

UNIT 2

NUTRITION INFORMATION: FACT OR FICTION?

OVERVIEW

Unit 2 focuses on the generation and dissemination of nutrition knowledge. The scientific method is presented as the basis for nutrition research, and different research methods are discussed. Various sources of nutrition information are evaluated, including peer-reviewed scientific journals, popular media, the Internet, and registered dietitian nutritionists. This unit places a strong emphasis on the importance of being a critical and educated consumer of nutrition information.

LEARNING OUTCOMES

Module 2.1

1. Define all of the key terms in this module.
2. List the basic steps of the scientific method as it relates to nutrition research in general.
3. Discuss ways that scientists conduct nutrition-related research that involves human subjects.
4. Explain why results of similar studies can provide different findings.

Module 2.2

1. Define all of the key terms in this module.
2. Explain the difference between an anecdote and a testimonial.
3. Explain why there is so much nutrition misinformation.

Module 2.3

1. Define all of the key terms in this module.
2. Describe how you can become a careful and critical consumer of nutrition information.
3. Identify common “red flags” that are signs of nutrition misinformation.
4. Describe how to identify reliable sources of nutrition information.

Module 2.4

1. Explain how to identify reliable nutrition experts.

HELPFUL TEACHING IDEAS

1. Have small groups of students develop a nutrition-related question that interests them. Ask the students to design a research study involving either humans or lab animals to address the research question. Students should develop a question relating to nutrition, select an appropriate study design, and identify the strengths and limitations of their own study design.

2. Ask students to find a website that offers nutrition information, such as a site that sells dietary supplements. Have students summarize the information, identify the source of the information, evaluate the site for bias, and identify any disclaimers given on the site. Based on this information, ask students to evaluate the reliability of the information presented on the website.
3. Have groups of students develop a 60-second script for a nutrition-related infomercial. The students should serve as actors in the infomercial and record it. Each group of students should present their recording to the class, and ask class members to identify any red flags for nutrition misinformation that are in the infomercial (Section 2.3b).
4. Select one of the *What is That?!* features in Unit 2 to generate class discussion.

UNIT OUTLINE

I. Nutrition: Science for Consumers (Module 2.1)

A. Introduction

1. In the past, nutrition facts and recommended dietary practices were often based on intuition, common sense, “conventional wisdom” (tradition), or **anecdotes**.
 - a. Anecdotes are reports of personal experiences.
2. Today, much of the nutrition information that’s promoted by popular sources isn’t supported by the results of current scientific research.

B. Collecting science-based evidence

1. The scientific method is generally used by researchers to answer questions about natural and physical observations.
2. An **experiment** is a way of testing a scientific question.
3. The scientific method is illustrated in the **E.C.2.1**(Applying the Scientific Method). The usual steps of the scientific method are:
 - a. Make observations
 - b. Develop a question
 - c. Test the question
 - d. Collect information
 - e. Analyze the findings
 - f. Form conclusions
 - g. Share the results
 - h. Conduct more research
4. To share their results, researchers usually submit an article that describes their study and its findings to the editor of a scientific or medical journal. Editors of well-respected journals have the article undergo **peer review**—expert critical analysis of a research article—before it’s published.

