Understanding Normal and Clinical Nutrition 11th edition Rolfes Solutions Manual

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Chapter 2 – Planning a Healthy Diet

Assignments and Other Instructional Materials

The following ready-to-use assignments are available in this chapter of the instructor's manual:

- Case Study 2-1: DASH on the Menu at a Quick-Serve Restaurant
- Case Study 2-2: Lacto-ovo-vegetarian Diet Planning
- Worksheet 2-1: Daily Calorie Evaluation[1]
- Worksheet 2-2: Compare Your Food Intake to Recommended Daily Amounts from Each Group
- Worksheet 2-3: Supermarket Worksheet
- Worksheet 2-4: Chapter 2 Crossword Puzzle[2]
- **New!** Worksheet 2-5: Interpreting Food Labels (Internet Exercise)
- Critical thinking questions with answers

Other instructional materials in this chapter of the instructor's manual include:

- Answer key for How To (pp. 39, 59) activities
- Classroom activities, featuring meal comparison activity (2-12)
- Worksheet answer keys (as appropriate)
- Answer key for MindTap Global Nutrition Watch activity
- Handout 2-1: Health Claims and Structure–Function Claims

Visit the book's instructor companion website to download:

- Handout 2-2: *Dietary Guidelines for Americans*, 1990 to 2010
- Handout 2-3: A World Tour of Dietary Guidelines[3]
- Handout 2-4: Healthy Eating Index (HEI-2005) Components

Chapter Outline, Summary, and Learning Objectives

LO 2.1 Explain how each of the diet-planning principles can be used to plan a healthy diet.

A well-planned diet delivers adequate nutrients, a balanced array of nutrients, and an appropriate amount of energy. It is based on nutrient-dense foods, moderate in substances that can be detrimental to health, and varied in its selections. The *Dietary Guidelines* apply these principles, offering practical tips on how individuals can establish healthy eating patterns by specifying which foods and food components to include and which to limit.

I. Principles and guidelines
   A. Diet-planning principles
      1. Adequacy
      2. Balance
      3. kCalorie (energy) control
      4. Nutrient density
      5. Moderation
      6. Variety
   B. Dietary Guidelines for Americans

LO 2.2 Use the USDA Food Patterns to develop a meal plan within a specified energy allowance.

Food group plans such as the USDA Food Patterns help consumers select the types and amounts of foods to provide adequacy, balance, and variety in the diet. They make it easier to plan a diet that includes a balance of grains, vegetables, fruits, protein foods, and milk and milk products. In making any food choice, remember to view the food in the context of the total diet. The combination of many different foods provides the array of nutrients that is so essential to a healthy diet.

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[1] Worksheets 2-1, 2-2, and 2-5 contributed by Daryle Wane.

[2] Contributed by Carrie King.

[3] Handouts 2-1 and 2-3 contributed by Sharon Rady Rolfes.

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II. Diet-planning guides
   A. USDA Food Patterns
      1. Recommended amounts
      2. Notable nutrients
      3. Nutrient-dense choices
      4. Discretionary kcalories
      5. Serving equivalents
      6. Ethnic food choices
      7. Vegetarian food guide
      8. Mixtures of foods
      9. MyPlate
      10. Recommendations versus actual intakes
      11. MyPlate shortcomings
   B. Food lists
   C. Putting the plan into action
   D. From guidelines to groceries
      1. Grains
      2. Vegetables
      3. Fruit
      4. Protein foods
      5. Milk and milk products

LO 2.3 Compare the information on food labels to make selections that meet specific dietary and health goals.

Food labels provide consumers with information they need to select foods that will help them meet their nutrition and health goals. When labels contain relevant information presented in a standardized, easy-to-read format, consumers are well prepared to plan and create healthful diets.

III. Food labels
   A. The ingredient list
   B. Nutrition Facts panel
      1. Serving sizes
      2. Nutrient quantities
      3. The Daily Values
      4. Front-of-package labels
   C. Claims on labels
      1. Nutrient claims
      2. Health claims
      3. Structure–function claims
   D. Consumer education

LO 2.4 Develop a well-balanced vegetarian meal plan.

Vegetarians tend to have lower body weights and blood pressure than omnivores, as well as lower risks for diabetes, heart disease, and some cancers. Strict vegetarians—vegans—should eat a variety of protein-containing foods and take care to consume enough iron, zinc, calcium, and omega-3 fatty acids. Dietary vitamin B_{12} and vitamin D (for those with inadequate sun exposure) must be obtained from fortified foods or supplements. Variety and balance are key attributes of a healthful vegetarian diet.

IV. Vegetarian diets
   A. Health benefits of vegetarian diets
      1. Obesity
      2. Diabetes
      3. Hypertension
      4. Heart disease
      5. Cancer

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6. Other diseases

B. Vegetarian diet planning
   1. Protein
   2. Iron
   3. Zinc
   4. Calcium
   5. Vitamin B_{12}
   6. Vitamin D
   7. Omega-3 fatty acids

C. Healthy food choices

Case Studies[4]

Case Study 2-1: DASH on the Menu at a Quick-Serve Restaurant
Charles C. is a 65-year-old executive who is overweight and has recently been diagnosed with high blood pressure. He has just completed a class on the principles of the DASH (Dietary Approaches to Stop Hypertension) diet and has set a goal to lower his intakes of fat and sodium and to increase his intake of calcium- and potassium-rich foods. Mr. C. has met a friend for lunch at his favorite restaurant, which features pizza, salads, soups, and sandwiches.

1. Based on information provided in this chapter, what food groups are good sources of potassium? Calcium?
2. What are some menu items at Mr. C's favorite restaurant that would provide these nutrients?
3. What might be a calcium-rich menu choice that is also low in fat?
4. Charles likes soup but notices that most soups on the menu contain a significant amount of sodium. What is one strategy he might use?
5. How might the My Plate icon help Charles order a healthy meal?
6. Based on information provided in this chapter, order a lunch for Mr. C. that includes at least three food groups and meets his current dietary goals.

Answer Key
1. See Figure 2-2: USDA Food Patterns. Potassium: Fruit, vegetables, protein foods, milk and milk products. Calcium: Milk and milk products.
2. Answers will vary and may include salads, vegetable-based soups and sandwiches, low-fat milk, or vegetable pizza.
3. Low-fat or fat-free milk ordered as a beverage, low-fat cheese on a salad or pizza, or cottage cheese.
4. Answers will vary and may include: eat smaller portions (order a cup of soup instead of a bowl) or choose lower-sodium foods to accompany soup.
5. Answers will vary. Example: the use of the MyPlate as a model for how much fruits and vegetables to eat as compared to grains or protein foods, and a reminder to drink nonfat milk as a beverage.
6. Answers will vary and may include 1 cup vegetable soup, low-salt crackers, low-fat milk, fruit dessert, vegetable pizza, or salad.

Case Study 2-2: Lacto-ovo-vegetarian Diet Planning
Sarah T. is a 20-year-old college student who does not eat meat, fish, or poultry. She is 5 feet, 7 inches tall, weighs 140 pounds, and is physically active most days, riding her bike to school from her apartment off campus. Although her weight has been stable for the past year, Sarah's mother is concerned she is not getting the nutrients she needs for optimal health. Sarah's usual daily diet includes a toaster pastry and juice for breakfast, peanut butter sandwich for lunch, and pasta or vegetable pizza for dinner. She snacks frequently on chips or cookies and drinks one or two diet sodas each day.

1. Using the glossary in Highlight 2 of this chapter, how would you categorize Sarah's diet?
2. What key nutrients are likely to be inadequate in Sarah's current diet?

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[4] Contributed by Barbara Quinn.

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3. What changes or additions to her diet would you recommend to include sources of these nutrients?
4. What is a reasonable estimate of Sarah's daily kcalorie needs, assuming she expends 400 kcalories per day beyond what she would require if sedentary? Based on this estimate, what is the daily amount of protein foods (in ounces) that you would recommend for Sarah?
5. Using Table H2-1 as your guide, set up a seven-day plan to show how Sarah can meet her recommended daily protein needs.

Answer Key

1. Lacto-ovo-vegetarian.
2. Protein, iron, zinc, calcium, vitamin B_{12}, vitamin D, and omega-3 fatty acids.
3. Answers will vary, but should be consistent with recommendations in Table H2-2.
4. Estimated daily kcalorie needs (2000 from Table 2-2 + 400): 2400. Daily protein foods amount: 4 ounces (Table H2-1).
5. Answers will vary but should include eggs, legumes, dairy, nuts, or seeds in recommended amounts for a 2400-kcalorie diet. That is, the sample plan should provide 4-ounce equivalents of protein foods each day, to total 3 ounces eggs, 8 ounces legumes, 9 ounces soy products, and 8 ounces nuts and seeds over the seven days; as well as 3-cup equivalents of dairy products per day.

Suggested Classroom Activities

The material presented in this chapter provides a great opportunity for classroom discussion. Applying the principles presented in meal planning can be a valuable teaching tool.

Classroom Activity 2-1: Exotic Fruit and Vegetable Tasting[5]
Key concepts: Identification of healthy foods, food habits Class size: Any
Materials needed: Assorted fruits/vegetables, cut into small pieces; information about cultivation of these foods
Instructions: Offer bite-size samples of common and unusual fruits and vegetables. You may include kiwi, star fruit, and other less common selections. Set up a display featuring information about where the foods are grown and how they are prepared.

Classroom Activity 2-2: An International Luncheon[6]
Key concept: Cultural influences on food habits Class size: Any
Instructions: Try an international luncheon to teach students about food habits of populations outside the United States. Have students research the food habits of a foreign country of particular interest to them and present an oral report to the class. In addition, students should bring a food prepared at home to a potluck luncheon. This activity introduces native foods and traditional customs of countries around the world. Everyone is encouraged to sample all foods.

Classroom Activity 2-3: Discuss Nutrient Density
Key concept: Nutrient density Class size: Any
Instructions: Reinforce the concept of nutrient density by comparing selected nutrients in amounts of orange juice and oranges providing equal kcalories. There is considerably more fiber, calcium, vitamin C, and riboflavin in oranges than in orange juice.

200 g orange:	98 kcal	4.4 g fiber	86 mg Ca	118.2 mg vitamin C	0.102 mg riboflavin
217.7 g juice:	98 kcal	0.4 g fiber	24 mg Ca	108.9 mg vitamin C	0.065 mg riboflavin

[5] Activity provided by Preventure: Innovative Health Solutions.

[6] Activity provided by Ruth Thornley of West Shore Community College.

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Classroom Activity 2-4: A Nutrition Fair to Promote the *Dietary Guidelines*[7]
Key concepts: application of *Dietary Guidelines for Americans*, USDA Food Patterns, and MyPlate system
Class size: Any
Materials needed: Tables/chairs for booths, large public space in which to present the "fair"
Instructions: Most effective nutrition educational presentations are those that involve active participation. According to Confucius: "I hear and I forget, I see and I remember, I do and I understand." Have students develop a nutrition fair using the *Dietary Guidelines* as a theme. Select a date and location and instruct students to organize activities and materials for different booths that teach each guideline. Each booth must have an activity. Some suggestions for activities include: an exercise quiz, a healthy eating quiz board, a MyPlate puzzle, an alcohol trivia quiz, and a saturated or *trans* fat or added sugars reduction program. This activity is beneficial in that it incorporates active participation, self-assessment, and intention to change.

