the Dietary Guidelines**

During the past few decades, food products and menus have notably evolved in response to consumer demands and public health concerns. The food and beverage and food service sectors and settings have a unique opportunity to continue to evolve and better align with the Dietary Guidelines. Reformulation and menu and retail modification opportunities that align with the Dietary Guidelines include offering more vegetables, fruits, whole grains, low-fat and fat-free dairy, and a greater variety of protein foods that are nutrient dense, while also reducing sodium and added sugars, reducing saturated fats and replacing them with unsaturated fats, and reducing added refined starches. Portion sizes also can be adapted to help individuals make choices that align with the Dietary Guidelines. Food manufacturers are encouraged to consider the entire composition of the food, and not just individual nutrients or ingredients when developing or reformulating products. Similarly, when developing or modifying menus or retail settings, establishments can consider the range of offerings both within and across food groups and other dietary components to determine whether the healthy options offered reflect the proportions in healthy eating patterns. In taking these actions, care should be taken to assess any potential unintended consequences so that as changes are made to better align with the Dietary Guidelines, undesirable changes are not introduced.
Meeting People Where They Are: Contextual Factors & Healthy Eating Patterns

As previously described, the Social-Ecological Model provides a framework for how individuals make food and physical activity choices (where, what, when, why, and how much) each day. Understanding individual choices and motivators and the context that affects them can help professionals identify which strategies are most likely to be effective to promote healthy choices aligned with the Dietary Guidelines.

The scientific literature has described a number of specific circumstances that can limit an individual’s or family’s capacity to choose a healthy diet. These contextual factors—food access, household food insecurity, and acculturation—are particularly important for millions of individuals living in the United States. As appropriate, professionals can consider these critical factors when developing strategies and providing education to enhance interventions.

Food Access

Having access to healthy, safe, and affordable food choices is crucial for an individual to achieve a healthy eating pattern. Food access is influenced by diverse factors, including proximity to food retail outlets (e.g., distance to a store or the number of stores in an area), individual resources (e.g., income or personal transportation), and neighborhood-level resources (e.g., average income of the neighborhood and availability of public transportation). Race/ethnicity, socioeconomic status, geographic location, and the presence of a disability also may affect an individual’s ability to access foods to support healthy eating patterns.

Innovative approaches are emerging to improve food access within communities. These include creating financing programs to incentivize grocery store development; increasing the availability of foods to support healthy eating patterns in retail outlets, including corner stores, bodegas, farmers markets, mobile markets, shelters, food banks, and community gardens/cooperatives; and creating new pathways for wholesale distribution through food hubs.

Food access is important in all settings where people make choices. Improving food access in settings, such as schools, worksites, early care and education programs, and food retail, may include changing organizational policies to improve the availability and provision of healthy food choices, developing or updating nutrition standards for food service operations, and educating customers about how to identify healthy choices, such as through point-of-purchase information. Changes to food options within a setting should not be done in isolation but with consideration of the overall mix of foods provided (e.g., in cafeterias, at meetings, in vending machines, concession stands and elsewhere).

To help everyone make choices that align with the Dietary Guidelines, professionals are encouraged to identify ways to improve food access. Ultimately, individual choices will be enhanced when sectors and settings ensure the accessibility of safe, affordable, and healthy food choices.

Household Food Insecurity

In the United States, about 48 million individuals live in households that experience food insecurity, which occurs when access to nutritionally adequate and safe food is limited or uncertain. Food insecurity can be temporary or persist over time. Living with food insecurity challenges a household’s ability to obtain food and make healthy choices and can exacerbate stress and chronic disease risk. Government and nongovernment nutrition assistance programs play an essential role in providing food and educational resources to help participants make healthy food choices within their budget. Food insecurity persists in the United States, and maintaining current programs, networks, and partnerships is crucial in addressing the problem. Exploring innovative new strategies could provide opportunities to reach more individuals, families, and households experiencing food insecurity. For example, sectors can create networks and partnerships to deliver food and other resources to reach people who are in need and when community services are scarce. Individuals who are supported in this way are better able to obtain and make healthy food choices that align with the Dietary Guidelines.

Acculturation

The United States continues to evolve as a nation of individuals and families who emigrate from other countries. Individuals who come to this country may adopt the attitudes, values, customs, beliefs, and behaviors of a new culture as well as its dietary habits. Healthy eating patterns are designed to be flexible in order to accommodate traditional and cultural foods. Individuals are encouraged to retain the healthy aspects of their eating and physical activity patterns and avoid adopting behaviors that are less healthy. Professionals can help individuals or population groups by recognizing cultural diversity and developing programs and materials that are responsive and appropriate to their belief systems, lifestyles and practices, traditions, and other needs.

Multi-Component Versus Multi-Level Strategies To Influence Food & Physical Activity Choices

Evidence demonstrates that both multi-component and multi-level changes must be implemented to effectively influence public health. Multi-component changes are those that use a combination of strategies to promote behavior change. These strategies can be employed across or within different settings. For example, a multi-component obesity prevention program at an early care and education center could target classroom education around nutrition and physical activity, ensure the continued nutritional quality of meals and snacks served, make improvements to the mealtime setting, increase opportunities for active play, and initiate active outreach to parents about making positive changes at home.

Multi-level changes are those that target change at the individual level as well as additional levels, such as in community, school, and retail settings. For example, strategies to reduce sodium intake could include providing individual education on how to interpret sodium information on food labels or restaurant menus (e.g., sodium versus salt), reformulating foods and meals to reduce sodium content in retail and food service establishments, and conducting public health campaigns to promote the importance of reducing sodium intake.