5. Researchers must be careful when applying the results of laboratory experiments involving animals to people.
 6. Nutrition scientists may conduct experimental (intervention) studies using humans to obtain information about health conditions (outcomes) that can result from specific dietary practices.
 - a. In a **double-blind study**, the researchers and subjects don't know which participants are assigned to the **treatment group** and **control group**.
 - b. In a **single-blind study**, the participant isn't aware of which group he or she is in, but the researcher is aware of each participant's group assignment.
 - c. The **treatment group** receives a treatment; the **control group** doesn't receive a treatment.
 - d. Subjects in the control group typically receive a **placebo** or fake treatment, such as a sham pill, injection, or medical procedure. A placebo appears to be the same as the actual treatment but it has no known effects.
 7. The **placebo effect** is when a subject reports a positive or negative reaction to a treatment even though he or she received the placebo.
 - a. Population studies—scientists may collect information about a specific population's health and food-related practices by asking questions (surveys).
 - i. In the Framingham Heart Study (begun in 1949), scientists analyzed the information collected from a large population over a period of several years. Researchers found relationships among a variety of personal characteristics, such as lifestyle practices and health outcomes.
 - ii. Medical researchers are still collecting information from the original Framingham Heart Study participants as well as their descendants.
- C. Confusion and conflict
1. Consumers often become confused and disappointed when they learn about conflicting results of nutrition-related studies reported in popular media.
 - a. Situational, genetic, behavioral, and environmental differences among individuals account for much of the variation in the ways they respond to a treatment, which often explains why results vary.
 2. Scientists expect other researchers to avoid relying on their personal attitudes and biases ("points of view") when collecting and analyzing data and to evaluate and report their results objectively and honestly. Funding sources may influence the kinds of studies that scientists conduct.
 - a. It is impossible to eliminate all research bias.
 3. Population studies involving people and their eating practices generally cannot establish *cause and effect*—whether a practice is responsible for an outcome.
 - a. When two events occur at the same time, it doesn't mean they are related or that one event is the cause of the other.
 4. Multiple risk factors, including your genetic susceptibility to develop a disease, usually influence the development of a chronic disease.

II. Spreading Nutrition Misinformation (Module 2.2)

- A. Introduction
 - 1. Be careful when seeking nutrition information and advice.
 - 2. What are your sources of information when trying to find nutrition facts?
- B. Anecdotes and testimonials
 - 1. A person can report that a product works for him or her, when he or she experiences an improvement in his or her health.
 - a. This personal source of information is not scientific evidence that the product did anything beneficial.
 - 2. A **testimonial** is a person's endorsement of a product. The person making the statement is usually paid by the product's manufacturer.
 - 3. When your source of nutrition information is a testimonial, advertisement, or an anecdote, you cannot be sure that the information is based on scientific facts and is, therefore, reliable.
- C. A matter of mistrust
 - 1. People's lives have improved as a result of scientific advancements in medicine.
 - 2. Many Americans mistrust the motives of scientists, registered dietitian nutritionists, and other medical professionals.
 - 3. Promoters of nutrition misinformation use this mistrust to sell their products.
 - 4. It is wise to seek information and opinions from medical professionals who have the best scientific training and experience to diagnose and treat health disorders.
- D. Why is there so much nutrition misinformation?
 - 1. To be a careful consumer, you shouldn't assume that all nutrition information presented in the popular media is reliable.
 - 2. The First Amendment to the U.S. Constitution enables promoters of nutrition and health misinformation to make false claims. As a result, consumers are bombarded with nutrition misinformation or false nutrition claims.
 - 3. The **U.S. Food and Drug Administration (FDA)** can regulate nutrition- and health-related claims on product labels, but the agency cannot prevent the spread of health and nutrition misinformation that's published in books or pamphlets or presented in the popular media.

III. **Becoming a More Critical Consumer of Nutrition Information (Module 2.3)**

- A. Introduction
 - 1. The **Federal Trade Commission (FTC)** enforces consumer protection laws and investigates complaints about false or misleading health claims that are used in advertising.
 - 2. According to the FTC, Americans spend billions of dollars annually on fraudulently marketed and unproven health-related products and treatments that are often useless.
 - 3. Skeptical people don't believe the claims without checking into them.
- B. Becoming a more skeptical consumer
 - 1. Don't believe everything you hear or read about nutrition, including nutrition-related products or services.