Classroom Activity 2-5: Estimation of Food Portions and Serving Sizes[8]
Key concept: Estimation of portion sizes Class size: Any
Materials needed: Premeasured portions of assorted foods; bowls, cups, and plates of various sizes
Instructions: Students often have difficulty with accurately estimating portion sizes of foods. To overcome this, have students estimate actual food portions in class. Bring premeasured portions of commonly consumed foods and various-sized bowls, cups, plates, etc. Examples of foods to bring: cooked beef patty, salad, various vegetables, pasta, rice, ready-to-eat cereal, chips, popcorn, margarine, peanut butter, jam. Place these around the room and have students walk around the room and try to estimate the portion sizes. At the same time, discuss how to record food portions, that is, ounces versus cups, weight versus volume, etc. Then discuss the portion sizes.

Since so many students lack education in food preparation or practical cooking experience, this activity seems to help them estimate portions more accurately.

Classroom Activity 2-6: Compare Your Food Intake to Recommended Daily Amounts of Each Food Group
Key concepts: Estimation of portion sizes; food groups Class size: Any
Materials needed: 1 copy of Worksheet 2-2 per student
Instructions: Provide students with a copy of Worksheet 2-2. Instruct them to calculate their estimated energy requirement (EER). Instruct them to record everything they ate on the previous day, including beverages and snacks. Assist them with estimating food portions and translating their food selections into food groups. Have them complete their total food group intakes for the entire day and compare this to the recommended daily amounts of each food group based on their EER (see text Table 2-3 for recommendations). Discuss ways that they can improve their dietary habits.

Classroom Activity 2-7: Using the USDA's SuperTracker
Key concept: Application of diet planning principles using a food group eating plan
Class size: Any
Instructions: Instruct students to go online to SuperTracker website. Have them click on "Create Your Profile," enter their age, gender, height, weight, and activity level, and receive their recommended kcalorie intake and food group intakes. Instruct them to access the Food Tracker section and use the form to monitor their food intake for one to three days. You may instruct them to write a 1- to 2-page discussion regarding what they learned about their food behaviors and any changes they intend to make.

Classroom Activity 2-8: MyPlate Jeopardy![9]
Key concepts: Food groups from MyPlate/the USDA Food Patterns
Class size: Any
Materials needed: Jeopardy! game board; cards with questions prepared by instructor
Instructions: Create a Jeopardy! game board with six category columns. Each column should have a category name (e.g., grains, empty kcalories, etc.). Under each category name have five game cards, each with a different question

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[7] Adapted from M. Link-Mullison, and N. L. Anderson, Hands-on activities to increased learning about the Dietary Guidelines, *Journal of Nutrition Education* (1995), p. 27.

[8] Activity provided by Caroline Roberts, Nutrition Education Specialist, California Department of Education, and Instructor, Sierra College, Rocklin.

[9] Activity provided by Don Simpson, University of Arkansas, Fayetteville.

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that is relevant to the particular category of interest. Have the game cards increase in "point" value. Each game card should contain an answer. The students are required to state their answer in the form of a question. If this process is too involved for your class, you can write the questions on the cards and allow the students to provide the simple answer. This activity can be conducted in large classes in which teams compete or in small groups. This activity can also be adapted for other nutrition, wellness, and activity topics. It creates an atmosphere for application and fun!

Classroom Activity 2-9: Label Analysis[10]
Key concept: Reading/interpreting food labels Class size: Any
Instructions: Have students bring in boxes, cans, or any package with a label. Examine and discuss the Nutrition Facts panel and ingredients. This activity helps students become more aware of the terms on labels. For example, on the label for Breyers Mint Chocolate Chip ice cream, the ingredients are:

> Milk, cream, corn syrup, liquid sugar, sugar, coconut oil, whey, dutched cocoa (processed with alkali), vegetable gums (guar, carob bean), mono- and diglycerides, natural flavor, polysorbate 80, soy lecithin.

You can talk about guar gum being made up of nonionic polydisperse rod-shaped polymers. Guar gum is an economical thickener and stabilizer.

When students bring in the labels, they usually become more involved in learning. Also, many times they bring in new products that the instructor may not have seen yet, which facilitates learning for the instructor as well as the student.

Classroom Activity 2-10: Discuss How Advertisements Influence Food Choices
Key concept: Media influences on food habits Class size: any
Instructions: The campaign to enhance the public image of milk (Got Milk, the milk mustache) is an example of a successful image campaign. Encourage students to name other food campaigns and discuss their nutrition merits.

Classroom Activity 2-11: News Articles[11]
Key concept: Evaluation of nutrition information from the media Class size: Any
Instructions: Have students collect current news articles about nutrition and post them on the classroom bulletin board. This activity encourages discussion of current nutrition topics, which helps bring the lectures and readings into the students' lives.

Classroom Activity 2-12: Vegetarian Meal Planning (Meal Comparison)[12]
Key concept: Vegetarian diet planning Class size: Any
Instructions: Present the three vegetarian meal plans below to students and use the discussion questions to prompt them to evaluate the plans.

Lacto-ovo-vegetarian	***Lactovegetarian***	***Vegan***
Black-eyed pea & lentil soup, 1 cup	Black-eyed pea & lentil soup, 1 cup	Black-eyed pea & lentil soup, 1 cup
Hard-boiled egg, 1	Walnuts, 1 oz	Walnuts, 1 oz
Dinner roll, whole-wheat, 1 roll	Dinner roll, whole-wheat, 1 roll	Dinner roll, whole-wheat, 1 roll
Fresh orange, 1 medium	Fresh orange, 1 medium	Fresh orange, 1 medium
Spinach, steamed, ½ cup	Spinach, steamed, ½ cup	Spinach, steamed, ½ cup
1% milk, 1 cup	1% milk, 1 cup	Soy milk, original, 1 cup (fortified)

Discussion questions:
1. What are the DRIs for a 25-year-old male for iron, zinc, vitamin B_{12}, and vitamin D? (Hint: Use the chart inside the front cover of your textbook and see Chapter 13 for special considerations for iron for vegetarians.)
2. For which meal plan would it be the most challenging to meet vitamin B_{12} requirements? Why?
3. What other foods could be included in the vegetarian meal plans to meet the weekly recommendation of 7 to 11 grams of omega-3 fatty acids each **week**?
4. What food items in the meal plans are supplying the most iron?

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[10] Activity provided by Pat Rogers, Allan Hancock College.

[11] Activity provided by Cathy M. Pippin, Northeast Mississippi Junior College.

[12] Contributed by Carrie King.

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5. What other foods could the meal plans include to increase the vitamin D content?

Answer key:

1. Iron: (DRI for males [8 mg] × 1.8) = 14.4 mg Zinc: 11 mg Vitamin B_{12}: 2.4 µg
   Vitamin D: 600 IU (vitamin D: 15 micrograms/day × [1 microgram cholecalciferol = 40 IU vitamin D] = 600 IU)
2. Vegan diet meal plan because there are no animal-based foods included in vegan diets.
3. Answers will vary. Possible answers include: flax seeds, soybeans, tofu, and products (e.g., soy milk) fortified with omega-3 fats such as algae-derived DHA.
4. Lentils, black-eyed peas, and spinach.
5. Fortified cereals, juices, or yogurt.

Nutrient composition of meals for instructor reference:

Lacto-ovo-vegetarian Menu Item	**Cal**	**Pro**	**Fe**	**Zinc**	**B_{12}**	**Vit D**	**Ω 3**
Black-eyed pea and lentil soup, 1 cup	157	11	3.9	1.78	0	0	0
Hard-boiled egg, 1	78	6.3	0.60	0.52	0.56	44	0.5
Dinner roll, whole-wheat, 1 roll	74	2.4	0.68	0.56	0	0	0
Fresh orange, 1 medium	69	1.3	0.18	0.11	0	0	0
Spinach, steamed, ½ cup	20	2.7	3.2	0.69	0	0	0.1
1% milk, 1 cup	102	8	0.07	1.02	1.15	117	0
Totals	500	31.7	8.63	4.68	1.71	161	0.6

Lactovegetarian Menu Item	**Cal**	**Pro**	**Fe**	**Zinc**	**B_{12}**	**Vit D**	**Ω 3**
Black-eyed pea and lentil soup, 1 cup	157	11	3.9	1.78	0	0	0
Walnuts, 1 oz	185	4.3	0.8	0.85	0	0	2.6
Dinner roll, whole-wheat, 1 roll	74	2.4	0.68	0.56	0	0	0
Fresh orange, 1 medium	69	1.3	0.18	0.11	0	0	0
Spinach, steamed, ½ cup	20	2.7	3.2	0.69	0	0	0.1
1% milk, 1 cup	102	8	0.07	1.02	1.15	117	0
Totals	607	29.7	8.83	5.01	1.15	117	2.7

Vegan Menu Item	**Cal**	**Pro**	**Fe**	**Zinc**	**B_{12}**	**Vit D**	**Ω 3**
Black-eyed pea and lentil soup, 1 cup	157	11	3.9	1.78	0	0	0
Walnuts, 1 oz	185	4.3	0.8	0.85	0	0	2.6
Dinner roll, whole-wheat, 1 roll	74	2.4	0.68	0.56	0	0	0
Fresh orange, 1 medium	69	1.3	0.18	0.11	0	0	0
Spinach, steamed, ½ cup	20	2.7	3.2	0.69	0	0	0.1
Soy milk, original, 1 cup (fortified)	104	6.3	0.42	0.26	0.85	43	0
Totals	609	28	9.18	4.25	0.85	43	2.7

Key: Cal = kcalories, Pro = protein (grams), Fe = iron (milligrams), Zinc = zinc (milligrams), B_{12} = vitamin B_{12} (micrograms), Vit D = vitamin D (International Units), Ω 3 = omega-3 fatty acids (grams)

How To "Try It!" Activities Answer Key

How to Compare Foods Based on Nutrient Density

The steak has a nutrient density of only 0.000517-milligram thiamin per kcalorie, whereas the broccoli has a nutrient density of 0.00185-milligram thiamin per kcalorie, making it 3 ½ times as nutrient dense with respect to thiamin.

How to Calculate Personal Daily Values

For an 1800-kcalorie diet, DV based on the original label calculation factors (from the back inside cover) would be: grams fat, 20 grams saturated fat, 270 grams total carbohydrate, 25 grams fiber, and 45 grams protein. % DV for the original food label (p. 57) based on 1800-kcalorie diet: total fat = 13%, saturated fat = 5%, cholesterol = 0%, sodium = 7%, total carbohydrate = 14%, and dietary fiber = 16%.

