Understanding Normal and Clinical Nutrition 12th edition Rolfes Solutions Manual

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Chapter 1 An Overview of Nutrition

Assignments and Other Instructional Materials

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

- Case Study: Reducing Disease Risk
- Critical thinking questions with answers
- Worksheet 1-1: Influences on Food Choices[1]
- Worksheet 1-2: Chapter 1 Crossword Puzzle[2]
- Worksheet 1-3: Controlling Factors that Influence Eating (Internet Exercise)[3]
- Worksheet 1-4: Evaluation of Published Nutrition Information
- Worksheet 1-5: Research Project Using the Internet

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

- Answer key for How To (pp. 9, 10, 31) activities
- Classroom activities
- Worksheet answer keys (as appropriate)
- Answer key for MindTap Global Nutrition Watch activity
- Handout 1-1: Using the DRI to Assess the Dietary Intake of a Healthy Individual

Chapter Outline, Summary, and Learning Objectives

LO 1.1 Describe how various factors influence personal food choices.

A person selects certain foods for a variety of reasons. Whatever those reasons may be, food choices influence health. Individual food selections neither make nor break a diet's healthfulness, but the balance of foods selected over time can make an important difference to health. For this reason, people are wise to think "nutrition" when making their food choices.

I. Food choices
   A. Preferences
   B. Habit
   C. Ethnic heritage and regional cuisine
   D. Social interactions
   E. Marketing
   F. Availability, convenience, and economy
   G. Positive and negative associations
   H. H Emotions
   I. Values
   J. Body weight and image
   K. Nutrition

LO 1.2 Name the six major classes of nutrients and identify which are organic, which are inorganic and which yield energy.

Foods provide nutrients—substances that support the growth, maintenance, and repair of the body's tissues. The six classes of nutrients include:

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[1] Worksheet 1-1 and Handouts 1-1, 1-2, 1-3, and 1-4 contributed by Sharon Rady Rolfes.

[2] Contributed by Carrie King.

[3] Contributed by Daryle Wane.

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- Carbohydrates
- Lipids (fats)
- Proteins
- Vitamins
- Minerals
- Water

Foods rich in the energy-yielding nutrients (carbohydrate, fat, and protein) provide the major materials for building the body's tissues and yield energy for the body's use or storage. Energy is measured in kcalories—a measure of heat energy. Vitamins, minerals, and water do not yield energy; instead, they facilitate a variety of activities in the body.

II. The Nutrients Not sure if you want all of the first letters in each word capitalized as they are in the book. I only did this one but will correct if you need me to.
    A. Nutrients in foods and in the body
        1. Nutrient composition of foods
        2. Nutrient composition of the body
        3. Chemical composition of nutrients
        4. Essential nutrients
    B. Energy-yielding nutrients: carbohydrate, fat, and protein
        1. Energy measured in kcalories
        2. Energy from foods
        3. Energy in the body
        4. Other roles of energy-yielding nutrients
    C. The Vitamins
    D. The Minerals
    E. Water

LO 1.3 Explain the scientific method and how scientists use various types of research studies and methods to acquire nutrition information.

Scientists learn about nutrition by conducting experiments that follow the protocol of scientific research. In designing their studies, researchers randomly assign subjects to control and experimental groups, seek large sample sizes, provide placebos, and remain blind to treatments. Their findings must be reviewed and replicated by other scientists before being accepted as valid.

III. The science of nutrition
    A. Conducting research
        1. Controls
        2. Sample size
        3. Placebos
        4. Double blind
    B. Analyzing research findings
        1. Correlations and causes
        2. Cautious conclusions
    C. Publishing research

LO 1.4 Define the four categories of the DRI and explain their purposes.

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The Dietary Reference Intakes (DRI) are a set of nutrient intake values that can be used to plan and evaluate diets for healthy people. The Estimated Average Requirement (EAR) defines the amount of a nutrient that supports a specific function in the body for half of the population. The Recommended Dietary Allowance (RDA) is based on the EAR and establishes a goal for dietary intake that will meet the needs of almost all healthy people. An Adequate Intake (AI) serves a similar purpose when an RDA cannot be determined. The Estimated Energy Requirement (EER) defines the average amount of energy intake needed to maintain energy balance, and the Acceptable Macronutrient Distribution Ranges (AMDR) define the proportions contributed by carbohydrate, fat, and protein to a healthy diet. The Tolerable Upper Intake Level (UL) establishes the highest amount that appears safe for regular consumption.

IV. Dietary Reference Intakes
    A. Establishing nutrient recommendations
        1. Estimated Average Requirement (EAR)
        2. Recommended Dietary Allowance (RDA)
        3. Adequate Intake (AI)
        4. Tolerable Upper Intake Level (UL)
    B. Establishing energy recommendations
        1. Estimated Energy Requirement (EER)
        2. Acceptable Macronutrient Distribution Range (AMDR)
    C. Using nutrient recommendations
    D. Comparing nutrient recommendations

LO 1.5 Explain how the four assessment methods are used to detect energy and nutrient deficiencies and excesses.

People become malnourished when they get too little or too much energy or nutrients. Deficiencies, excesses, and imbalances of nutrients lead to malnutrition diseases. To detect malnutrition in individuals, health care professionals use a combination of four nutrition assessment methods. Reviewing historical information on diet and health may suggest a possible nutrition problem. Laboratory tests may detect a possible nutrition problem in its earliest stages, whereas anthropometric measurements and physical examinations pick up on the problem only after it causes symptoms. National surveys use similar assessment methods to measure people's food consumption and to evaluate the nutrition status of populations.

