

Nutrition Science and Applications, Canadian Edition

Test Bank

Chapter 1: Nutrition: Food for Health

CHAPTER STUDY OBJECTIVES

1.1 Nutrition and the Canadian Diet

- Nutrition is a science that encompasses all the interactions that occur between living organisms and food. Canadians today are eating more fast food, processed foods, and prepared foods and spending less time preparing meals and eating at home than 50 years ago. This is affecting the healthfulness of the diet.
- Many Canadians are not eating foods that meet the recommendations for a healthy diet. This contributes to the incidence of chronic diseases such as diabetes, obesity, and heart disease.

1.2 Food Provides Nutrients

- About 45 nutrients are essential to human life. Nutrients consumed come from those naturally present in foods, those added to fortified foods, and those contained in natural health products, such as vitamin and mineral supplements. In addition to nutrients, food provides phytochemicals and zoochemicals, and nonessential substances, which may provide health benefits. There are six classes of nutrients: carbohydrates, lipids, proteins, water, vitamins, and minerals.
- Food contains nutrients that are needed by the body for growth, maintenance and repair, and reproduction. Carbohydrates, lipids, and proteins are energy-yielding nutrients. The energy they provide to the body is measured in kcalories or kJoules. Carbohydrates, lipids, protein, water, and minerals provide structure to the body, and all nutrient classes help regulate the biochemical reactions of metabolism to maintain homeostasis.
- When energy or one or more nutrients are deficient or excessive in the diet, malnutrition may result. Malnutrition includes both undernutrition and overnutrition. Undernutrition is caused by a deficiency of energy or nutrients. Overnutrition may be caused by a toxic dose of a nutrient or chronic over-consumption of energy or of nutrients that increases the risk of chronic disease. Depending on the cause, the symptoms of malnutrition can occur in the short term or over the course of many weeks, months, or even years.
- The diet you consume can affect your genetic predisposition for developing a variety of chronic diseases.

1.3 Food Choices for a Healthy Diet

- Food choices are affected by food availability, sociocultural influences, personal tastes, emotional factors, and what we think we should eat to stay healthy. No one food choice is good or bad, and no one choice can make a diet healthy or unhealthy—each choice contributes to the diet as a whole.

- A healthy diet includes a variety of nutrient-dense foods from each food group as well as a variety of foods from within each group. It balances energy and nutrient intake with needs and moderates choices to keep intakes of energy, fat, sugar, salt, and alcohol within reason.
- Go to WileyPLUS to view a video clip on the local food movement.

1.4 Understanding Science Helps Us Understand Nutrition

- The science of nutrition uses the scientific method to determine the relationships between food and the nutrient needs and health of the body. The scientific method involves making observations of natural events, formulating hypotheses to explain these events, designing and performing experiments to test the hypotheses, and developing theories that explain the observed phenomena based on the experimental results.
- To be valid, nutrition information should be based on experiments that use quantifiable measurements, the right type and number of experimental subjects, are of appropriate duration, are carefully analyzed using statistical methods, have results that are correctly interpreted, and are of sufficient quality to be published in a peer-reviewed journal.

1.5 Nutrition Research

- The science of nutrition uses many different types of experimental approaches to determine nutrient functions and requirements. Observational studies identify relationships between diet and health. Two types of observational studies are the case control study and the prospective cohort study. Intervention trials can test hypotheses, many developed from the results of observational studies. Laboratory studies use biochemical and molecular methods to study whole organisms or cells.
- Ethical guidelines protect humans and animals involved in research studies, but limit the type of experiments that can be done.
- Pubmed is an internet database that can be used to access abstracts of research papers on nutrition.

1.6 Sorting Out Nutrition Information

- When judging nutrition claims, first consider whether the information makes sense and whether it comes from a reliable source, such as educational institutions, government, and nonprofit organizations. Individual testimonies cannot be trusted because they have not been tested by experimentation.
- If information is based on experimentation, determine if the studies were well designed and accurately interpreted.
- Information that promotes a product or in any other way benefits the person or organization providing it should be viewed with skepticism.
- Accurate information will be supported by more than a single research study.

MULTIPLE CHOICE QUESTIONS

1. The science that studies the interactions between living organisms and food is called
- digestion.
 - metabolism.
 - nutrition.
 - organic chemistry.