Many strategies for implementing these types of multi-component and multi-level actions have shown promise to positively influence food and physical activity choices. For example, moderate evidence indicates that multi-component school-based programs can improve dietary intake and weight status of school-aged children. Fundamental to the success of such actions is tailoring programs to meet the needs of the individual, the community, and/or the organization so as to increase the chances of affecting social and cultural norms and values over time.

Strategies for Action

To shift from current eating patterns to those that align with the Dietary Guidelines, collective action across all segments of society is needed. As previously described, these actions must involve a broad range of sectors, occur across a variety of settings, and address the needs of individuals, families, and communities. These actions include identifying and addressing successful approaches for change, improving knowledge of what constitutes healthy eating and physical activity patterns; enhancing access to adequate amounts of healthy, safe, and affordable food choices; and promoting change in social and cultural norms and values to embrace, support, and maintain healthy eating and physical activity behaviors.

The following examples of strategies exemplify the concerted action needed. It is important to note that no one strategy is likely to be the primary driver to improve individual and population lifestyle choices. Evidence demonstrates that multiple changes both within and across all levels of the Social-Ecological Model are needed to increase the effectiveness of interventions.

Sectors—Examples Include:
- Foster partnerships with food producers, suppliers, and retailers to increase access to foods that align with the Dietary Guidelines.
- Promote the development and availability of food products that align with the Dietary Guidelines in food retail and food service establishments.
- Identify and support policies and/or programs that promote healthy eating and physical activity patterns.
- Encourage participation in physical activity programs offered in various settings.

Settings—Examples Include:
- Expand access to healthy, safe, and affordable food choices that align with the Dietary Guidelines and provide opportunities for engaging in physical activity.
- Adopt organizational changes and practices, including those that increase the availability, accessibility, and consumption of foods that align with the Dietary Guidelines.
- Provide nutrition assistance programs that support education and promotional activities tailored to the needs of the community.
- Implement educational programs tailored to individuals and change organization practices, approaches, and/or policies to support healthy food choices where food decisions are being made, including at early care and education programs, schools, worksites, and other community settings.
- Encourage opportunities in the workplace for regular physical activity through active commuting, activity breaks, and walking meetings.
Using MyPlate as a Guide To Support Healthy Eating Patterns

The Dietary Guidelines is developed and written for a professional audience. Therefore, its translation into actionable consumer messages and resources is crucial to help individuals, families, and communities achieve healthy eating patterns. MyPlate is one such example (Figure 3-2). MyPlate is used by professionals across multiple sectors to help individuals become more aware of and educated about making healthy food and beverage choices over time. Created to be used in various settings and to be adaptable to the needs of specific population groups, the MyPlate symbol and its supporting consumer resources at ChooseMyPlate.gov bring together the key elements of healthy eating patterns, translating the Dietary Guidelines into key consumer messages that are used in educational materials and tools for the public.

Figure 3-2. Implementation of the Dietary Guidelines Through MyPlate

MyPlate, MyWins.
Find your healthy eating style and maintain it for a lifetime. This means:

- Make half your plate fruits & vegetables.
- Focus on whole fruits.
- Vary your veggies.
- Make half your grains whole grains.
- Vary your protein routine.
- Move to low-fat or fat-free milk or yogurt.
- Drink and eat less sodium, saturated fat, and added sugars.

Start with small changes to make healthier choices you can enjoy.

Visit ChooseMyPlate.gov for more tips, tools, and information.
Figure 3-3.

Strategies To Align Settings With the 2015-2020 Dietary Guidelines

Americans make food and beverage choices in a variety of settings at home, at work, and at play. Aligning these settings with the 2015-2020 Dietary Guidelines will not only influence individual choices—it can also have broader population level impact when multiple sectors commit to make changes together.
Americans make food and beverage choices in a variety of settings at home, at work, and at play. Aligning these settings with the 2015-2020 Dietary Guidelines will not only influence individual choices—it can also have broader population level impact when multiple sectors commit to make changes together.

**WORKSITE**

- Health & Wellness Programs, with Options for Nutrition Counseling
- Flexible Schedules that Allow for Physical Activity
- Active Breaks
- Walking Meetings
- Offer Healthy Meals & Snacks in the Cafeterias, Vending Machines, & at Staff Meetings or Functions

**COMMUNITY**

- Shelters
- Food Banks
- Farmer’s Markets
- Community Gardens
- Walkable Communities
Professionals Working With Individuals—Examples Include:

- Help individuals become more aware of the foods and beverages that make up their own or their family’s eating patterns and identify areas, such as modifying recipes and/or food selections, where they can make shifts to align with the Dietary Guidelines.

- Teach skills like gardening, cooking, meal planning, and label reading that help support healthy eating patterns.

- Suggest ways that individuals can model healthy eating behaviors for friends and family members.

- Develop plans to help individuals limit screen time and time spent being sedentary and increase physical activity to meet the Physical Activity Guidelines for Americans.

This is not an all-inclusive list; many strategies are available that can result in shifts to improve dietary intake and, ultimately, improve health. Professionals should help individuals understand that they can adapt their choices to create healthy eating patterns that encompass all foods and beverages, meet food group and nutrient needs, and stay within calorie limits.

Summary

Concerted efforts among professionals within communities, businesses and industries, organizations, governments, and other segments of society are needed to support individuals and families in making lifestyle choices that align with the Dietary Guidelines. Professionals have an important role in leading disease-prevention efforts within their organizations and communities to make healthy eating and regular physical activity an organizational and societal norm. Changes at multiple levels of the Social-Ecological Model are needed, and these changes, in combination and over time, can have a meaningful impact on the health of current and future generations.