V. Nutrition assessment
    A. Nutrition assessment of individuals
        1. Historical information
        2. Anthropometric measurements
        3. Physical examinations
        4. Laboratory tests
        5. Iron, for example
    B. Nutrition assessment of populations
        1. National nutrition surveys
        2. National health goals
        3. National trends

LO 1.6 Identify several risk factors and explain their relationships to chronic diseases.

Within the range set by genetics, a person's choice of diet influences long-term health. Diet has no influence on some diseases but is linked closely to others. Personal life choices, such as

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engaging in physical activity and using tobacco or alcohol, also affect health for the better or worse.

VI. Diet and health
    A. Chronic diseases
    B. Risk factors for chronic diseases
        1. Risk factors persist
        2. Risk factors cluster
        3. Risk factors in perspective
        4. Health behaviors in the United States

LO Highlight 1 Recognize misinformation and describe how to identify reliable nutrition information.

Much nutrition information on the Internet and in mass-audience publications is false or distorted, sometimes intentionally. Reliable sources of information include government agencies, dietitians and other health professionals with formal training in clinical nutrition, and nutrition departments at universities.

VII. Nutrition information and misinformation
    A. Nutrition on the Internet
    B. Nutrition in the news
    C. Identifying nutrition experts
        1. Physicians and other health care professionals
        2. Registered dietitian nutritionist (RDN)
        3. Dietetic technician, registered (DTR)
        4. Other dietary employees
    D. Identifying fake credentials
    E. Red flags of nutrition quackery

Case Study 1: Reducing Disease Risk[4]

Maria is a 57-year-old operating room nurse who works full-time at a local hospital. She is 65 inches tall and weighs 160 pounds. She has a family history of diabetes and heart disease and was recently diagnosed with high blood cholesterol. She has declined the cholesterol-lowering medication her doctor prescribed and says she would like to explore other methods for lowering her cholesterol first. For the past few weeks, Maria has been taking a tablespoon of coconut oil every day after reading on the Internet that this will lower her cholesterol. She admits she has little time or energy to exercise. Her diet history reveals she often skips breakfast or has a donut or bagel with cream cheese at work. She drinks several cups of coffee each morning with cream and sugar. Lunch in the hospital cafeteria is a salad with crackers and iced tea with sugar. She occasionally drinks one or two glasses of wine in the evening, especially after a stressful day at work. She lives alone and relies on frozen dinners or other convenience foods in the evening. An analysis of her diet reveals an average daily intake of 200 g carbohydrate, 50 g protein, and 80 g fat.

1. Taking into account her current lifestyle and personal food preferences, what food habits might be difficult for Mary to change?
2. How might her emotions contribute to her food and drink choices?

[4] Contributed by Barbara Quinn.

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3. Using Table 1-2, calculate Maria's average daily kcalorie intake from carbohydrates, protein, and fat. Add these figures together to arrive at her total daily kcaloric intake.
4. What percentage of her daily kcalories is provided by carbohydrates? Protein? Fat?
5. Compare the composition of Maria's diet with the Acceptable Macronutrient Distribution Range (AMDR).
6. How would you use the information above to make dietary recommendations for Maria?
7. What are some credible sources of nutrition information from Table H1-1 that Maria could consult to learn how to lower her blood cholesterol?

Answer Key

1. Skipping breakfast, snacking on donuts at work, use of convenience foods, use of alcohol to calm emotions.
2. Alcohol and foods high in carbohydrates tend to calm emotions in times of stress; caffeine (coffee) may help ease her feelings of tiredness.
3. (200 grams carbohydrates × 4 kcal/g = 800 kcal) + (50 g protein × 4 kcal/g = 200 kcal) + (80 g fat × 9 kcal/g = 720) = 1720 kcal.
4. Carbohydrates: 800/1720 = 46%; protein: 200/1720 = 12%; fat: 720/1720 = 42%.
5. Her diet is adequate in carbohydrates (46% falls within an acceptable range of 45% to 65%), adequate in protein (12% falls within a range of 10 to 35%), and high in fat (42% versus 20 to 35% AMDR).
6. Help her identify the major sources of fat in her diet to decrease or eliminate. Help her find lower-fat alternatives to favorite foods, such as low-fat cream cheese and healthier frozen foods and convenience foods.
7. Answers will vary. May include the American Heart Association, Academy of Nutrition and Dietetics, reputable journals, etc.

Suggested Classroom Activities

A nutrition course should begin on a note of excitement. The best classes involve students and help them to see nutrition's importance to them. Once they are hooked on nutrition because they feel personally involved with it, they will be motivated to learn about nutrition topics.

Classroom Activity 1-1: Students' Burning Questions[5]

Objective: Introduction to nutrition Class size: All sizes
Materials needed: Post-It notes (three per student), 29 sheets construction paper, and tape
Instructions: The first day of class, give each student three "Post-It" notes. On each note, students are to write down a "burning" question they have about nutrition. While they are doing this, tape 29 large pieces of construction paper around the room, each with a title that roughly corresponds to chapters of the text.

When they finish writing their questions, have them categorize their Post-It notes according to the 29 topics by placing their Post-It notes on the piece of construction paper that relates to their question. When they finish, ask them to take turns reading the questions that they have generated. Before the next class, check the categorization of their questions and rearrange the

[5] Activity provided by Caroline Roberts, RD, MPH—Nutrition Education Specialist for California Department of Education and Instructor at Sierra College.

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Post-It notes if necessary. As you begin a new chapter, bring the corresponding piece of construction paper to class, and read the questions aloud.

This activity helps reassure students, early on, that you will (or won't) be covering some of their "burning" questions. It also helps show students the relevance of the information you're covering in class and helps show instructors the interests of the students.