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Critical Thinking Questions[13]

1. The concept of "nutrient profiling" provides an interesting basis of comparison for food items. How might nutrient profiling contribute to improving dietary choice for the general population?
2. Evidence supports that effective use of dietary principles (adequacy, balance, kcalorie control, nutrient density, moderation, and variety) will lead to healthier food choices, and yet people still make poor food choices. Is there a difference in responsibility between individuals and families regarding whether they follow recommended diet-planning principles?
3. The *Dietary Guidelines* encourage Americans to "adopt a healthy eating pattern" including vegetables from all subgroups, fruits, whole grains, fat-free or low-fat dairy, a variety of protein foods, and oils. This is easy enough to do if one enjoys these foods. Harder to follow is the recommendation to limit high-sodium foods; high-saturated fat and *trans* fat foods; and added sugars. Why is this latter recommendation so hard to achieve in the American diet?
4. How can visualization of portion sizes help individuals make better health choices? Construct a chart that identifies common serving equivalents for basic food groups. Based on your understanding of this concept, how do your favorite restaurant's portion sizes compare to realistic portions? What measures do you think should be taken to get restaurants to utilize portion size control?
5. Suppose you are using the MyPlate graphic to teach someone unfamiliar with dietary planning principles how to evaluate the healthfulness of a meal. What would you need to emphasize based on the "shortcomings" of MyPlate discussed in the text?
6. With regard to required Nutrition Facts food labels, why can there still be a difference between the nutrition information obtained and the actual nutrients received with consumption of the identified food?

Answer Key

1. Nutrient profiling examines the overall nutrient constituents in an individual food product. While many foods in basic nutritional science are ranked as high or low in individual nutrients, the concept of nutrient profiling addresses the combined effects of individual nutrients. According to nutrition information provided by the World Health Organization (WHO), nutrient profiling can be potentially used as a criterion identification source for nutrition-related terms such as "high fat, low fat, reduced, etc." Standardizing criterion descriptors would contribute to promotion of healthier eating habits based on factual evidence rather than manufacturer-generated results. (See "Nutrient Density" on pp. 38–40.)
2. This issue is twofold: one must consider (1) how it affects the individual and (2) how it affects the family. With regard to the individual perspective, present society attributes responsibility for one's actions to the person. An adult is assumed to be able to make individual choices based on his or her beliefs in the context of mediating variables such as preference and economics. "You are what you eat" is a common adage that identifies the individual with his or her food choices. With regard to families, society considers parents responsible for providing and offering healthy food choices to their children. This additional responsibility focuses more attention on behaviors. Unfortunately, even when they know about these recognized diet-planning principles, both individuals and families still tend to make poor food choices. The behavioral burden of choice may be mediated by other variables as noted above both for individuals and families. The key concept here is how to successfully incorporate these diet-planning principles in making food decisions for both individuals and families. The successful application of these principles will help enable healthier diet outcomes. (See "Diet-Planning Principles" on pp. 38–40.)
3. The reason that it is harder to achieve the latter recommendation is that the majority of the typical American diet is composed of processed foods in which sodium is found in large amounts, as it functions as a preservative. Additionally, the American diet is rich in saturated fats. And while *trans* fats have been removed from many foods as a result of legal pressure brought on by many consumer groups, the general public still consumes too much saturated fat. Now, we are seeing an increase in serum triglyceride levels, which are beginning to be associated with adverse health effects for a large majority of the American public. As noted, processed foods are often refined-grain foods; thus, nutrient concentrations are affected. Certain foods have

[13] Contributed by Daryle Wane.

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their nutrients enriched as a result of this manufacturing process whereas other foods now have been fortified with additional nutrients such that they appear to be healthy food choices when in fact they are poor food substitutes. Many convenience foods also contain solid fats and sugars. It is extremely important for consumers to read food labels for all food purchases of processed foods so as to be aware of potential food additives. While convenience foods may help an individual with time management issues, an increased proportion of processed foods in the diet can potentially lead to health problems. These convenience foods are widely distributed to the American consumer, making a healthy food choice at times difficult. (See "Dietary Guidelines for Americans" on pp. 40–42.)

4. Visualization of portion sizes allows the individual to manage serving equivalents by utilizing common objects to provide reliable estimates. If an individual understands that a deck of cards represents a 3-ounce serving of meat, then this will allow her or him to make healthier food choices. Visual displays help to reinforce these concepts.

   Most restaurants wish to be perceived as serving quality food at a reasonable cost while maximizing profits by making sales. The consumer often focuses on getting the best value and quantity for the money. Therefore, more is considered economically superior. Thus, the restaurant atmosphere encourages individuals to want more, order more, and eat more. This is in opposition to the concept of visualization of portion sizes. Due to advertising, the general public falsely perceives that a 16-ounce piece of meat literally hanging off the plate is a realistic portion. Consumers may have to petition for government regulation to persuade restaurants to conform to realistic portion sizes for identified foods. Legal regulation is one option, but that may prove not to be realistic given constitutional rights and liberties. Thus, the responsibility and accountability for personal choice must be based on education and evidenced-based practice. Changing how individuals understand their food consumption patterns may lead to better health outcomes. Evidenced-based practice may influence how foods are formulated and how restaurants market their products for the general public's consumption. (See "Serving Equivalents" on p. 47.)

5. Because the MyPlate graphic in and of itself has only limited value as a guide to meal planning, it would be appropriate to discuss the person's willingness to and ability to use the tools on the Choose MyPlate website to learn more about making good food choices. Because the graphic shows only proportions of food groups, it would need to be supplemented with guidance for distinguishing between nutrient-dense and nutrient-poor choices within each food group. Without this additional guidance, the person would be unable to properly evaluate a meal—for example, a plate of fried chicken, highly sweetened fruit, fried potatoes, and biscuits with a chocolate shake might appear healthful as long as the proportions resembled those of MyPlate. (See "MyPlate Shortcomings" on p. 49.)

6. The original Nutrition Facts labels present nutrients and kcalories for single servings, whereas individuals often eat portions equal to several "servings," especially if the package contains more than one. For example, if the package contains two servings and an individual eats the entire package, then the nutrient and caloric values are doubled. (Fortunately, under the new regulations, manufacturers will be required to provide Nutrition Facts information for the whole container of food or drink if people typically consume all of it at one time.) Additionally, certain foods such as cereals and cake mixes have food labels indicating differences in nutrient values based on preparation methods. The food item first lists the information for the item as is, in the box, and then for food item in the prepared state. Thus, these nutrient and calorie values will differ. It is therefore very important to not only read the food label but understand how many servings are contained in the product as well as how the preparation of the item will affect its nutrient value. (See "Nutrition Facts Panel" on pp. 56–59.)

IM Worksheet Answer Key

Worksheets 2-1, 2-2, and 2-3 – Answers will vary.

Worksheet 2-4: Chapter 2 Crossword Puzzle

1. discretionary calories	4. variety	7. energy	10. food
2. nutrients	5. lactovegetarian	8. nutrient density	11. heaviest
3. nutrient claims	6. balance	9. adequacy	12. moderation

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Worksheet 2-5: Interpreting Food Labels (Internet Exercise)

1. a	4. b	7. a	10. d
2. b	5. b	8. c	11. d
3. a	6. b	9. a	

Global Nutrition Watch Answer Key

1. b
2. b
3. increased

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Worksheet 2-1: Daily Calorie Evaluation

With respect to each of the following food groups, identify the weight or volume of the portion that you ate over a 24-hour period (teaspoons, ounces, or cups) in the first row and the amount of kilocalories that you consumed from those foods in the second row.

Food Groups	**Fruits**	**Vegetables**	**Grains**	**Protein Foods**	**Dairy**	**Oils**	**Discretionary**
Quantity portion							
Kcal portion							

24-hour total kilocalories consumed: _____

Once you have finished this chart comparison, please complete the following information in the table below.

Age	
Gender	
Weight (kg)	
Height (cm)	
Exercise level (sedentary, moderately active, etc.)	

Now for some calculations:

1. Calculate your BMI: _____
2. Determine your daily kcalories needs using both of the following formulas:

Harris–Benedict Formula:

Male 66.5 + (13.7 × weight in kg) + (5 × height in cm) – (6.8 × age in years)

Female 655 + (9.6 × weight in kg) + (1.8 × height in cm) – (4.7 × age in years)

- If sedentary multiply your BMR by the activity factor of ×1.2
- If active multiply your BMR by the activity factor of ×1.55

- Kilocalorie needs: _____

Mifflin–St. Jeor Formula:

Male 10 × weight (kg) + 6.25 × height (cm) – 5 × age (years) + 5

Female 10 × weight (kg) + 6.25 × height (cm) – 5 × age (years) – 161

- Kilocalorie needs: _____

3. Compare and reflect on your obtained results.

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Worksheet 2-2: Compare Your Food Intake to Recommended Daily Amounts from Each Group

List food item and amount.	Indicate amount consumed from each food group, using the appropriate unit of measurement (in parentheses).						Estimate values.
Food Item	**Fruits (cups)**	**Vegetables (cups)**	**Grains (oz)**	**Protein Foods (oz)**	**Dairy (cups)**	**Oils (tsp)**	**Discretionary kcal**
Breakfast:							
Snack:							
Lunch:							
Snack:							
Dinner:							
Snack:							
Total consumed							
Recommended based on EER							

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Worksheet 2-3: Supermarket Worksheet

Please go to your local supermarket and fill in the information requested in the table below for each food item.

Food Product	**Aisle Location**	**What Items Are on the Opposite Side of the Aisle?**	**Shelf Location**	**Is the Price Readily ?**
Vanilla ice cream cups				
Hot dog rolls				
Fresh broccoli				
Canned fruit cocktail				
Infant formula				
Elbow noodles				
Canned soup				
Frozen pizza				
Soda				
Bottled water				

Name of supermarket: _____ Total # of aisles: _____

Come prepared to class to discuss your findings. Questions for discussion:

1. How is "food placement" determined in the supermarket setting?
2. Do most consumers compare unit pricing between similar food products?
3. Is there a difference in pricing between low-nutrient-density vs. high-nutrient-density foods?