2. Ask questions about the sources of the information.
 3. Ask questions about the source's motives for promoting the information.
 4. Be wary of claims that the product was "scientifically tested" or "clinically tested at a major university," citations to what appear to be scientific journal articles, scientific sounding terms, and popular sources of nutrition information.
 5. Practicing medicine without the proper training and licensing is **quackery**. Quackery is illegal.
- C. Look for "red flags" of misinformation
1. A red flag is a term or expression that draws your attention.
 - a. Promises of quick and easy health remedies
 - b. Claims that sound too good to be true
 - c. Scare tactics
 - d. Money-back guarantees
 - e. Statements about the superiority of unconventional medicine practices
 - f. Testimonials and anecdotes as evidence of effectiveness
 - g. Information that promotes a product's benefits, while overlooking its risks
 - h. Recommendations based on a single study
 - i. Information concerning nutrients or the human body that's not supported by reliable scientific evidence
 - j. Disclaimers, usually in small or difficult-to-read print
 2. Red flags are often clues or signals of nutrition misinformation in media, advertising, and personal communications.
- D. The Internet
1. The Internet is an abundant source of information about nutrition and the benefits of dietary supplements. Not all of the information is reliable.
 2. A careful consumer of nutrition information:
 - a. Uses multiple sites (especially, .gov agencies)
 - b. Relies primarily on sites that are sponsored by groups or qualified health professionals
 - c. Is skeptical of blogs
 - d. Is wary of websites that promote or sell products for a profit (.com)
 - e. Avoids sites that include disclaimers
 - f. Doesn't trust sites that include attacks on the trustworthiness of the medical or scientific establishment
 - g. Avoids sites that provide online diagnosis and treatments
 - h. Avoids giving personal information at the site
 3. The FTC enforces protection laws and investigates complaints about false or misleading health claims that appear on the Internet.

IV. Seeking Reliable Nutrition Information (Module 2.4)

A. Introduction

1. Finding the answers to questions about food or nutrition can be challenging.
2. Should you ask your friends or coaches?

B. Nutrition experts

1. There are no standard legal definitions for a person who calls himself or herself a nutrition expert, “nutritionist,” or “nutritionalist.”
2. “Doctors” may not be physicians or nutrition scientists. Most physicians don’t have extensive training in nutrition.
 - a. Someone who has a doctorate degree (PhD) in nutrition may not have earned the degree from an accredited university.
 - i. For example, “mail order” degrees in nutrition can be purchased without taking the appropriate courses.
3. You can visit www.quackwatch.org and submit “Ask a Question” e-mail requesting information about a person’s credentials from the organization’s sponsors.
4. Nutrition professors and registered dietitian nutritionists often can be found at a university or college.
 - a. They generally have advanced degrees in human nutrition from accredited universities; they can conduct research or teach nutrition courses or do both.
 - b. A registered dietitian (RD) or a registered dietitian nutritionist (RDN) is a college-trained health-care professional who has extensive knowledge of foods, nutrition, and dietetics.
 - i. Dietetics is the application of food and nutrition information to treat many health conditions.
 - c. The titles “registered dietitian” and “registered dietitian nutritionist” are legally protected.
 - d. Visit the Academy of Nutrition and Dietetics website (www.eatright.org) or the Dietitians of Canada website (www.dieticians.ca).

ANSWERS TO FIGURE QUESTIONS

There are no figure questions in this unit.

RESPONSES TO “CONSIDER THIS...” QUESTIONS

1. Answers will vary but responses should focus on ways to determine the source of the information about the study and its reliability.
2. Answers will vary. If the student took the advice, was it because they trusted the person who recommended the product? Was the product effective? If the student didn’t use the product, was it because he or she was concerned about the supplement’s safety, effectiveness, and, possibly, cost?

3. Answers will vary but should include at least one of the points listed in Section 2.3c.
4. Answers will vary but should include some of the points listed or discussed in Section 2.3b.

STUDENT ASSIGNMENTS

1. Have students choose a dietary supplement, such as a vitamin, herbal, or amino acid product. Have students use reliable websites, such as <https://nccih.nih.gov/health/supplements>, to learn whether there's scientific evidence to support health-related claims for the supplement. Students should also explore whether taking the supplement can have negative side effects. Have students report their findings to the class.
2. Have students visit PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/>) to select, copy, read, and report on a nutrition-related article from a peer-reviewed journal. Students should briefly summarize the research topic, research question(s), methods used to explore the research, results, and potential applications to the field of nutrition.

Answers: Answers to both activities will vary.