Classroom Activity 1-2: "Find a Person Who" Introduction Activity
Objective: Enhancing emotional classroom environment Class size: All sizes
Materials needed: Copy of form described below (developed by instructor) for each student
Instructions: Students sometimes enjoy classes more when they are acquainted with other students. One way to assist this process is by providing students with a "Find a Person Who" form. Develop a form several columns wide and several rows long that lists a variety of traits in each square such as enjoys cooking, recycles, has a pet, is a nutrition major, etc. Instruct students to walk around the class, introduce themselves to each other, and try to find a person who fits the categories described on the sheet. When they find someone who fits a category, have them write person's first name in that category. The goal is to complete the sheet. You may also suggest that they exchange e-mail addresses or phone numbers and form study groups. This activity works best for small to medium-sized classes.

Classroom Activity 1-3: Brown-Bag Introduction Activity
Objective: Establishing positive classroom environment Class size: Small to medium
Instructions: In the class period preceding this introduction activity, read the following list of categories: a hobby or interest that students enjoy, something that is a favorite (color, book, music, food), future plans or goals, something they would like to do better, a place they'd like to visit, something special about family or friends, the best part of their last vacation, a healthy activity they like to do, and a talent or special ability they have. From this list, students are to select one item that represents each of three categories and bring these three items to class in a small brown bag. They should try to select items that are three-dimensional and unique. During class they will share the contents of their brown bags with the class. This is a good way for students to become acquainted with others. This activity works best with small classes.

Classroom Activity 1-4: Getting Acquainted Activity
Objective: Establishing positive classroom environment Class size: Small to medium
Instructions: This activity allows students to learn more about each other and can provide an environment in which people practice listening skills. Instruct students to pair off with someone that they do not know very well. Give the students 10 to 15 minutes to converse and ask some general questions about each other. Bring the group back together in a large circle with each student sitting next to his or her partner. Ask each student to introduce and speak about his or her new friend. This activity works best for small and medium-sized classes.

Classroom Activity 1-5: "How Is Your Day Going?" Activity
Objective: Enhancing positive classroom environment Class size: Small to medium
Instructor: An instructor who displays sincere caring about students is likely to be effective at gaining student trust. At the beginning of class, tell students you want to find out how they are doing. Instruct students to individually introduce themselves to the class by stating their name, where they are from, and what is your favorite food. The next person repeats the process, sharing information about himself or herself and his or her day, then repeats what the other students shared. This can be a challenging activity, especially in larger classes; therefore, this activity is most appropriate for small classes.

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Classroom Activity 1-6: Who Are You? Introduction Activity
Objective: Establishing rapport Class size: Any
Materials needed: One index card per student
Instructions: Instructors who know their students and can refer to them by name are better equipped to gain trust and be effective in the classroom. Distribute index cards to each student and instruct students to record information about themselves on each card. Write on the board the information you are interested in obtaining. Some suggestions include name, address, phone, e-mail address, major, year in college, home town, employment, professional goals, hobbies, what they hope to learn from the class, reason for taking the class, and something interesting and/or unique about themselves. After students have recorded this information, you may ask them to introduce themselves to the class or you may simply collect the cards to help you learn more about your students. Instructors may want to use the cards to learn students' names.

Classroom/Online Activity 1-7: Chapter Opening Quiz[6]
Objective: Introducing new material Class size: Any
Instructions: As a way of introducing any new chapter, give a "quiz" to the class. The students will moan initially, but they will enjoy the activity once you get underway and they realize that it is considered a class and does not count toward their grade. The "quiz" asks 10 true/false or multiple-choice questions projected on a PowerPoint slide or transparency. The students are not allowed to talk during the quiz and must show their choice of answer by raising hands. Note the answer chosen by the majority of hands; then go over the correct answers (their curiosity is We don't need both.is a lot to learn.

This "pretest" is valuable because it creates interest in the subject matter, challenges students' erroneously-held beliefs, and introduces new terms and concepts. It is valuable to instructors in assessing the level of knowledge and attitudes in the subject area and identifying the needs and the focus for the unit.

Online Activity 1-8: Using FAQs for Class Information[7]
Objective: Disseminating class information Class size: Any/Online
Instructions: Use the Discussion section of the Learning Management System to develop an activity that allows students to seek the answers to commonly asked course questions. This activity should also provide an opportunity for students to ask course-related questions. As many people know, it is worthwhile to examine a Frequently Asked Questions page. The questions asked and answered are the type of questions a student may have about the class but may not have thought about until reading them. These questions should be designed carefully based on questions that are often received so that they will be of high interest to students. These could be the top 10 questions for surviving the nutrition class. A sample question is "What is the best way for a student to learn nutrition well enough to ace this course?" If you can cover questions that students really have about the course, you'll be showing them early on that you understand their concerns and can also provide some good advice. Remember that no question is a stupid question; therefore, it may also help to allow students the freedom to ask questions.

[6] Activity provided by Lin Brown, Shasta College, Redding, CA.

[7] Activity provided by Dr. Neil Allison, University of Arkansas.

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Classroom/Online Activity 1-9: Exploration of "ChooseMyPlate.gov" Website[8]

Key concepts: MyPlate diet planning tools, Internet skills Class size: Any

Objective: The purpose of this assignment is to help students become familiar with the resources available on the MyPlate website provided by the U.S. Department of Agriculture (USDA). Since the majority of people have computer access 24/7, this activity will help the student to see what is available to both the health professional and health consumers on a daily basis.