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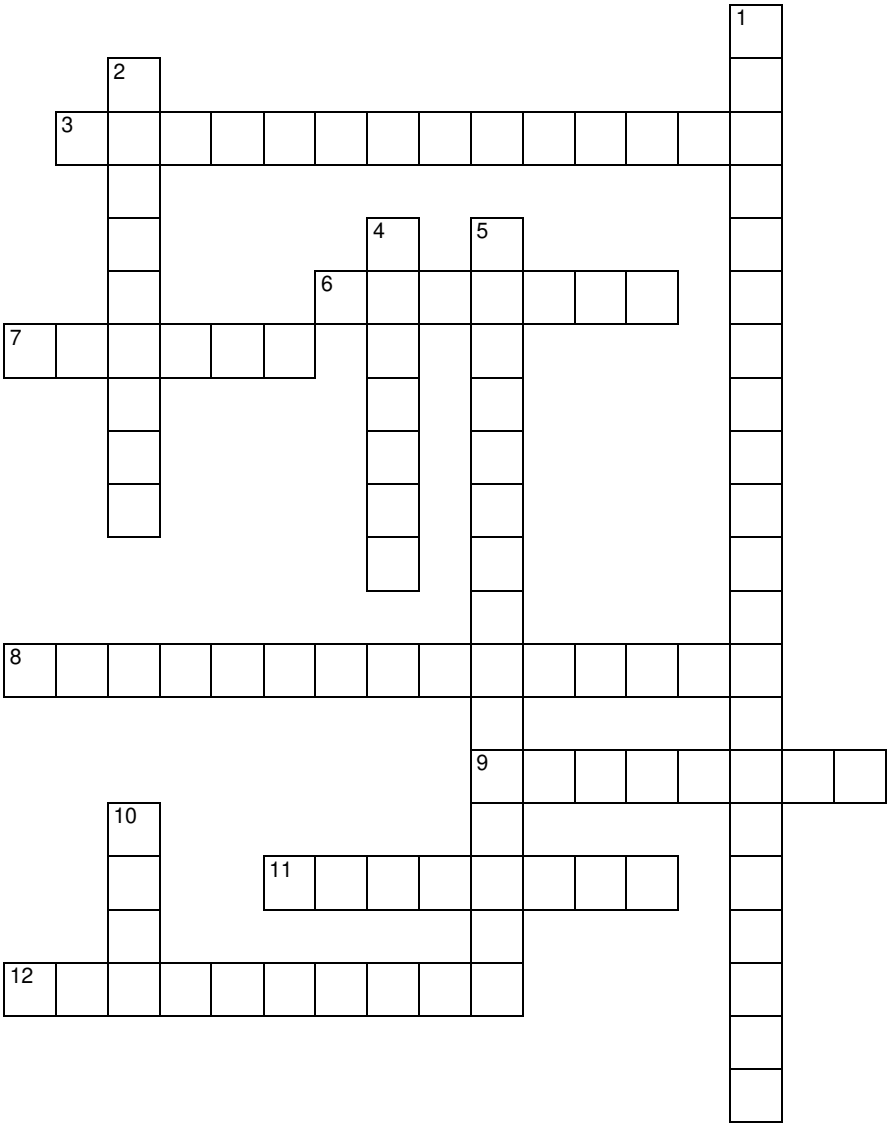
Worksheet 2-4: Chapter 2 Crossword Puzzle



Across	Down
3. FDA-approved statements about food components on food labels 6. Eating foods in proportion to each other 7. USDA Food Patterns help individuals meet nutrient needs within an _____ allowance. 8. Indicator of which food provides the most nutrients for the least kcalories 9. Situation when enough calories and nutrients are provided in the diet 11. First item in an ingredient list is present in the food in the _____ amount 12. Only occasionally eating foods high in added sugars and solid fats	1. Energy used to maintain weight balance after nutrient needs are met 2. Food groups in the USDA Food Patterns are arranged by similar _____. 4. Eating different foods from within each food group 5. A type of vegetarian diet that includes dairy foods 10. *Dietary Guidelines for Americans* translate the DRI into _____ recommendations

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Worksheet 2-5: Interpreting Food Labels (Internet Exercise)

Explore the U.S. Food & Drug Administration's website providing information on changes to the nutrition facts label to answer questions 1-11.

1. Nutrition research has demonstrated that it is difficult for consumers to maintain weight and dietary adequacy when added sugars provide more than 10% of their daily kcalories.
   a. True
   b. False

2. Like the original Nutrition Facts label, the new label will not include a % DV for either protein or added sugars.
   a. True
   b. False

3. Under the May 2016 final rule, a pint-size container of ice cream must be labeled with kcalorie and nutrient information for both 1 cup and 1 pint of the product.
   a. True
   b. False

4. The FDA considers granulated sugars and corn syrup, but not honey, to be "added sugars."
   a. True
   b. False

5. The FDA is changing the required micronutrients on the Nutrition Facts label because vitamin A and C deficiencies are more prevalent in the American population now than they were in the 1990s, when the original label was designed.
   a. True
   b. False

6. *Trans* fats will no longer be included on the new Nutrition Facts label because they have been declared "not generally recognized as safe" by the FDA.
   a. True
   b. False

7. One feature of the updated label designed to help consumers identify important information is that the "calories," "servings per container," and "serving size" will be emphasized by printing them in larger, bold type.
   a. True
   b. False

Scroll to near the top of the page and click the "Examples of Labels in the New Format" link under "Fact Sheets, Infographics, and Other Downloads" to view the examples. Use these example labels to answer questions 8-11.

8. The 4 mandatory vitamins and minerals on the "Standard Vertical (w/ Voluntary)" label are _____.
   a. all present in sufficient amounts to claim that this food a "good" source
   b. calcium, iron, vitamin A, and vitamin C
   c. listed together at the top of their section
   d. missing

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9. Which food described on the “Aggregate Display” label is the most nutrient-dense source of potassium?
   a. wheat squares sweetened
   b. corn flakes not sweetened
   c. mixed grain flakes sweetened

10. Based on the information about the new labeling regulations that you read earlier, which product would most likely have a label formatted like the “Dual Column Display” example?
   a. snack chips
   b. family size frozen lasagna
   c. regular cola
   d. ice cream

11. Examine the “Dual Columns, Two Forms of the Same Food” label. Most of the additional kcalories the “baked portion” provides come from added _____.
   a. cholesterol
   b. sugars
   c. protein
   d. fat

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Handout 2-1: Health Claims and Structure–Function Claims

Reliable Health Claims on Food Labels—The "A" List

- Adequate calcium throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis.
- Calcium, vitamin D and osteoporosis: Adequate calcium and vitamin D, as part of a well-balanced diet, along with physical activity, may reduce the risk of osteoporosis.
- Development of cancer depends on many factors. A diet low in total fat may reduce the risk of some cancers.
- Diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors..
- Diets low in saturated fat and cholesterol, and as low as possible in *trans* fat, may reduce the risk of heart disease.
- While many factors affect heart disease, diets low in saturated fat and cholesterol may reduce the risk of this disease.
- Low-fat diets rich in fiber-containing grain products, fruits, and vegetables may reduce the risk of some types of cancer, a disease associated with many factors.
- Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain dietary fiber, particularly soluble fiber, may reduce the risk of heart disease, a disease associated with many factors.
- Low-fat diets rich in fruits and vegetables (foods that are low in fat and may contain dietary fiber, vitamin A, or vitamin C) may reduce the risk of some types of cancer, a disease associated with many factors.
- Healthful diets with adequate folate may reduce a woman's risk of having a child with a brain or spinal cord defect.
- Frequent between-meal consumption of foods high in sugars and starches promotes tooth decay. The sugar alcohols in [name of food] do not promote tooth decay.
- Soluble fiber from foods such as [name of soluble fiber source, and, if desired, name of food product], as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. A serving of [name of food product] supplies __ grams of the [necessary daily dietary intake for the benefit] soluble fiber from [name of soluble fiber source] necessary per day to have this effect.
- Diets low in saturated fat and cholesterol that include 25 grams of soy protein a day may reduce the risk of heart disease. One serving of [name of food] provides __ grams of soy protein.
- Diets rich in whole grain foods and other plant foods and low in total fat, saturated fat, and cholesterol may reduce the risk of heart disease and some cancers.
- Diets low in saturated fat and cholesterol that include two servings of foods that provide a daily total of at least 3.4 grams of plant stanol esters in two meals may reduce the risk of heart disease. A serving of [name of food] supplies __ grams of plant stanol esters.
- Diets containing foods that are a good source of potassium and that are low in sodium may reduce the risk of high blood pressure and stroke.
- Drinking fluoridated water may reduce the risk of [dental caries or tooth decay].
- Replacing saturated fat with similar amounts of unsaturated fats may reduce the risk of heart disease. To achieve this benefit, total daily calories should not increase.

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The FDA's Health Claims Report Card

Grade	Level of Confidence in Health Claim	Examples of Required Label Disclaimers
A	High: Significant scientific agreement	These health claims do not require disclaimers; see list above for examples.
B	Moderate: Evidence is supportive but not conclusive	"[Health claim.] Although there is scientific evidence supporting this claim, the evidence is not conclusive."
C	Low: Evidence is limited and not conclusive	"Some scientific evidence suggests [health claim]. However, FDA has determined that this evidence is limited and not conclusive."
D	Very low: Little scientific evidence supporting this claim	"Very limited and preliminary scientific research suggests [health claim]. FDA concludes that there is little scientific evidence supporting this claim."

Examples of Structure–Function Claims

- Builds strong bones
- Promotes relaxation
- Improves memory
- Boosts the immune system
- Supports heart health
- Defends health
- Slows aging
- Guards against colds
- Lifts spirits

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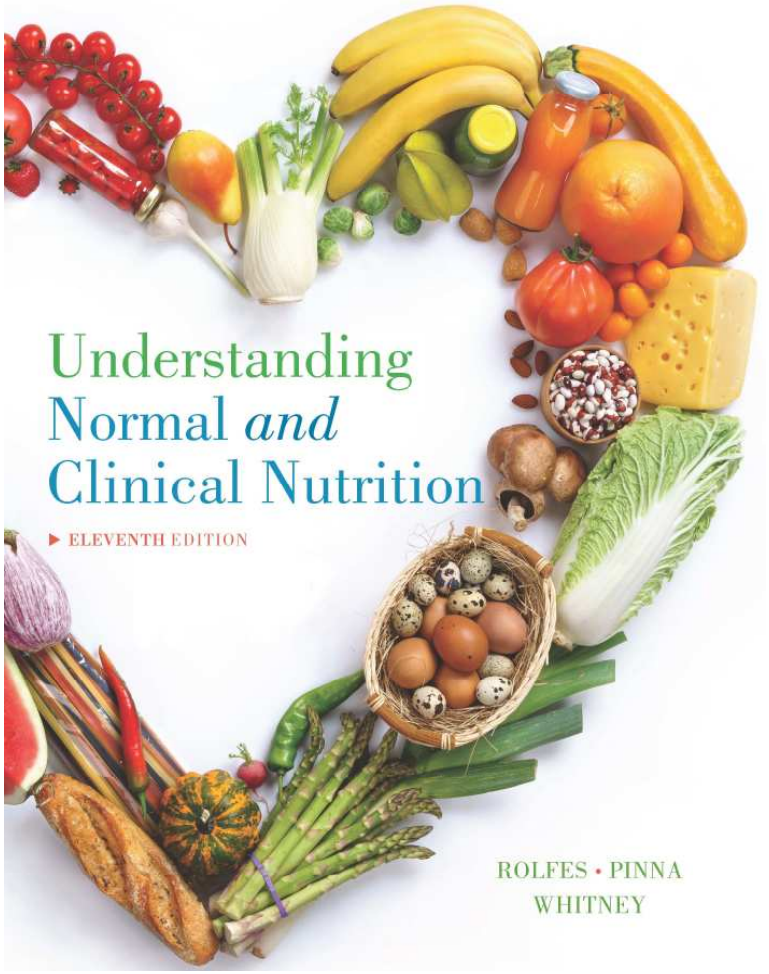
Understanding Normal *and* Clinical Nutrition