Answer: c

Difficulty: Easy

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

2. Chemical substances in foods that provide energy and structure and help regulate the body processes are called
- hormones.
 - nutrients.
 - enzymes.
 - phytochemicals.

Answer: b

Difficulty: Easy

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

3. A processed food is defined as a food that
- has more than five ingredients.
 - requires heating or cooking before it can be eaten.
 - has had preservatives added.
 - has been specifically treated or changed from its natural state.

Answer: d

Difficulty: Medium

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

4. Which of the following statements about the typical Canadian diet is TRUE?
- The intake of meat and alternatives is below the recommended level for most Canadians.
 - The intake of vegetables and fruits is fewer than five servings for about half of adult Canadians.
 - The intake of grains products is above the recommended level for most Canadians, especially those over age 51.
 - The intake of milk and milk alternatives meets recommendations for two-thirds of Canadians over age 30.

Answer: b

Difficulty: Medium

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

5. The Canadian Community Health Survey (CCHS) examines the eating habits of _____ Canadians each year.

- a) 350
- b) 5,000
- c) 35,000
- d) 400,000

Answer: c

Difficulty: Easy

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

6. Processed foods and convenience foods tend to _____ when compared to freshly prepared foods.

- a) provide more kcalories
- b) contain fewer nutrients
- c) be higher in fat, sugar, or salt
- d) All of the above answer choices are correct.

Answer: d

Difficulty: Medium

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

ESSAY QUESTIONS

7. Canadians are replacing more and more home cooked meals with meals from fast food restaurants.

- a) What are the nutritional impacts of this trend?
- b) How does this trend influence disease risk?

Answer:

- a) Larger portions that fast food restaurants serve increase energy intake beyond needs; fast food meals also tend to be higher in fat, sodium, and sugar.
- b) Along with lack of physical activity, fast food increases risk of chronic diseases such as diabetes, obesity, heart disease, and cancer.

Difficulty: Easy

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

8. Describe the typical Canadian diet and explain how it could be improved. Is there anything you would like to change about the way you eat? Why or why not?

Answer: Canadians do not eat enough grain products, milk and milk alternatives, and vegetables and fruits. A high proportion of total daily kcalories comes from snack foods such as high-fat foods, high-sugar foods, and soft drinks. Canadians are consuming more processed foods and convenience foods than 50 years ago. Because these foods tend to provide more kcalories and certain nutrients such as fat, sugar, and sodium, they increase the risk of obesity and chronic diseases. They are also more expensive.

Difficulty: Easy

Learning Objective: Discuss how eating habits have changed over the past 50 years.

Section Reference: 1.1 Nutrition and the Canadian Diet

MULTIPLE CHOICE QUESTIONS

9. A substance in plant foods which cannot be made by the body and is NOT necessary to sustain life, but has healthful benefits is

- a) an herbal supplement.
- b) a phytochemical.
- c) an enzyme.
- d) sodium.

Answer: b

Difficulty: Easy

Learning Objective: Define natural health products.

Section Reference: 1.2 Food Provides Nutrients

10. Nutrients are classified as macronutrients and micronutrients. Which of the following is NOT considered a macronutrient?

- a) carbohydrates
- b) lipids
- c) proteins
- d) vitamins

Answer: d

Difficulty: Easy

Learning Objective: Define the term essential nutrient and list the six classes of nutrients.

Section Reference: 1.2 Food Provides Nutrients

11. Which of the following either cannot be synthesized in the body or cannot be made in

sufficient quantities to meet needs and, therefore, must be provided in the diet?

- a) essential nutrients
- b) zoochemicals
- c) phytochemicals
- d) fortified foods

Answer: a

Difficulty: Easy

Learning Objective: Define the term essential nutrient and list the six classes of nutrients.

Section Reference: 1.2 Food Provides Nutrients

12. Which of the following provides energy but is NOT considered a nutrient?

- a) alcohol
- b) carbohydrate
- c) fat
- d) protein

Answer: a

Difficulty: Easy

Learning Objective: Define the term essential nutrient and list the six classes of nutrients.

Section Reference: 1.2 Food Provides Nutrients

13. The energy provided by carbohydrates, proteins, and lipids- is measured in

- a) kilojoules.
- b) kilocalories.
- c) thermal requirements.
- d) milligrams.