Classroom Instructions:

1. Divide the students in the class into five equal groups. This can be accomplished either through a lottery ticket mechanism or use of a student roster list.
2. Secure online access and have each of the student groups go to the USDA MyPlate website.
3. Assign each group to one of the following areas: (1) Audience: Children, (2SearchMyPlate Tip Sheet, (3) Popular Topics, (4) Choose a food group to explore and (5) Eat Healthy
4. For each group assignment, have the student group enter the assigned area and supply the following information:
    a. Describe the content area of the link.
    b. Identify the resources available from the link.
    c. Describe the steps required to get to all the information and the length of time involved in accessing the information.
5. If the class is Web-enhanced, post a MyPlate discussion board to the course site. Have the student groups post their critical appraisal of each of the assigned links prior to coming to the next class session. If the course is not Web-enhanced, then have the groups do a write-up of the assignment.
6. At the next class session, review the information posted on the Web or, in the case of the course not being Web-enhanced, have the groups bring their written information to class and discuss the groups' findings in terms of these criteria:
    a. Was the information easy to access? (Yes or no)
    b. If the information was not easy to access for you as a "college student," then how do you think that others who have less experience with either the subject matter or computer competency would be able to access the information?
    c. Do you think that the information was representative across cultural lines?
    d. Overall, who do you think would be most likely to benefit from the information on this website?

Online Instructions:

1. Require students to access the USDA MyPlate website.
2. Assign students based on last name to groups labeled 1-5: (1) Audience: Children, (2) Search MyPlate Tip Sheet, (3) Popular Topics, (4) Choose a food group to explore (5) Eat Healthy
3. Have the students enter the assigned area and supply the following information:
    a. Describe the content area of the link.
    b. Identify the resources available from the link.

[8] Contributed by Daryle Wane.

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c. Describe the steps required to get to all the information and the length of time involved in accessing the information.
d. Was the information easy to access? (Yes or no)
e. If the information was not easy to access for you as a "college student," then how do you think that others who have less experience with either the subject matter or computer competency would be able to access the information?
f. Do you think that the information was representative across cultural lines?
g. Overall, who do you think would be most likely to benefit from the information on this website?

4. Post a MyPlate discussion board to the course site. Have the student post their critical appraisal of each of the assigned links and provide comments for one of each of the other four topics.

Classroom/Online Activity 1-10: Using the Internet as a Research Tool
Key concept: Research process Class size: Any
Instructions: The Internet can be used as a valuable research tool in nutrition. The student can become familiar with the diversity of Internet resources and can learn to participate in online discussions about nutrition topics in class-based and listserv groups. Worksheet 1-5 provides assignments to help students acquire Internet skills.

How To "Try It" Activities Answer Key

How to Think Metric 1-1, page 9
The student should divide his or her body weight in pounds by 2.2 to determine weight in kilograms and multiply his or her height in inches by 2.54 to determine height in centimeters. For example, a student who weighs 115 pounds and is 5 ft 6 in. tall would convert this to 115/2.2=52.27 kg and 66x2.54=167.64 cm.

How to Calculate the Energy Available from Foods 1-2, page 10
The bean/cheese burrito would provide 388 kcalories and 56.7% of kcalories from carbohydrate, 15.5% from protein, and 27.8% from fat.

How to Determine Whether a Website Is Reliable H1-1, page 29
The student should provide a URL for the website chosen and then describe the group or individual that created the site, name the date it was most recently updated, discuss sources for the information presented, speculate on the motivation for presenting this information, and evaluate the overall message of the site.

Critical Thinking Questions[9]

1. Take a moment to reflect on the factors that influence your personal food choices following reading Chapter 1 in the textbook. Which factors most influence your daily food choices? Which factors least influence your daily food choices? Based on your understanding of the stated food choice factors in this textbook, provide evidence that identifies potential advantages and disadvantages for each food selection factor.

[9] Contributed by Daryle Wane.

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2. Discuss the differences between an essential and a nonessential nutrient in terms of dietary consumption. Can the body survive without the provision of essential and nonessential nutrients? If an individual utilizes basic diet-planning principles, can he or she be sure that he or she will be able to obtain all the necessary essential nutrients? Why or why not?
3. Identify and briefly analyze the research design, sample size, correlations, and findings for the simulated abstract below.

   Abstract: Researchers proposed a hypothesis that ingestion of foods high in phytochemicals would decrease the likelihood that individuals would develop chronic heart disease. Researchers initially interviewed a group of adults (68 females and 72 males), all living in the town of Main Street, USA, between the ages of 21 and 75, noting their food consumption patterns. Of those interviewed, 100 adults (65 females and 35 males) were included in the final data analysis because they met the inclusion criteria for the research design. Participants were then asked to record a food diary over a 3-day period. Following that activity, participants were interviewed again and their food diaries analyzed.

   Initial research findings were that females were more likely to provide a detailed food diary than males. Findings also reflected that individuals who already consumed foods that are high in phytochemicals were more likely to believe that these foods provided increased health benefits. Regardless of sex, both groups stated they believed that foods high in phytochemicals were beneficial in preventing disease. These are just the first reported results of this study, as there will be planned follow-up interviews with participants over a period of 5 years.
4. Nutrition assessment includes several component parts so that a comprehensive analysis of an individual's nutrition status can be conducted. Discuss how each factor contributes to the overall determination of health and well-being.
5. Attention has long been focused on the American diet. National nutrition surveys report increased consumption of food in general, including increased portion sizes and frequent eating occasions. Reports indicate that consumers are making poor food choices. How can you as an individual food consumer make a difference in helping to slow or reverse these national trends? Provide supportive evidence to explain your point of view.
6. Research clearly demonstrates that there is a correlation between risk factors and the development of certain chronic diseases such as heart disease and diabetes. How can one modify potential risk factors to prevent the development of these chronic diseases? Consider your own potential risk factors. What methods could you utilize to improve your health outcomes?

Answer Key

1. Students' answers to the first part of this reflective question will vary, but this process will lead to enhanced discussion of the variable impact of personal food choice factors. Students will be able to share their own aspects of preference and choice, leading to the realization that individual choice is based on personal factors.