Eleventh Edition



Chapter 2
Planning a Healthy Diet

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Principles and Guidelines

- Adequacy
  - Sufficient energy
  - Adequate nutrients for healthy people
- Balance
  - Enough, but not too much, of different food types
- kcalorie (energy) control
  - Energy in = energy out
  - High nutrient density foods

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Nutrient Density (1 of 2)

- Nutrient density
  - The most nutrients for the least food energy
  - Low-nutrient density foods
- Moderation
  - Food selections
    - Low in solid fats and added sugars
- Variety
  - Among and within food groups
  - Benefits of a varied diet

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Nutrient Density (2 of 2)

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Nutrient Density of Two Breakfast Options Compared

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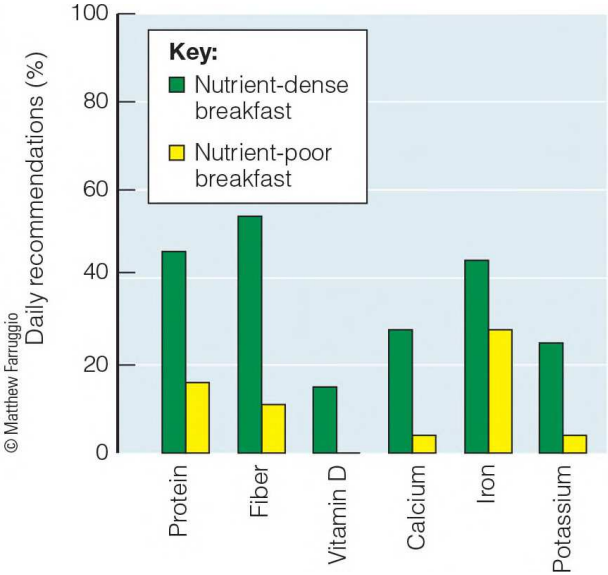
NUTRIENT-DENSE BREAKFAST



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NUTRIENT-POOR BREAKFAST

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Estimated Energy Needs for Sedentary Adults

TABLE 2-2 Estimated Energy Needs for Sedentary Adults

	Energy (kcal/day)
Women	
19-25 yr	2000
26-50 yr	1800
51+ yr	1600
Men	
19-20 yr	2600
21-40	2400
41-60 yr	2200
61+ yr	2000

NOTE: Sedentary describes a lifestyle that includes only the activities typical of independent living.

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Dietary Guidelines for Americans

- Evidence-based advice
  - Attain and maintain a healthy weight
  - Reduce risk of chronic disease
  - Promote overall health
- Reviewed and revised every 5 years
  - 2015–2020 Guidelines

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Major Topic Areas

- Major topic areas of Dietary Guidelines for Americans
  - Follow a healthy eating pattern across lifespan
  - Focus on variety, nutrient density, and amount
  - Limit kcalories from added sugars and saturated fats and reduce sodium
  - Shift to healthier food and beverage choices
  - Support healthy eating patterns for all

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Diet-Planning Guides

- Incorporate both tools and knowledge to plan an ideal diet
- USDA Food Patterns
  - Five major food groups
    - Fruits, vegetables, grains, protein foods, milk, and milk products
  - Recommended daily amounts for each group
    - Daily selection from each group

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USDA Food Patterns: Recommended Daily Amounts

TABLE 2-3 USDA Food Patterns: Healthy US-Style Eating Pattern

	1600 kcal	1800 kcal	2000 kcal	2200 kcal	2400 kcal	2600 kcal	2800 kcal	3000 kcal
Fruits	11/2 c	1 1/2 c	2c	2c	2c	2c	2 1/2 c	2 1/2 c
Vegetables	2c	21/2 c	21/2 c	3c	3c	3 1/2 c	31/2 c	4c
Grains	5 oz	6 oz	6 oz	7 oz	8 oz	9 oz	10 oz	10 oz
Protein foods	5oz	5oz	51/2 oz	6 oz	61/2 oz	6 1/2 oz	7oz	7oz
Milk and milk products	3 c	3c	3c	3c	3c	3c	3c	3c
Oils	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp	8 tsp	8 tsp	10 tsp
Limit on kcalories available for other uses*	130 kcal	170 kcal	270 kcal	280 kcal	350 kcal	380 kcal	400 kcal	470 kcal

The limit on kcalories for other uses describes how many kcalories are available for foods that are not in nutrient-dense forms; these kcalories may also be referred to as discretionary kcalories (discussed on p.47).

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Notable Nutrients

1. _____ are considered a subgroup of both the protein and vegetable food groups.
2. Fat-free milk as compared to whole milk is an example of a _____-_____ choice.
3. _____ kcalories may be supplied by any kind of food once a person's nutrient needs are met.

Answer:
1. Legumes
2. Nutrient-dense
3. Discretionary

Explanation:
2. Oils are an exception that are high in kcals but provide nutrients lacking in other foods.
3. A person wanting to lose weight may choose not to consume their discretionary kcals. (Fig 2-3)

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USDA Food Patterns: Fruits and Vegetables (1 of 3)

1 c fruit =
1 c fresh, frozen, or canned fruit
1/2 c dried fruit
1 c 100% fruit Juice

Fruits contribute folate, vitamin A, vitamin C, potassium, and fiber.
Consume a variety of fruits, and choose whole or cut-up fruits more often than fruit juice.
Apples, apricots, avocados, bananas, blueberries, cantaloupe, cherries, grapefruit, grapes, guava, honeydew, kiwi, mango, nectarines, oranges, papaya, peaches, pears, pineapples, plums, raspberries, strawberries, tangerines, watermelon; dried fruit (dates, figs, prunes, raisins); 100% fruit juices
Limit these fruits that contain solid fats and/or added sugars:
Canned or frozen fruit in syrup; juices, punches, ades, and fruit drinks with added sugars; tried plantains

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USDA Food Patterns: Fruits and Vegetables (2 of 3)

1 c vegetables =
1 c cut-up raw or cooked vegetables
1 c cooked legumes
1 c vegetable Juice
2 c raw, leafy greens

Vegetables contribute folate, vitamin A. vitamin C, vitamin K. vitamin E. magnesium, potassium, and fiber.

Consume a variety of vegetables each day, and choose from all five subgroups several times a week.

Dark-green vegetables: Broccoli and leafy greens such as arugula, beet greens, bok choy, collard greens, kale, mustard greens, romaine lettuce, spinach, turnip greens. watercress

Red and orange vegetables: Carrots, carrot juice, pumpkin, red bell peppers, sweet potatoes, tomatoes, tomato juice, vegetable juice, winter squash (acorn, butternut)

Legumes: Black beans, black-eyed peas, garbanzo beans (chickpeas), kidney beans, lentils, navy beans, pinto beans, soybeans and soy products such as tofu, split peas, white, bean,

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USDA Food Patterns: Fruits and Vegetables (3 of 3)

Starchy vegetables: Cassava, corn, green peas. hominy. lima beans, potatoes

Other vegetables: Artichokes, asparagus, bamboo shoots, bean sprouts, beets, brussels sprouts, cabbages, cactus, cauliflower, celery, cucumbers, eggplant. green beans, green bell peppers, iceberg lettuce. mushrooms, okra, onions, seaweed, snow peas, zucchini

Limit these vegetables that contain solid fats and/or added sugars:

Baked beans, candied sweet potatoes. coleslaw. french fries, potato salad, refried beans. scalloped potatoes. tempura vegetables

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USDA Food Patterns: Grains and Protein Foods (1 of 2)

1 oz grains=
1 slice bread
1/2 c cooked rice, pasta, or cereal
1 oz dry pasta or rice
1 c ready-to-eat cereal
3 c popped popcorn

Grains contribute folate. niacin, riboflavin, thiamin, iron, magnesium, selenium, and fiber.

Make most (at least half) of the grain selections whole grains.

Whole grains: amaranth, barley, brown rice, buckwheat, bulgur, cornmeal, millet. oats,

quinoa. rye. wheat, wild rice and whole-grain products such as breads. cereals. crackers, and pastas; popcorn

Enriched refined products: bagels, breads. cereals, pastas (couscous, macaroni, spaghetti), pretzels, white rice, rolls, tortillas

Limit these grains that contain solid fats and/or added sugars:

Biscuits, cakes, cookies, cornbread, crackers, croissants, doughnuts, tried rice,

granola, muffins, pastries, pies, presweetened cereals, taco shells

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USDA Food Patterns: Grains and Protein Foods (2 of 2)

1 oz protein foods=

1 oz cooked lean meat, poultry, or seafood

1 egg

¼ c cooked legumes or tofu

1 tbs peanut butter

½ z nuts or seeds

Protein foods contribute protein, essential fatty acids, niacin, thiamin, vitamin B6, vitamin B12, iron, magnesium, potassium, and zinc.

Choose a variety of protein foods from the three subgroups, including seafood in place of meat or poultry twice a week.

Seafood: Fish (catfish, cod, flounder, haddock, halibut, herring, mackerel, pollock, salmon, sardines, sea bass, snapper, trout, tuna), shellfish (clams, crab, lobster, mussels, oysters, scallops, shrimp)

Meats, poultry, eggs: Lean or low-fat meats (fat-trimmed beef, game, ham, lamb, pork. veal), poultry (no skin), eggs

Nuts, seeds, soy products: Unsalted nuts (almonds, cashews, filberts, pecans, pistachios, walnuts), seeds (flaxseeds, pumpkin seeds, sesame seeds, sunflower seeds), legumes, soy products (textured vegetable protein, tofu, tempeh), peanut butter, peanuts

Limit these protein foods that contain solid fats and/or added sugars:

Bacon; baked beans; fried meat, seafood, poultry, eggs, or tofu; refried beans: ground beef; hot dogs; luncheon meats; marbled steaks; poultry with skin: sausages; spare ribs

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USDA Food Patterns: Milk and Milk Products, and Oils (1 of 2)

1 c milk or milk product =

1 c milk, yogurt, or fortified soy milk

1 ½ oz natural cheese

2 oz processed cheese

Milk and milk products contribute protein, riboflavin, vitamin B12, calcium, potassium, and, when fortified, vitamin A and vitamin D.

Make fat-free or low-fat choices. Choose other calcium-rich foods if you don't consume milk.