Answer: b

Difficulty: Easy

Learning Objective: Describe the three general functions of nutrients.

Section Reference: 1.2 Food Provides Nutrients

14. Which of the following nutrients is an organic molecule?

- a) fatty acids
- b) iron
- c) water
- d) sodium

Answer: a

Difficulty: Medium

Learning Objective: Define the term essential nutrient and list the six classes of nutrients.

Section Reference: 1.2 Food Provides Nutrients

15. Metabolic processes take place in the body to maintain body temperature, heart rate, and blood sugar relatively constant. This stable state is called

- a) anabolic processes.
- b) catabolic processes.
- c) homeostasis.
- d) metabolism.

Answer: c

Difficulty: Easy

Learning Objective: Describe the three general functions of nutrients.

Section Reference: 1.2 Food Provides Nutrients

16. Which of the following roles do all six classes of nutrients perform?

- a) providing energy
- b) forming structures
- c) regulating body processes
- d) All of the above answer choices are correct.

Answer: c

Difficulty: Hard

Learning Objective: Describe the three general functions of nutrients.

Section Reference: 1.2 Food Provides Nutrients

17. Which of the following conditions does NOT represent a form of malnutrition?

- a) weight loss as a result of increasing physical activity
- b) vitamin A toxicity as a result of excessive intake of vitamin supplements
- c) osteoporosis as a result of inadequate intake of calcium and Vitamin D over an extended period of time
- d) overweight as a result of regular overconsumption of large portions of meat, grains, and dairy foods

Answer: a

Difficulty: Hard

Learning Objective: Define malnutrition.

Section Reference: 1.2 Food Provides Nutrients

18. Undernutrition does NOT include

- a) starvation.
- b) diets high in saturated fat.
- c) deficient intake of individual nutrients.
- d) inability to absorb a particular nutrient.

Answer: b
Difficulty: Medium
Learning Objective: Define malnutrition.
Section Reference: 1.2 Food Provides Nutrients

19. An adverse or toxic reaction is most likely to occur if an individual
- a) overuses vitamin and/or mineral supplements.
 - b) cannot absorb nutrients efficiently in the gut.
 - c) has a diet that is not varied enough.
 - d) overeats a particular food.

Answer: a
Difficulty: Medium
Learning Objective: Define the term essential nutrient and list the six classes of nutrients.
Section Reference: 1.2 Food Provides Nutrients

20. Which of the following statements regarding diet-gene interaction is FALSE?
- a) Genetic makeup determines the impact of nutrients on health.
 - b) Risk factors for chronic diseases cannot be altered due to an individual's DNA.
 - c) Diet and lifestyle are factors in the development of nutrition-related diseases.
 - d) DNA contains information needed by cells to synthesize specific proteins.

Answer: b
Difficulty: Hard
Learning Objective: Define diet-gene interaction
Section Reference: 1.2 Food Provides Nutrients

ESSAY QUESTIONS

21. Nutrients are classified according to their chemical properties. What are the six classes of nutrients? Which are macronutrients? Which are micronutrients?

Answer:

<u>Macronutrients</u>	<u>Micronutrients</u>
Water	Vitamins
Carbohydrates	Minerals
Proteins	
Lipids	

Difficulty: Easy
Learning Objective: Define the term essential nutrient and list the six classes of nutrients.
Section Reference: 1.2 Food Provides Nutrients

22. A serving of hot chocolate provides 5 g of fat, 2 g of protein, and 28 g of carbohydrate. How many kcalories are in the serving of hot chocolate?

Answer:

$$5 \times 9 = 45$$

$$2 \times 4 = 8$$

$$\underline{28 \times 4 = 112}$$

165 kcalories

Difficulty: Easy

Learning Objective: Define the term essential nutrient and list the six classes of nutrients.

Section Reference: 1.2 Food Provides Nutrients

23. Describe the three general functions of nutrients.

Answer:

Providing energy: carbohydrates, proteins, and lipids undergo biochemical reactions that provide energy for synthesis, basic body functions, and physical activity.

Forming structures: bones, muscles, and cells are formed from proteins, lipids, and minerals.

Regulating body processes: metabolism helps to maintain a stable environment in the body.

Difficulty: Easy

Learning Objective: Describe the three general functions of nutrients.