   In the textbook, the following factors are listed as influencing personal food choices: preferences; habit; ethnic heritage and regional cuisine; social interactions; availability, convenience, and economy; positive and negative associations; emotions; values; body weight and image; and nutrition and health benefits.

   Potential advantages for **preference** are mediated by individual selections and depend on whether an individual likes or dislikes a certain food. The taste of a food is perhaps the most

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recognized attribute of preference. If it tastes good, then individuals will eat it. One's preference for the taste of certain foods may also be affected by one's genetic inheritance. How one perceives taste can be mediated through other underlying factors, such as one's baseline physiological status. Thus, this factor might pose disadvantages for individuals with conditions that would influence the taste of food. For example, the body's hormones can cause different perceptions of the taste of food as during pregnancy. Additionally, medications can alter taste perception, thus affecting one's potential food intake.

Habit can also have advantages and disadvantages related to personal food choice. An aspect of habit is food selection patterns related to time of day—that is, foods associated with breakfast, lunch, or dinner. When one goes out in the morning for a meal, he or she is more likely to choose breakfast food items such as scrambled eggs rather than opting for a lobster. Habit can be viewed as a disadvantage if the food choice becomes a routine task. If an individual eats only bacon or sausage each morning, then the food choice may lead to poor health outcomes, as his or her cholesterol levels may increase owing to routine daily consumption.

Ethnic heritage and regional cuisine affecting food choices can have both advantages and disadvantages. They may be viewed as an advantage in that they form a strong foundation for food choices influenced by family demographics and environment. Thus, they allow for the progression of cultural diversity over the life cycle. However, ethnic heritage and regional cuisine food choices may lead to the development of potential health problems that may also be exhibited over the life cycle. Preference for high-sodium foods over time, for example, may eventually lead to health problems.

Social interactions play a large part in influencing personal food choice. The advantage of social interaction is that it allows for increased communication between individuals. Eating foods together with family and/or friends opens a dialogue and sharing of thoughts and ideas. The disadvantage of food intake in the context of social interactions may become evident if the food/drink consumption activity becomes a fixed behavioral pattern. For example, meeting someone for a drink after work at the end of the work week is seen as a method to unwind from the stress of the week's activities. However, meeting someone for a drink after work at the end of each workday may potentially lead to overconsumption.

Marketing has a major influence of our food choices by competing for our dollars, trying to get us to eat more, and more often.

Availability, convenience, and economy are significant factors that can influence personal food choice. In terms of advantages, if a food choice is readily available, convenient to prepare, and inexpensive, the food choice is typically viewed as desirable. And yet these variables may also be associated with disadvantages. Foods that are typically available and easily prepared may represent unhealthy food choices, such as highly processed or fast foods. The economic disadvantage is that certain foods and/or food types may be marketed as being of economic value yet are highly processed. The "dollar menu" of a restaurant may not always reflect the healthiest food choice. Additionally, healthier foods may be associated with higher food costs depending on whether the food is readily available.

The factor of **positive and negative associations** may represent both advantages and disadvantages depending on with what one links aspects of food consumption. One can form both positive and negative associations with food items based on personal experience. These linked food experiences typically stay with an individual over a lifetime, influencing her or his ability to consume food. If they are happy or positive associations, the foods are viewed as being beneficial. If they are sad or negative associations, the foods are viewed as

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being suspect or dangerous. These linked food associations help to form the basis of preferences.

Emotions provide the subtext of many life experiences. In the case of food consumption, emotions may influence how food is perceived. Depending on one's emotional state, food may become a focus or extension of behavior. Food may be viewed as a stimulus for a certain response, either providing comfort or distress. Certain psychological influences may mediate food consumption, leading to altered eating patterns.

How one perceives **value** in food may be associated with religious, political, and/or environmental concerns. These associations may be viewed positively if they help define a person's cultural/religious beliefs, providing comfort and spirituality. They may also be viewed as an advantage if they provide a sense of well-being associated with legal social practices and are environmentally friendly. Unfortunately, there can be disadvantages as well if these values are not congruent with societal beliefs and practices.

The idea of **body weight and image** can influence personal food choice practices. If the basis of the food choice is sound, evidenced-based practice, then it would be viewed as an advantage. However, not all body weight and image practices are based on healthful lifestyle behaviors. Dietary patterns may be based on fad practices, which are promoted by extensive marketing. Thus, it is important to research a dietary method or regimen before implementing it.

Nutrition and health benefits form the basis for many personal food choices. Current clinical evidence illustrates a link between healthy food intake and decreased disease risks. Functional foods and/or phytochemicals provide health benefits. The consumption of whole-grain foods in the diet is viewed as beneficial. If people choose foods based on sound clinical evidence, then there is a clear advantage. However, reliance on suspect or fraudulent information sources can result in disadvantageous choices. (See "Food Choices" on pp. 4–6.)

2. Essential nutrients are those that must be brought into the body from outside. They provide basic structural elements and raw materials for energy metabolism. Nonessential nutrients are equally important to the health and well-being of the body, but the body can meet its needs for them through its own physiological mechanisms. The body must have both essential and nonessential nutrients in order to maintain physiological health.

   Even if one uses basic diet planning principles, it may still prove difficult to obtain all of the necessary essential nutrients. Intervening variables such as age, genetics, environment, and baseline health status may affect an individual's ability to handle nutrient sources. Additionally, economics may affect an individual's ability to acquire nutrient sources. Preference may also prove to be an intervening factor, as someone who knows that something is "good" for her or him may still opt not to eat it. (See "The Nutrients" on pp. 6–12.)