Fat-free or 1% low-fat milk and fat-free or 1% low-fat milk products such as buttermilk, cheeses, cottage cheese, yogurt; fat-free fortified soy milk

Limit these milk products that contain solid fats and/or added sugars:

2% reduced-fat milk and whole milk; 2% reduced-fat and whole-milk products such as cheeses, cottage cheese, and yogurt; flavored milk with added sugars such as chocolate milk, custard, frozen yogurt, ice cream, milk shakes, pudding, sherbet; fortified soy milk

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USDA Food Patterns: Milk and Milk Products, and Oils (2 of 2)

1 tsp oil =
1 tsp vegeta a oil
1 tsp soft margarine
1 tbs low-fat mayonnaise
2 tbs light salad dressing

Oils are not a food group, but are featured here because they contribute vitamin E and essential fatty acids.

Use oils instead of solid fats, when possible.

Liquid vegetable oils such as canola, corn, flaxseed, nut, olive, peanut, safflower, sesame, soybean, sunflower oils; mayonnaise, oil-based salad dressing, soft trans-fat-free margarine; unsaturated oils that occur naturally in foods such as avocados, fatty fish, nuts, olives, seeds (flaxseeds, sesame seeds), shellfish

Limit these solid fats:

Butter, animal fats, stick margarine, shortening

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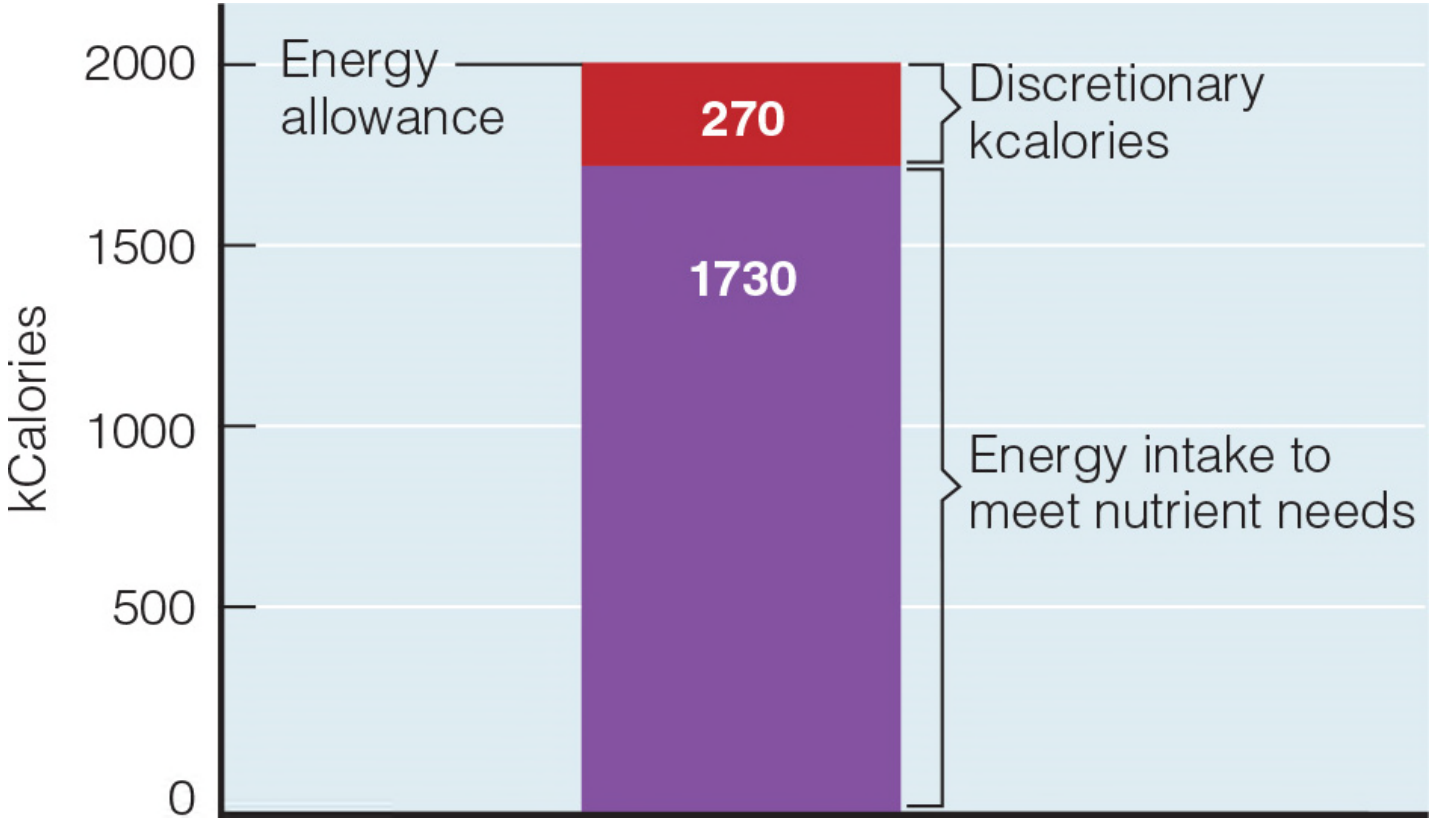
Discretionary kCalories in a 2000-kCalorie Diet



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Serving Equivalents

- Fruits, vegetables, and milk measured in cups
- Grains and protein foods measured in ounces
- Ethnic food choices
- Vegetarian food guide
  - Can still use USDA Food Patterns
- Mixture of foods
  - Example: casseroles

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Ethnic Food Choices (1 of 3)

TABLE 2-5 Ethnic Food Choices

Joshua Resnick/Shutterstock.com

	Grains	Vegetables	Fruits	Protein Foods	Milk and Milk Products
Asian	Rice, noodles, millet	Amaranth, baby corn, bamboo shoots, chayote, bok Choy, mung bean sprouts, sugar peas, straw mushrooms, water chestnuts, kelp	Carambola, guava, kumquat, lychee, persimmon, melons, mandarin orange	Soybeans and soy products such as soy milk and tofu, squid, duck eggs, pork, poultry, fish and other seafood, peanuts, cashews	Usually excluded

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Ethnic Food Choices (2 of 3)

TABLE 2-5 Ethnic Food Choices

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	Grains	Vegetables	Fruits	Protein Foods	Milk and Milk Products
Mediterranean	Pita pocket bread, pastas, rice, couscous, polenta, bulgur, focaccia, Italian bread	Eggplant, tomatoes, peppers, cucumbers, grape leaves	Olives, grapes, figs	Fish and other seafood, gyros, lamb, chicken, beef, pork, sausage, lentils, fava beans	Ricotta, provolone, parmesan, feta, mozzarella, and goat cheeses; yogurt

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Ethnic Food Choices (3 of 3)

TABLE 2-5 Ethnic Food Choices

PhotoDisc/Getty Images

	Grains	Vegetables	Fruits	Protein Foods	Milk and Milk Products
Mexican	Tortillas (corn or flour), taco shells, rice	Chayote, corn, jicama, tomato salsa, cactus, cassava, tomatoes, yams, chilies	Guava, mango, papaya, avocado, plantain, bananas, oranges	Refried beans, fish, chicken, chorizo, beef, eggs	Cheese, custard

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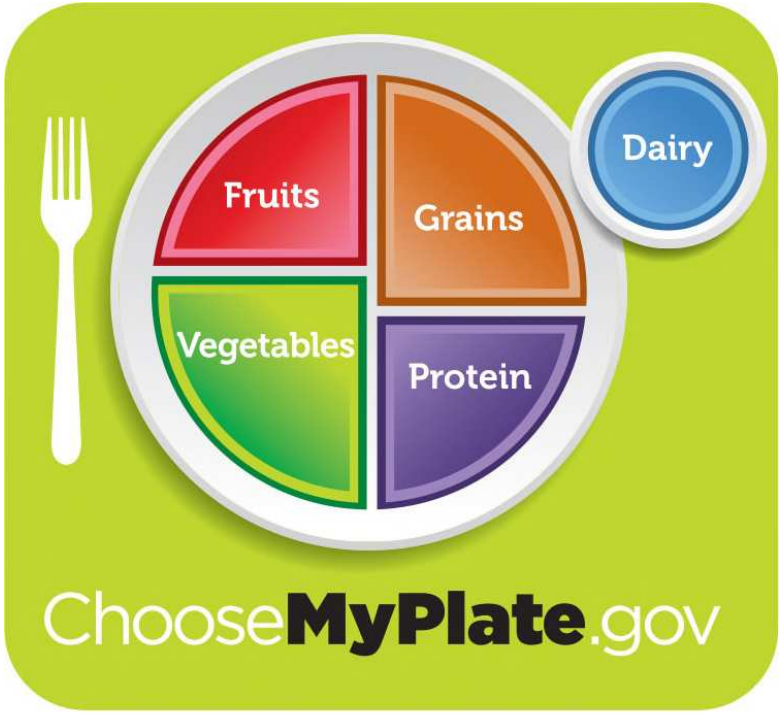
MyPlate

- MyPlate—http://www.choosemyplate.gov
  - Educational tool
  - Combines USDA Food Patterns and Dietary Guidelines
  - Allows for personal planning
  - MyPlate shortcomings
- Healthy Eating Index



SOURCE: USDA, www.choosemyplate.gov.

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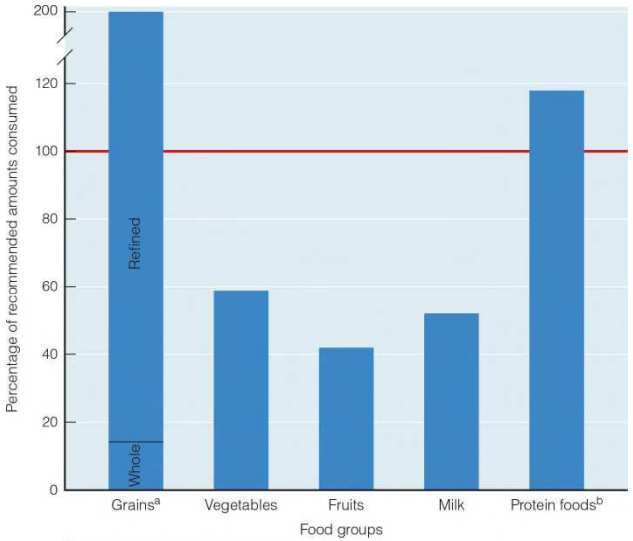
Recommended and Actual Intakes Compared

1.____ grains are consumed in excess of recommendations.

2.Other than grains, the only other food group consumed in excess is _____.



[a]At least half of the grain selections should be whole grains.
[b]On average, actual intakes of all protein foods is close to recommended levels, but actual intakes of the seafood subgroup is only 44 percent of recommended levels.

Answer:

1. Refined
2. Protein

Explanation:

It is recommended that at least half of grains consumed are from whole grain sources.