Section Reference: 1.2 Food Provides Nutrients

MULTIPLE CHOICE QUESTIONS

24. Which of the following is likely to limit food availability?

- a) socioeconomic status
- b) health status
- c) where a person lives
- d) All of the above answer choices are correct.

Answer: d

Difficulty: Medium

Learning Objective: List factors other than nutrition that affect food choices.

Section Reference: 1.3 Food Choices for a Healthy Diet

25. Eating turkey on Thanksgiving is an example of making a food preference based on

- a) cultural and family background.
- b) personal preference.
- c) availability.

d) psychological and emotional factors.

Answer: a

Difficulty: Medium

Learning Objective: List factors other than nutrition that affect food choices.

Section Reference: 1.3 Food Choices for a Healthy Diet

26. One important principle of a healthy diet is to eat a variety of foods. “Variety” means

- a) choosing at least one food from each food group in Canada’s Food Guide each day.
- b) including low kcalorie food choices to balance high kcalorie foods at each meal.
- c) choosing an assortment of different foods from within food groups as well as from among the food groups.
- d) making sure portion sizes are matched to energy needs.

Answer: c

Difficulty: Medium

Learning Objective: Explain the importance of variety, balance, moderation, and kcalorie control in selecting a healthy diet.

Section Reference: 1.3 Food Choices for a Healthy Diet

27. A measure of the nutrients that a food provides compared to the energy content of the food is referred to as

- a) The Healthy Food Index.
- b) glycemic index.
- c) Dietary Reference Intake.
- d) nutrient density.

Answer: d

Difficulty: Medium

Learning Objective: Explain the importance of variety, balance, moderation, and kcalorie control in selecting a healthy diet.

Section Reference: 1.3 Food Choices for a Healthy Diet

28. Consuming nutrient-dense foods helps to ensure a proper diet. One effective strategy to promote nutrient density is

- a) eating foods that have been minimally processed.
- b) eating foods with a high nutrient content compared to the kcalories provided.
- c) limiting added fats and sugars in the diet.
- d) All of the above answer choices are correct.

Answer: d

Difficulty: Medium

Learning Objective: Explain the importance of variety, balance, moderation, and kcalorie control

in selecting a healthy diet.

Section Reference: 1.3 Food Choices for a Healthy Diet

29. The recommendation to eat foods in moderation refers to

- a) including foods in each food group in the diet.
- b) including a variety of foods.
- c) selecting appropriate portion sizes.
- d) varying the foods eaten from day to day, week to week, and season to season.

Answer: c

Difficulty: Medium

Learning Objective: Explain the importance of variety, balance, moderation, and kcalorie control in selecting a healthy diet.

Section Reference: 1.3 Food Choices for a Healthy Diet

ESSAY QUESTIONS

30. People's food choices are affected by many factors other than the nutritional value of the food. Select two of the factors that affect food choices and explain how you would use this factor to help reinforce a dietary change an individual is trying to make for nutritional reasons.

Answer: The factors to choose from are: (actual responses will vary)

Availability

Cultural and Family Background

Social Acceptability

Personal Preference

Psychological and Emotional Factors

Health Concerns

Media

Difficulty: Medium

Learning Objective: List factors other than nutrition that affect food choices.

Section Reference: 1.3 Food Choices for a Healthy Diet

MULTIPLE CHOICE QUESTIONS

31. Which of the following is the correct sequence of steps in the scientific method?

- a) Conduct an experiment, develop a hypothesis, form a theory, and make an observation.
- b) Develop a hypothesis, conduct an experiment, make an observation, and form a theory.
- c) Form a theory, conduct an experiment, develop a hypothesis, and make an observation.
- d) Make an observation, develop a hypothesis, conduct an experiment, and form a theory.

Answer: d

Difficulty: Easy

Learning Objective: List the steps of the scientific method.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

32. Which of the following statements regarding the differences between a hypothesis and a theory is TRUE?

- a) A hypothesis is an educated guess and a theory is a scientific explanation.
- b) Hypotheses are not tested, but theories are tested.
- c) Theories are the foundations of hypotheses.
- d) A hypothesis is tested using quantifiable data and theories are tested using subjective data.