3. The above research abstract identifies an epidemiological cohort study, as a group of selected participants will be followed over a 5-year time period. Sample size for data analysis is 100 adults (65 females and 35 males). Initially, 140 adults (68 females and 72 males) were interviewed but out of those participants, only 100 met the inclusion criteria. There was no randomization of the sample size into control or experimental groups. Reported correlations and findings showed no differences in beliefs between sexes related to effectiveness of phytochemicals in preventing the development of chronic heart disease. Females provided more detail in submitted food diaries than their male counterparts. Finally,

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individuals, regardless of sex, who consumed foods high in phytochemicals, were more likely to believe in their health benefits. (See “The Science of Nutrition” on pp. 12–17.)

4. The component parts of a nutrition assessment include historical information, anthropometric measurements, physical examination, and laboratory testing. Each of these component parts helps the health practitioner obtain an understanding of the baseline nutritional health status of the individual. Historical information refers to the collection of subjective data from the individual. It reflects dietary patterns of behavior, health history (details of past medical/surgical history), social/family history, and medications (over-the-counter and prescription) used. Based on the information provided in the history section, the practitioner focuses on the physical examination, including visual inspection, auscultation, and palpation of body parts. Additionally, anthropometric measurements can be taken that will be used in comparison to standardized sex/age charts. Data from the physical assessment and anthropometric measurements will help to provide a baseline for comparison for the individual. Finally, certain lab tests provide baseline measurements of the individual’s nutritional status. Test values will be compared to normal-range values that are age- and sex-specific. The presence of abnormal results will lead to further inquiry, whereas the confirmation of normal results will support a finding of adequate nutritional status. (See “Nutrition Assessment of Individuals” on pp. 22–24.)

5. The burden of dietary choice rests on the individual consumer and yet the selection of food choices is mediated by other variables, such as the activities of corporations and their marketing strategies. Some of the variables affecting this progressive trend are as follows:
    - Many of the increased consumption trends are attributed to eating outside the home.
    - Restaurants have changed the food consumption dynamics by increasing the size of food portions.
    - Consumers are being taught that more is required so that they feel that they are getting their money’s worth.
    - The easier access/availability of certain nutrient-poor foods influences choice in many circumstances.
    - The tempo today is fast-paced. Food consumption often becomes a fast-paced activity (snacking) as opposed to healthy meal consumption.

    Individual consumers can help to make a difference by reading food labels and increasing their knowledge base to make healthy, informed choices. They can pressure food corporations and markets to produce healthy food choices rather than highly processed, nutrient-poor, energy-dense foods. Individual consumers can establish healthy eating behaviors and slow down mealtimes. They can go back to previous dietary behaviors regarding snacks, eating one or two a day as opposed to increased snack consumption throughout the day.

    Answers will vary slightly based on the individual’s ability to recognize patterns of consumption. Students can provide supportive evidence by submitting website articles related to this issue as well as journal articles addressing increased dietary intake patterns. (See “Nutrition Assessment of Populations” on pp. 23–24.)

6. Risk factors that are classified as modifiable can be potentially altered to decrease one’s risk of developing chronic disease. Health behaviors that are associated with increased risk such as smoking, frequency of drinking alcohol, and sedentary lifestyle can be minimized. Decisional intervention related to stopping smoking, drinking less alcohol, and limiting intake of high-saturated-fat foods will help to decrease risks of developing chronic diseases. Those factors that are considered nonmodifiable (age, sex, and genetics) still may pose a significant risk toward progression of chronic disease processes over the life cycle. Thus, it

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is important to make reasonable and prudent choices each day so that they can counteract these nonmodifiable factors across one's lifetime.

Evaluation of individual potential risk factors will vary. Methods students may select will also vary depending on their understanding of risk factors and personal life factors. This question will allow for an interactive discussion about the influence of genetics, lifestyle, and personal choice in helping to promote healthy outcomes. (See "Diet and Health" on pp. 25–26.)

Worksheet 1-1: Influences on Food Choices

We decide what to eat, when to eat, and even whether to eat for a variety of reasons. Examine the factors that influence your food choices by keeping a food diary for 24 hours. Record the times and places of meals and snacks, the types and amounts of foods eaten, and a description of your thoughts and feelings when eating. Now examine your food record and consider your choices.

24 HOURS FOOD DIARY					
Meal	Time/ Place	Food Items	How Much	How do you feel while eating?	Do you feel this was a good meal?
Breakfast		Grains Fruits Dairy Protein Fat			
Snack					
Lunch		Grains Fruits Dairy Vegetables Protein Fat			
Snack					
Dinner		Grains Fruits Dairy Vegetables Protein			

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		Fat			
Snack					

1. Which, if any, of your food choices were influenced by emotions (happiness, boredom, or disappointment, for example)?

2. Was social pressure a factor in any food decisions?

3. Which, if any, of your food choices were influenced by marketing strategies or food advertisements?

4. How large a role does availability, convenience, and economy play in your food choices?

5. Does your age, ethnicity, or health influence your food choices?

6. How many times did you eat because you were truly hungry? How often did you think of health and nutrition when making food choices? Were those food choices different from others made during the day?