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Food Lists

- Help in achieving kcalorie control and moderation
- Sorting of foods
  - Energy-nutrient contents
  - Examples

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Putting the Plan into Action

- Familiarize yourself with each food group
  - Assign food groups to meals
- From guidelines to groceries
  - Consider foods you enjoy
  - Make improvements little by little
  - Processed foods
    - Disadvantages
    - Advantages

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Diet-Planning Using the 2000-kCalorie USDA Food Pattern

TABLE 2-6 Diet Planning Using the 2000-kCalorie USDA Food Pattern

This diet plan is one of many possibilities. It follows the amounts of foods suggested for a 2000-kcalorie diet as shown in Table 2-3 (p. 43), with a little less oil

Food Group	Amounts	Breakfast	Lunch	Snack	Dinner	Snack
Fruits	2c	1/2 c		1/2 c	1c	
Vegetables	2 1/2 c		1c		1 1/2 c	
Grains	6 oz	1 oz	2 oz	1/2 oz	2 oz	1/2 oz
Protein foods	51/2 oz		2 oz		31/2 oz	
Milk and milk products	3c	1c		1c		1c
Oils	6 tsp		11 tsp		4 tsp	

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Grocery Shopping

- Grains
  - Whole-grain products
  - Fortification and enrichment
- Vegetables
  - Fresh vs. canned or frozen
- Milk and milk products
- Fruits
  - Colors
  - Fruit juices
- Protein foods
  - Lean cuts
  - Soy products
  - Portion sizes
  - Cooking techniques

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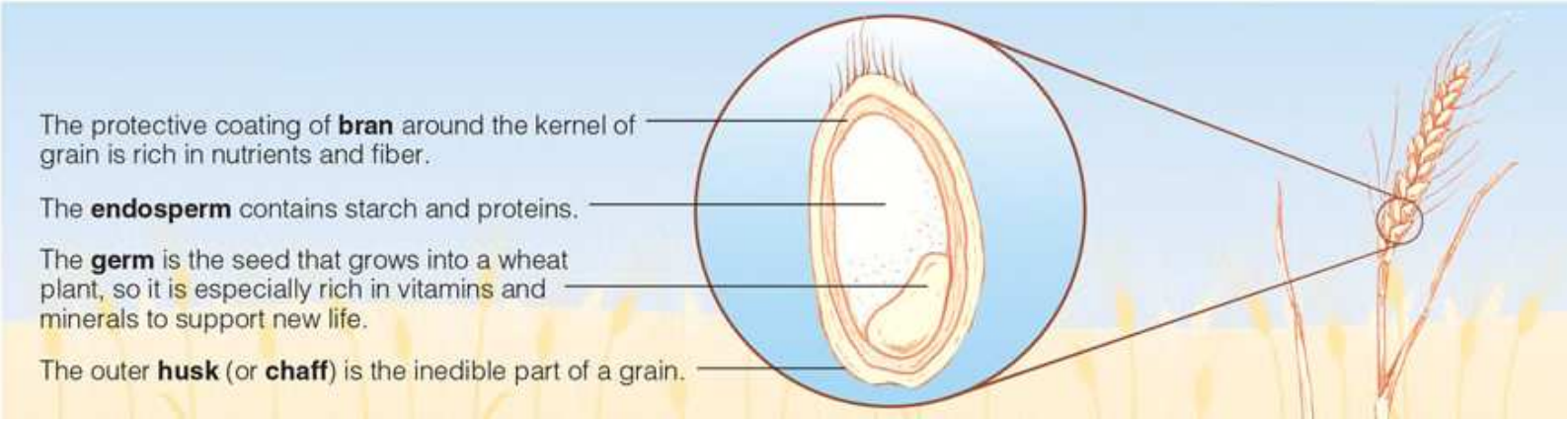
A Wheat Plant (1 of 2)



Whole-grain products contain much of the germ and bran, as well as the endosperm; that is why they are so nutritious. Refined grain products contain only the endosperm. Even with nutrients added back, they are not as nutritious as whole-grain products, as shown in Figure 2-7 (p. 53).

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A Wheat Plant (2 of 2)

Common types of flour:

- **Refined flour:** finely ground endosperm that is usually enriched with nutrients and bleached for whiteness; sometimes called *white flour.*
- **Wheat flour:** any flour made from the endosperm of the wheat kernel.
- **Whole-wheat flour:** any flour made from the entire wheat kernel.

The difference between *white flour* and *white wheat* is noteworthy. Typically, *white flour* refers to refined flour (as defined above). Most flour—whether refined, white, or whole wheat—is made from red wheat. Whole-grain products made from red wheat are typically brown and full flavored.

To capture the health benefits of whole grains for consumers who prefl white bread, manufacturers use an albino variety of wheat called *white wheat.'* Whole-grain products made from white wheat provide the nutrients erg: fiber of a whole grain with a light color and natural sweetness. Read labels carefully—white bread is a whole-grain product only if it is made from whole white wheat.

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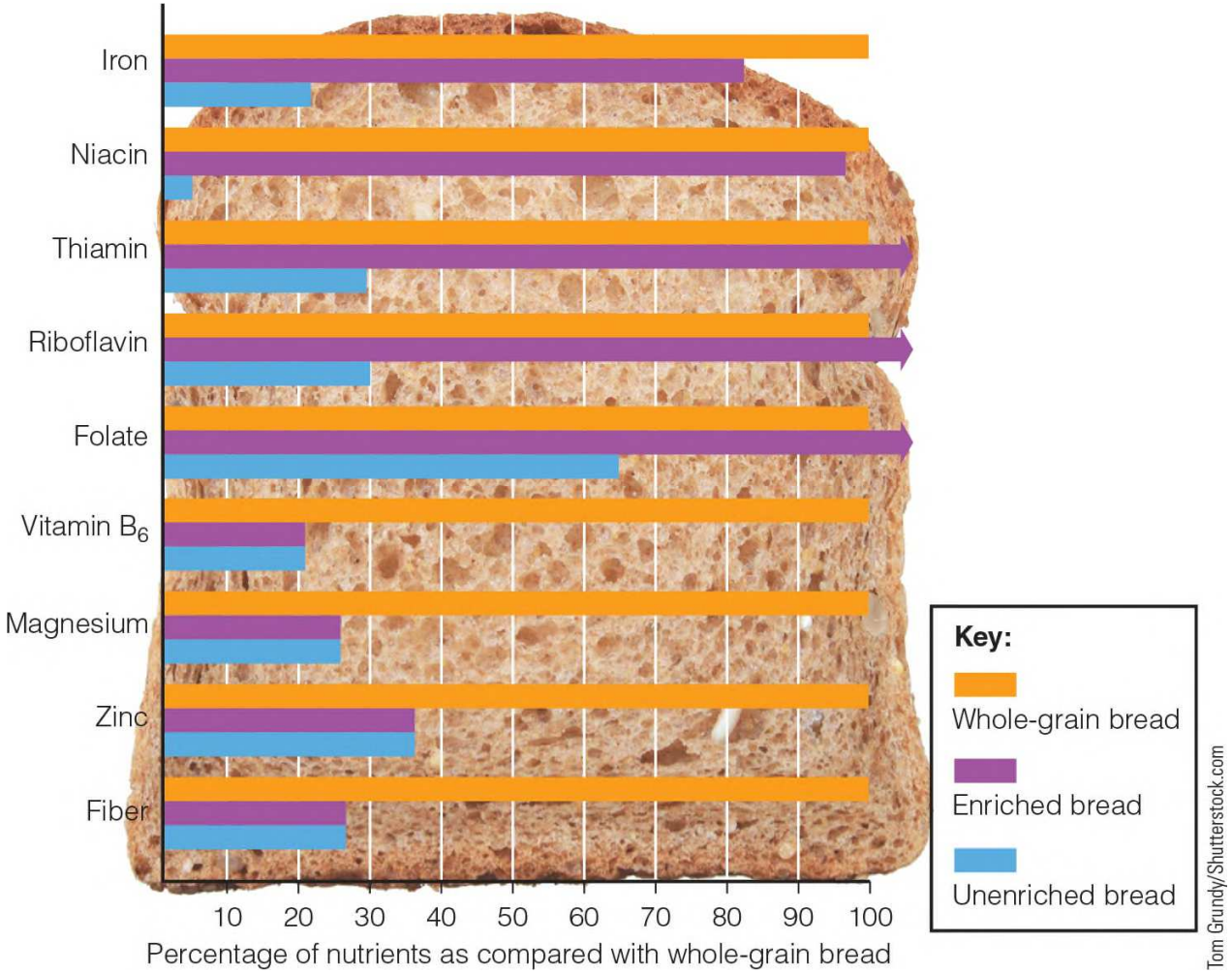
Nutrients in Bread



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Food Labels (1 of 3)

- Reasons for food label use
- Product not required to have food labels
  - Voluntary use of labels
- Restaurant food labeling
  - Portion sizes usually larger than serving sizes

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Food Labels (2 of 3)

Serving size and number of servings per container

kCalories per serving and kcalories from fat

Nutrient quantities per serving listed in actual amounts and in % Daily Values based on 2000-kcalorie diet

Nutrients required for Daily Values

Daily Values reminder for selected nutrients for a 2000- and a 2500-kcalorie diet

Original Label

Nutrition Facts

Serving Size 2/3 cup (55g)
Servings Per Container About 8

Amount Per Serving	
Calories 230	Calories from Fat 40
	% Daily Value*
Total Fat 8g	**12%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**12%**
Dietary Fiber 4g	**16%**
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs,

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300mg	375mg
Dietary Fiber		25g	30g

Proposed Label

Nutrition Facts

8 servings per container

Serving size 2/3 cup (55g)

Amount Per 2/3 cup

Calories 230

% DV*	
12%	**Total Fat** 8g
5%	Saturated Fat 1g
	Trans Fat 0g
0%	**Cholesterol** 0mg
7%	**Sodium** 160mg
12%	**Total Carbs** 37g
14%	Dietary Fiber 4g
	Sugars 1g
	Added Sugars 0g
	Protein 3g
10%	**Vitamin D** 2mcg
20%	**Calcium** 260mg
45%	**Iron** 8mg
5%	**Potassium** 235mg

* Footnote to help consumers understand the %DV will be inserted here.

Servings per container in large, bold type; serving sizes revised to reflect actual portion sizes

Serving size lists amount per quantity, not per serving; kcalories in large, bold type; kcalories from fat not listed

Daily Values revised and reformatted to list % DV first

Separate listing for added sugars

Nutrients required for Daily Values revised to reflect nutrients of concern

Footnote explains how to use Daily Values

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Food Labels (3 of 3)

a) Match these
b) Descending order by weight
c) Percentages on the food label
d) Vitamin D, calcium, iron, and potassium must appear on the proposed new labels
e) Total fat, saturated fat, cholesterol, sodium, carbohydrates, and dietary fiber appear on the food label
f) Eg: 3 cookies

With these

a) Daily value
b) Ingredient list
c) Percent daily value
d) Serving sizes
e) Percent daily value and grams

- Answer:
- A → B B → A
- C → A D → E
- E → D

- Explanation:
- **Serving sizes** need careful examination, consumers should compare the serving size to the amount they actually eat.
- **Daily values** are ballpark estimates based on 2000 kcal/day (needs vary based on age, physical activity, and other factors.)

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Daily Values for Food Labels

TABLE 2-8 Daily Values for Food Labels

Food labels must present the "% Daily Value" for these nutrients.