Answer: a

Difficulty: Hard

Learning Objective: List the steps of the scientific method.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

33. Acceptance of a scientific theory depends on

- a) the ability of other scientists to duplicate the original research and results.
- b) increased funding for the research.
- c) the number of years since the development of the theory.
- d) how the hypothesis was formed.

Answer: a

Difficulty: Hard

Learning Objective: List the steps of the scientific method.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

34. Which of the following is NOT a component of a valid nutrition experiment?

- a) opinions of the researchers
- b) controls suitable to the experiment
- c) appropriate type and number of subjects
- d) careful interpretation of experimental results

Answer: a

Difficulty: Easy

Learning Objective: Discuss experimental controls.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

35. Which is an example of anecdotal information?

- a) Runners have their blood glucose levels measured following a race.
- b) A runner reports having more endurance after eating an energy bar.

- c) Runners are timed before and after eating one energy bar a day for a month.
- d) People take a written test before and after eating energy bars for a month; the results are scored.

Answer: b

Difficulty: Easy

Learning Objective: List the steps of the scientific method. Describe the features of a good experiment.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

36. As the number of variables in a research study increases, the number of subjects needed to prove an outcome generally
- a) increases.
 - b) decreases.
 - c) is not affected.
 - d) increases, then decreases.

Answer: a

Difficulty: Hard

Learning Objective: List the steps of the scientific method.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

ESSAY QUESTIONS

37. Describe the steps involved in conducting a valid experiment using the scientific method.

Answer: Make an observation and ask questions.

Propose a hypothesis—an explanation of the observations.

Design an experiment to test the hypothesis that provides objective data.

Establish a theory based on the experimental data.

Difficulty: Easy

Learning Objective: List the steps of the scientific method.

Section Reference: 1.4 Understanding Science Helps Us Understand Nutrition

MULTIPLE CHOICE QUESTIONS

38. Approximately 1,000 college students were asked to keep a record of the types and amounts of supplemental vitamins they consumed and how many colds they had over the course of a year. The amount of vitamin C consumed was compared with the students' incidences of colds. This type of study is called a(n)
- a) clinical trial.

- b) epidemiological study.
- c) intervention study.
- d) laboratory study.

Answer: b

Difficulty: Medium

Learning Objective: Distinguish between observational (epidemiological) studies and intervention trials.

Section Reference: 1.5 Nutrition Research

39. One group of subjects is asked to eat a diet high in fruits, vegetables, and dairy foods while a second group is asked to eat a diet with low amounts of fruits, vegetables, and dairy foods. The two groups' blood pressure readings are monitored and compared. This is an example of a(n)

- a) case-control study.
- b) epidemiological study.
- c) intervention study.
- d) laboratory study.

Answer: c

Difficulty: Medium

Learning Objective: Distinguish between observational (epidemiological) studies and intervention trials.

Section Reference: 1.5 Nutrition Research

40. Comparing the amount of a specific nutrient consumed with the amount of the nutrient excreted is characteristic of a(n)

- a) balance study.
- b) collection study.
- c) depletion-repletion study.
- d) epidemiological study.

Answer: a

Difficulty: Medium

Learning Objective: Explain the purpose of balance studies and depletion-repletion studies.

Section Reference: 1.5 Nutrition Research

41. Which of the following is NOT a true statement about nutritional studies using animals?

- a) Animal studies can be more easily controlled than human studies.
- b) The digestive system of some animals is quite different from humans, making these animals inappropriate choices for some studies.
- c) The choice of the animal studied may influence the outcome of the study.
- d) Results from animal studies can be generalized to the human population.

Answer: d

Difficulty: Medium

Learning Objective: Explain the purpose of balance studies and depletion-repletion studies.

Section Reference: 1.5 Nutrition Research

42. In a controlled experiment, the group that does NOT receive treatment is called the

- a) control group.
- b) double-blind group.
- c) experimental group.
- d) placebo effect.

Answer: a

Difficulty: Easy

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

43. Researchers examine whether caffeine has any effect on short-term memory. In the first part of the study, two groups of subjects are given capsules that look identical. Group A receives caffeine and Group B receives a harmless neutral substance. Group B is given a

- a) catalyst.
- b) placebo.
- c) stimulant.
- d) simulation factor.