Compare the choices you made in your 24-hour food diary to the USDA My Plate™ Food Plan Recommendation. To obtain a set of personalized recommendations, you can enter your age, sex, height, weight, and activity level after clicking on " Get Your My Plate Plan" at the https://www.choosemyplate.gov/resources/MyPlatePlan

Food Groups	Suggested Amounts	Amounts Consumed
Grains		
Vegetables		
Fruits		
Dairy		
Protein Foods		

7. Do you eat the suggested amounts from each of the five food groups daily?

8. Do you try to vary your choices within each food group from day to day?

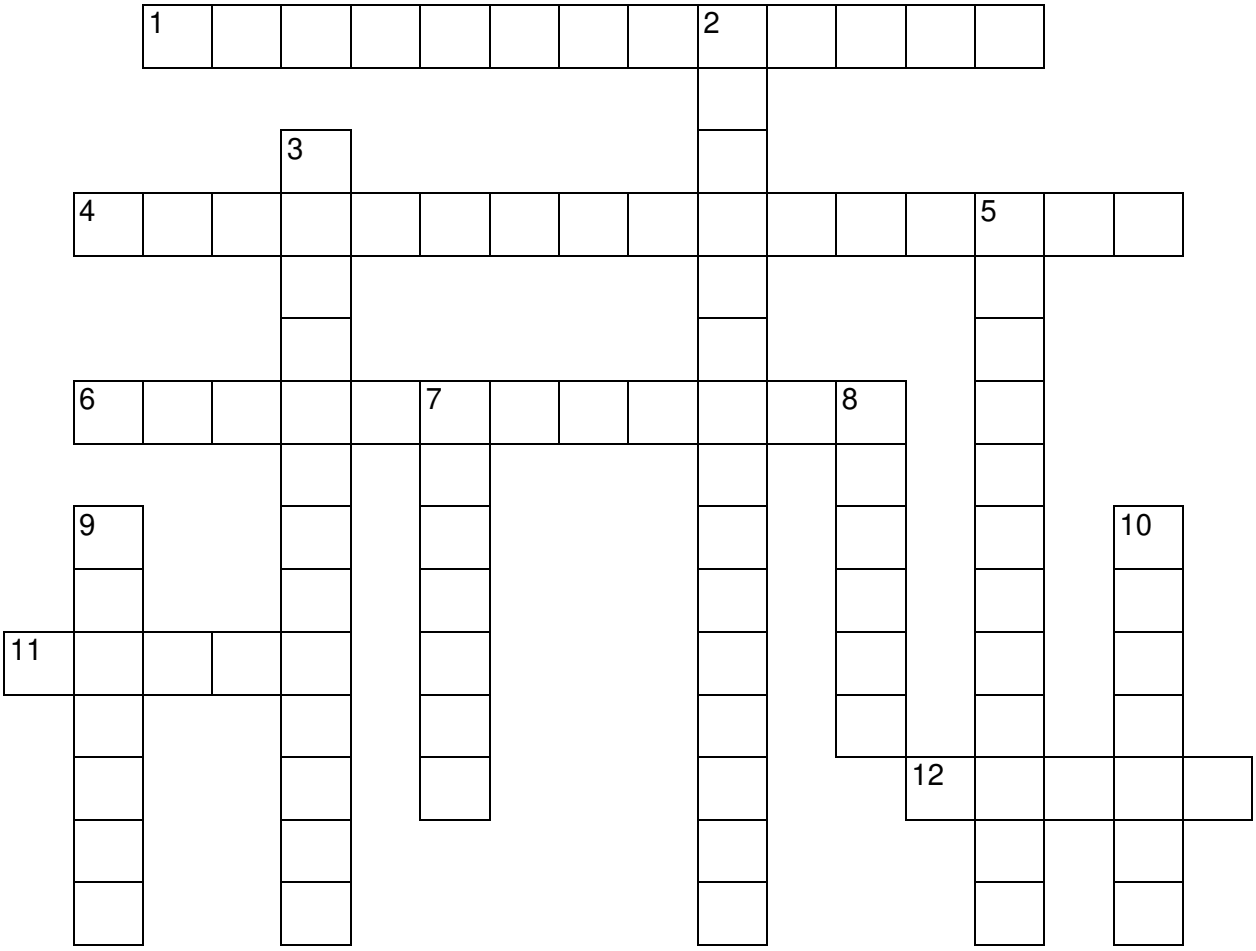
9. What dietary changes could you make to improve your chances of enjoying good health?

Answer Key - Worksheets 1-1, 1-4, and 1-5 – Answers will vary.

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Worksheet 1-2: Chapter 1 Crossword Puzzle



Across	Down
1. Described as the “mind–body effect” 4. Sequential process used to conduct nutrition research 6. Research study group that does not receive a “treatment” 11. Main reason people choose certain foods 12. Primary component in the body’s composition of nutrients	2. Foods that provide benefits in addition to their nutrients 3. National, goal-setting public health initiative 5. Number one leading cause of death in the United States 7. Meaning “alive” and containing carbon 8. Example of trustworthy website 9. Dietary Reference Intakes are recommendations for _____ people. 10. Nutrients that provide energy (kcalories) to the body: carbohydrate, fat, and _____

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Worksheet 1-3: Controlling Factors that Influence Eating (Internet Exercise)

Instructions: Watch the YouTube video Brian Wansink Mindless Eating Interview to answer questions 1 to 6.

1. According to Dr. Wansink, people make about 200 eating-related decisions each day.
   a. True
   b. False

2. His research suggests that you will enjoy your food more if you anticipate that it will taste really good.
   a. True
   b. False

3. An individual's kcalorie intake at a meal is usually not affected by the size of the plate when the individual is allowed to serve himself or herself.
   a. True
   b. False

4. People tend to assume that healthy foods, however they are prepared, are low in kcalories.
   a. True
   b. False

5. Dr. Wansink recommends that people avoid eating foods that have "health halos."
   a. True
   b. False

6. One way to "reengineer" your eating environment is to move sweet treats farther away from where you sit.
   a. True
   b. False

Watch the YouTube video Kitchen Makeover with Dr. Brian Wansink video to answer questions 7 to 11.