Nutrient	Original Daily Values	Proposed Daily Values
Fat (total)	65 g	65 g
Saturated fat	20 g	20 g
Cholesterol	300 mg	300 mg
Sodium	2400 mg	2300 mg
Carbohydrate (total)	300 g	300 g
Fiber	25g	28g
Vitamin D	10 pg	20 pg
Calcium	1000 mg	1300 mg
Iron	18 mg	18 mg
Potassium	3500 mg	4700 mg

NOTE: Daily Values were established for adults and children aged 4 years and older and are based on an energy intake of 2000 kcalories a day. The original label includes vitamins A and C, but the proposed labels do not.

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Front of Package Labels

- Simpler than the Food Labels
- Printed on front of package

Created by Grocery Manufacturers Association and the Food Marketing Institute

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Claims on Labels (1 of 3)

Nutrient claims characterize the level of a nutrient in the food—for example, "fat free" or "less sodium."

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Claims on Labels (2 of 3)

Health claims characterize the relationship of a food or food component to a disease or health-related condition—for example, "soluble fiber from oatmeal daily in a diet low in saturated fat and cholesterol may reduce the risk of heart disease" or "a diet low in total fat may reduce the risk of some cancers."

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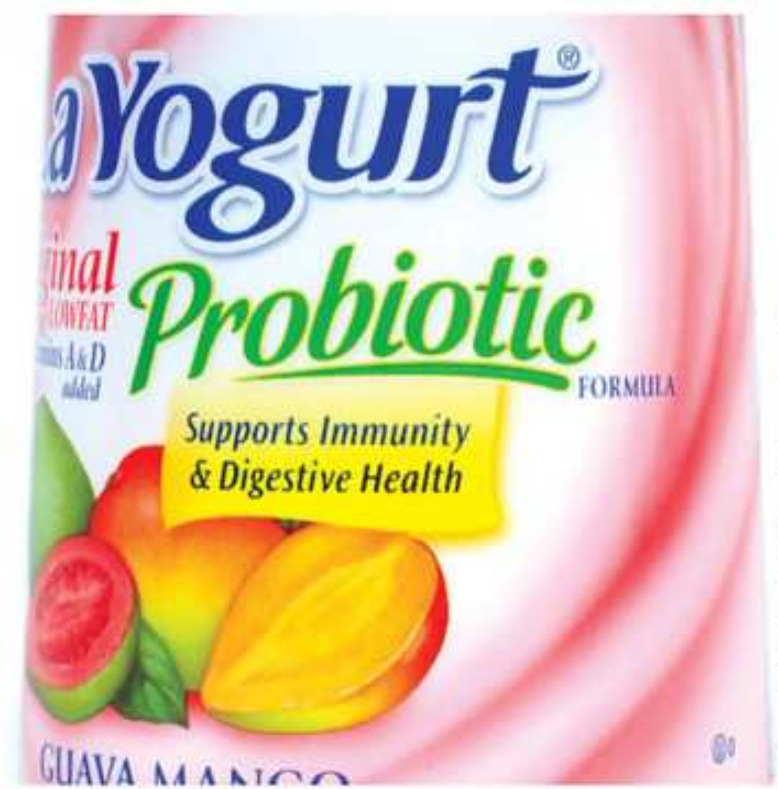
Claims on Labels (3 of 3)



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Structure/function claims describe the effect that a substance has on the structure or function of the body and do not make reference to a disease—for example, "supports immunity and digestive health" or "calcium builds strong bones."

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Consumer Education

- Coordination of USDA Food Patterns, Dietary Guidelines, and food labels
  - See Table 2-9 on following slides

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Balancing kCalories to Maintain Weight

TABLE 2-9 From Guidelines to Groceries

Dietary Guidelines	USDA Food Patterns/MyPlate	Food Labels
Choose a healthy eating pattern at an appropriate kcalorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.	Enjoy your food, but eat less. Select the recommended amounts from each food group at the energy level appropriate for your energy needs; meet, but do not exceed, energy needs. Limit foods and beverages with solid fats and added sugars. Use appropriate portion sizes; avoid oversized portions. Increase physical activity and reduce time spent in sedentary behaviors.	Read the Nutrition Facts to see how many kcalories are in a serving and the number of servings that are in a package. Look for foods that describe their kcalorie contents as free, low, reduced, light, or less.

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Foods to Reduce

TABLE 2-9 From Guidelines to Groceries

Dietary Guidelines	USDA Food Patterns/MyPlate	Food Labels
Adopt an eating pattern low in added sugars, saturated fats, and sodium.	Choose foods within each group that are low in salt or sodium. Choose foods within each group that are lean, low fat, or fat free and have little solid fat (sources of saturated and trans fats); use unsaturated oils instead of solid fats whenever possible. Choose foods and beverages within each group that have little added sugars; drink water instead of sugary beverages. If alcohol is consumed by adults, use in moderation (no more than one drink a day for women and two drinks a day for men).	Read the Nutrition Facts to see how much sodium, saturated fat, trans fat, and cholesterol is in a serving of food. Look for foods that describe their salt and sodium contents as free, low, or reduced; foods that describe their saturated fat, trans fat, and cholesterol contents as free, less, low, light, reduced, lean, or extra lean; foods that describe their added sugar contents as free or reduced. Look for foods that provide no more than 5 percent of the Daily Value for sodium, saturated fat, and cholesterol. A food may be high in solid fats if its ingredients list begins with or contains several of the following: beef fat (tallow, suet), butter, chicken fat, coconut oil, cream, hydrogenated oils, palm kernel oil, palm oil, partially hydrogenated oils, pork fat (lard), shortening, or stick margarine. A food most likely contains trans fats if its ingredients list includes: partially hydrogenated oils. A food may be high in added sugars if its ingredients list begins with or contains several of the following: brown sugar, confectioner's powdered sugar, corn syrup, dextrin, fructose, high-fructose corn syrup, honey, invert sugar, lactose, malt syrup, maltose, molasses, nectars, sucrose, sugar, or syrup. Light beverages contain fewer kcalories and less alcohol than regular versions.

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Foods to Increase

TABLE 2-9 From Guidelines to Groceries

Dietary Guidelines	USDA Food Patterns/MyPlate	Food Labels
To meet nutrient needs within kcalorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.	Make half your plate fruits and vegetables. Choose a variety of vegetables from all five subgroups (dark green, red and orange, legumes, starchy vegetables, and other vegetables) several times a week. Choose a variety of fruits; consume whole or cut-up fruits more often than fruit juice. Choose potassium-rich foods such as fruits and vegetables often. Choose fiber-rich fruits, vegetables, and whole grains often. Choose whole grains; make at least half of the grain selections whole grains by replacing refined grains with whole grains whenever possible. Choose fat-free or low-fat milk and milk products. Choose a variety of protein foods; increase the amount and variety of seafood by choosing seafood in place of some meat and poultry.	Look for foods that describe their fiber, calcium, potassium, iron, and vitamin D contents as *good, high,* or *excellent.* Look for foods that provide at least 10 percent of the Daily Value for fiber, calcium, potassium, iron, and vitamin D from a variety of sources. A food may be a good source of whole grains if its ingredients list begins with or contains several of the following: *barley, brown rice, buckwheat, bulgur, corn, millet, oatmeal, popcorn, quinoa, rolled oats, rye, sorghum, triticale, whole wheat,* or *wild rice.*

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Building Healthy Eating Patterns

TABLE 2-9 From Guidelines to Groceries

Dietary Guidelines	USDA Food Patterns/MyPlate	Food Labels
Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices.	Select nutrient-dense foods and beverages within and among the food groups. Keep foods safe.	Look for foods that describe their vitamin, mineral, or fiber contents as a *good source* or *high.* Follow the *safe handling instructions* on packages of meat and other safety instructions, such as *keep refrigerated,* on packages of perishable foods.

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Vegetarian Diets
Highlight 2

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Vegetarian Diets

- Dietary choices fall along a continuum
  - No foods of animal origin to few restrictions
- Part-time vegetarians or flexitarians
  - Choose small amounts of meat
- Motivations for choosing vegetarian diets
- Vegetarian classifications
  - Foods excluded from diet

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Health Benefits of Vegetarian Diets (1 of 2)

Vegetarian and vegan diets improve health:

a) Always
b) Never
c) When carefully planned

Answer:
C

Explanation:
Careful planning for any diet is essential to ensure nutrient requirements are met.

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Health Benefits of Vegetarian Diets (2 of 2)

- Vegetarian lifestyle factors
  - Obesity
    - Lower and healthier body weight
  - Diabetes
  - Hypertension
  - Heart disease
    - Plant-based diets and tofu
  - Cancer
  - Other diseases

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Tasks and Tools

- Task
  - Use variety of foods within an energy allowance to maintain a healthy body weight
- Tools
  - USDA Food Patterns
  - MyPlate
- Nutrient intakes
- Vegan diets exclude milk, milk products, and eggs

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Vegetarian Diet Planning

- Protein
  - Sources
  - Requirements
  - Meat replacements
- Iron
  - RDA is higher
  - Absorption
- Zinc
- Calcium
  - Food choices
- Vitamin B_{12}
  - Only in animal-derived foods
- Vitamin D
- Omega-3 fatty acids

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Good Vegetarian Sources of Key Nutrients

TABLE H2-1 USDA Food Patterns: Healthy Vegetarian Eating Pattern

The table first lists recommended amounts from each food group per *day* and then shows the amounts for vegetables and protein foods dispersed among subgroups per *week.* The highlighted rows indicate which food groups and serving sizes differ from the Healthy US-Style Eating Pattern (Table 2-3 on p. 43 and Table 2-4 on p. 46).

Recommended Daily Amounts from Each Food Group

Food Group	1600 kcal	1800 kcal	2000 kcal	2200 kcal	2400 kcal	2600 kcal	2800 kcal	3000 kcal
Fruits	1 1/2 c	11/2 c	2c	2c	2c	2c	2 1/2 c	2 1/2c
Vegetables	2c	21/2 c	21/2 c	3c	3c	3 1/2 c	3 1/2 c	4c
Grains	5 1/2 oz	6 1/2 oz	6 1/2 oz	7 1/2 oz	8 1/2 oz	9 1/2 oz	10 1/2 oz	10 1/2 oz
Protein foods	21/2 oz	3 oz	3 1/2	31/2 oz	4 oz	4 1/2	5 oz	51/2 oz
Milk and milk products	3c	3c	3c	3c	3c	3c	3c	3c
0 i ls	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp	8 tsp	8 tsp	10 tsp
Limit on kcalories available for other usesa	180 kcal	190 kcal	290 kcal	330 kcal	390 kcal	390 kcal	400 kcal	440 kcal

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Healthy Food Choices

- Vegetarian diets
  - Lower risk of mortality from several chronic diseases
- Nutritionally sound choices
- Variety is key to nutritional adequacy
- Macrobiotic diet
  - Way of life, not just a meal plan

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