Answer: b

Difficulty: Medium

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

44. The BEST reason for using a placebo as part of experimental design is

- a) it will not be possible for researchers to know who is receiving an intervention and who is not.
- b) the only way to know if the treatment works is to compare it to a placebo.
- c) it prevents subjects from knowing whether or not they are receiving the treatment.
- d) it incorporates a larger number of subjects in the experiment.

Answer: c

Difficulty: Medium

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

45. In a clinical trial, when subjects do not know which treatment they are receiving, but the researchers do, the study is called

- a) anecdotal.
- b) collaboration.
- c) double-blind.
- d) single-blind.

Answer: d

Difficulty: Easy

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

46. In a controlled study, if neither the subjects nor the investigators know which subjects are receiving treatment, the study is called a(n)

- a) double-blind study.
- b) single-blind study.
- c) variable study.
- d) undirected study.

Answer: a

Difficulty: Easy

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

47. A process that is part of strict safety and ethical regulations governing human subject research is

- a) peer review.
- b) double-blind.
- c) prior authorization.
- d) informed consent.

Answer: d

Difficulty: Medium

Learning Objective: Discuss how science monitors the ethics of human and animal studies.

Section Reference: 1.5 Nutrition Research

48. A(n)_____ is a short paragraph that summarizes a published experiment and its main findings.

- a) abstract
- b) introduction
- c) discussion

d) database

Answer: a

Difficulty: Easy

Learning Objective: Describe the components of a research paper.

Section Reference: 1.5 Nutrition Research

49. Which of the following statements regarding Pubmed is FALSE?

a) It is a database supported by the National Institutes of Health (NIH) in the United States.

b) It is a free online resource for accessing published scientific reports.

c) It is a password-protected site.

d) It can be accessed on the Internet by anyone.

Answer: c

Difficulty: Medium

Learning Objective: Describe the components of a research paper.

Section Reference: 1.5 Nutrition Research

ESSAY QUESTIONS

50. What is the difference between a depletion-repletion study and a balance study? How is each used in the field of nutrition?

Answer: Depletion-repletion is used to study the function and/or requirements of a nutrient. Subjects are fed a diet without the nutrient until symptoms appear; then the nutrient is added back to the diet until symptoms disappear. A balance study also looks at functions and requirements, but compares the amount of a nutrient that enters the body with what is excreted. When the amount consumed equals the amount excreted, the body is in balance. This technique measures the minimum amount of nutrient needed to replace losses.

Difficulty: Medium

Learning Objective: Explain the purpose of balance studies and depletion-repletion studies.

Section Reference: 1.5 Nutrition Research

51. What are two advantages of using animals instead of humans in nutrition experiments? What are two disadvantages?

Answer:

Advantages

May be less costly

Short life span so nutrition changes develop rapidly

Easy to control food intake

Disadvantages

The best models are expensive and have long life span

May not be identical to humans in how they develop disease or use nutrients

and measure excretions

Difficulty: Easy

Learning Objective: Discuss how science monitors the ethics of human and animal studies.

Section Reference: 1.5 Nutrition Research

52. Mrs. Sandoz's fourth grade class spent several class periods learning about nutrition. They learned about MyPyramid and how eating a healthy diet could benefit them. Mr. Danner's fourth grade class, in the same building, did not have a unit on nutrition. After the nutrition unit was finished in Mrs. Sandoz's class, researchers looked at the selections students made in the cafeteria and how much food was consumed and thrown away by each class to see if the nutrition education had an effect on the students' eating habits.

- a) What type of study was this?
- b) Which classroom was the control classroom?
- c) Which classroom was the experimental group?
- d) What other factors affect students' choice of food, besides what they know about health and food?

Answer:

- a) Case-control study/Clinical trial
- b) Mr. Danner's
- c) Mrs. Sandoz's
- d) Availability, Cultural and Family Background, Social Acceptability, Personal Preference, Psychological and Emotional Factors, Health Concerns, Media

Difficulty: Medium

Learning Objective: Distinguish between observational (epidemiological) studies and intervention trials. List factors other than nutrition that affect food choices.

Section Reference: 1.5 Nutrition Research

53. What is epidemiology? Compare the type of information obtained from epidemiological studies to that obtained from human intervention studies.

Answer: Epidemiology observes the relationships between diet and health among different population groups and identifies patterns or associations among patterns and disease. Human intervention studies test hypotheses that arise from epidemiological studies. Intervention studies use experiments to intervene in individual lives and test a hypothesis so that a theory may be developed.