7. People eat about 24% less when they are watching television during a meal.
   a. True
   b. False

8. People using smaller plates—for instance, 10 inches in diameter instead of 12.5 inches—eat smaller portions.
   a. True
   b. False

9. Dr. Wansink recommends drinking sugary beverages from short tumblers rather than tall, narrow glasses.
   a. True
   b. False

10. Dr. Wansink suggests that placing foods such as _____ on the eye-level shelves in the front of your refrigerator will help you make healthier food choices.

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a. full-fat milk
b. soft drinks
c. raw carrots
d. bologna

11. Dr. Wansink advises storing less healthy foods where they are out of sight and harder to reach.
    a. True
    b. False

Answer Key - Worksheet 1-3: Controlling Factors that Influence Eating (Internet Exercise)

1. a
2. a
3. b
4. a
5. a (see 3:06 on the video)
6. a
7. b
8. a
9. b
10. c
11. a

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Worksheet 1-4: Evaluation of Published Nutrition Information

Literature Critique: Critical Evaluation of Published Nutrition Information—"Should I Believe What I Just Read?"

Assignment for discussion: Carefully read a journal article and answer the following questions on a separate sheet of paper.

1. Summarize the basic idea of the article in a short paragraph.

2. a. What are the credentials of the author(s)? What do the abbreviations after the name(s) mean? Do they enhance the authors' credibility? Explain.
   b. Is the author affiliated with an organization or institution? Does the affiliation with the organization or institution enhance the authors' credibility? Briefly explain.
   c. Does the periodical have an editorial board? Do the editors' credentials enhance the article's credibility? Where does one look in a periodical for the editorial board?

3. a. Is scientific research being presented or discussed? Is the research current?
   b. If so, what specific kinds of research or data are presented or cited to support the ideas?
   c. Were references listed to allow readers to investigate the information's original source? Were full citations provided?

4. a. What is the underlying hypothesis (if/then, cause/effect, etc.)?
   b. What are the article's conclusions/recommendations?
   c. Are the conclusions or recommendations supported by the research discussion? Explain briefly why or why not.

5. a. Design and describe in depth additional research that could more decisively test the hypothesis identified. Pay particular attention to details and controls.
   b. Indicate what will be measured.
   c. State the type of experimental design and type of experiment.

6. Identify the statements in the article that you believe and those that you do not believe and discuss why or why not for each.

7. What sources other than those listed in the periodical would you refer to if you were to research the article's topic further?

Source: Adapted with permission of Deborah Fleurant, MOE Thesis, University of New Hampshire, 1989 (Thesis Advisor Sam Smith)

Worksheets 1-4 Answers will vary.

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Worksheet 1-5: Research Project Using the Internet

This research project will use the Internet as a research tool. The student will be expected to become familiar with the diversity of Internet resources. The purpose of this project is to develop research skills using the Internet.

1. Access several search engines for locating publications in peer-reviewed journals.
2. Select a topic such as vitamin A, osteoporosis prevention, or obesity among children.

   Topic chosen:

3. Search for articles using key words related to your topic.

   Key words you used:

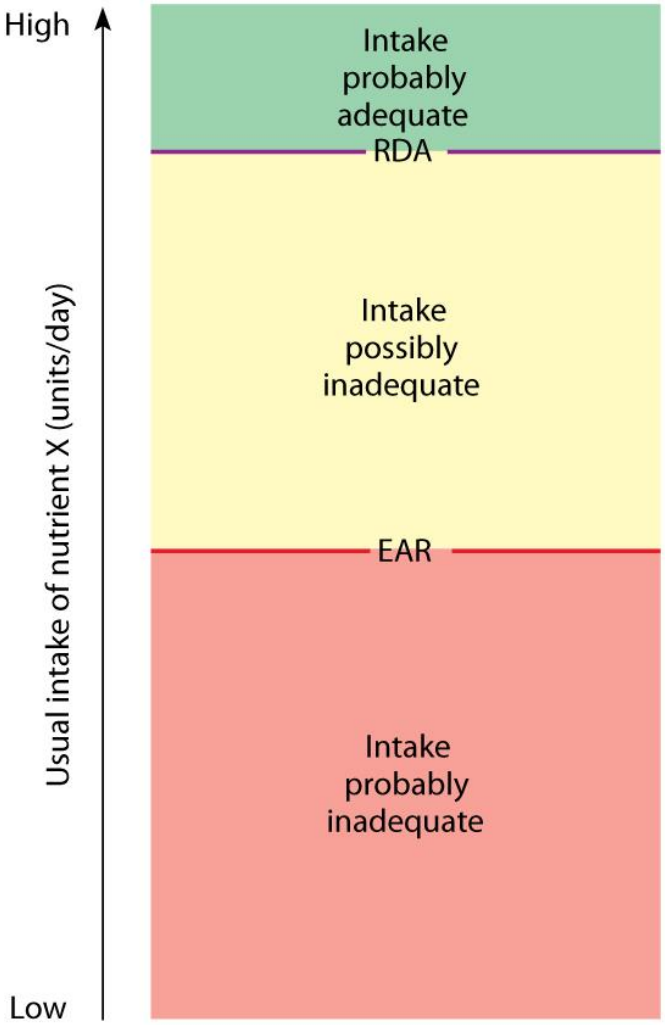
4. Print out the references of articles that you found.
5. Print out abstracts from selected articles that are most interesting.
6. Obtain entire articles for selected articles.
7. Discuss your findings (1 to 2 pages, typed).

Answer Key - Worksheet 1-5 – Answers will vary.

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Handout 1-1: Using the DRI to Assess the Dietary Intake of a Healthy Individual



If a person's usual intake falls above the RDA, the intake is probably adequate because the RDA covers the needs of almost all people.

A usual intake that falls between the RDA and the EAR is more difficult to assess; the intake may be adequate, but the chances are greater or equal that it is inadequate.

If the usual intake falls below the EAR, it is probably inadequate.

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