Difficulty: Medium

Learning Objective: Distinguish between observational (epidemiological) studies and intervention trials.

Section Reference: 1.5 Nutrition Research

54. Describe what is meant by the term *control group* and explain why a well-designed experiment includes a control group.

Answer: A group of participants in a study who are treated the same as subjects in an experimental group, except that no experimental treatment is implemented. The control group would receive a placebo to control bias and is used as a basis of comparison.

Difficulty: Easy

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

55. What is the difference between a single-blind and a double-blind study? Why are double-blind techniques used?

Answer: Single – the subject or researcher does not know who is receiving the intervention.

Double – neither the participants nor the researcher know who is in the experimental group and who is in the control group. The double-blind technique is used so that neither the subjects' nor the researchers' expectations bias the results of the experiment.

Difficulty: Medium

Learning Objective: Describe experimental controls, including control groups, placebos, and blinded studies.

Section Reference: 1.5 Nutrition Research

MULTIPLE CHOICE QUESTIONS

56. The most powerful tool(s) in promoting health and nutrition messages is/are

- a) dietitians.
- b) mass media.
- c) physicians.
- d) talk radio.

Answer: b

Difficulty: Medium

Learning Objective: Name seven questions you should ask yourself when evaluating the reliability of nutritional information.

Section Reference: 1.6 Sorting Out Nutrition Information

57. Which of the following is an example of anecdotal evidence?

- a) double-blind studies
- b) results from a minimum of three experiments
- c) single-blind studies
- d) individual testimonies

Answer: d

Difficulty: Medium

Learning Objective: Discuss why individual testimonies are not considered reliable sources of information.

Section Reference: 1.6 Sorting Out Nutrition Information

58. Which of the following would be the LEAST reliable source of information about herbal supplements?

- a) government-supported publication
- b) dietitian
- c) pamphlet published by a health food store
- d) peer-reviewed article available on the Internet

Answer: c

Difficulty: Medium

Learning Objective: Name seven questions you should ask yourself when evaluating the reliability of nutritional information.

Section Reference: 1.6 Sorting Out Nutrition Information

59. When determining the strength of experimental research, which is the LEAST important factor?

- a) the design of the study
- b) how many people conducted the study
- c) how the study was funded
- d) where the study was published

Answer: b

Difficulty: Medium

Learning Objective: Name seven questions you should ask yourself when evaluating the reliability of nutritional information.

Section Reference: 1.6 Sorting Out Nutrition Information

ESSAY QUESTIONS

60. Name reliable sources of nutrition information.

Answer: Dietitians, physicians, government recommendations, non-profit educational organizations, peer-reviewed journals, and universities.

Difficulty: Easy

Learning Objective: Name seven questions you should ask yourself when evaluating the reliability of nutritional information.

Section Reference: 1.6 Sorting Out Nutrition Information

61. Recently Trevor received an e-mail forwarded to him by a friend. The e-mail warns all recipients of the dangers of an artificial sweetener, which according to the original author, is responsible for several types of cancer, mental illness, and several other serious ailments. The author uses several anecdotal stories as the basis for her assertions. Curious, Trevor does a search on the Internet for the author, but cannot find any information about her.

- a) What do you think of unsolicited e-mail as a source of nutrition advice?
- b) How likely is it that one product causes or cures several different diseases?
- c) What else makes you wonder about the validity of the information?
- d) How might you use the Internet to get more information about the artificial sweetener in question?
- e) How can you tell if nutrition information in a letter, in an article, or on television is accurate?

Answer:

- a) It is an unreliable source.
- b) Unlikely – an artificial sweetener would have to undergo extensive testing to demonstrate safety before being marketed.
- c) As above, the product would have to undergo extensive testing. It is unlikely that a product available for use would cause such a variety of problems.
- d) Go to the FDA website to search for the product testing history; conduct a search in a database that references peer-reviewed published research; look for websites that have .gov, or .edu for information about the product.
- e) References and resources that provide an objective evidence base are provided. The person speaking has the education and experience to speak with authority.

Difficulty: Medium

Learning Objective: Name seven questions you should ask yourself when evaluating the reliability of nutritional information.

Section Reference: 1.6 Sorting Out Nutrition Information