**MULTIPLE CHOICE**

1. Each of the following is true regarding designations for professionals in the field of nutrition except one. Which one is the exception?
   a. A nutritionist usually works in a public health setting.
   b. A registered dietitian (RD) must pass a national registration examination.
   c. An RD who works in public health can call herself a registered dietitian nutritionist (RDN).
   d. A dietetic technician, registered (DTR) works under supervision of a registered nurse.

   ANS: D
   A dietetic technician, registered (DTR) normally works under the supervision of a registered dietitian. Like the registered dietitian, the DTR must pass a national registration examination and receive continuing education. Although the DTR can complete a 4-year curriculum, there also is a 2-year option. Regarding the distinction between the registered dietitian and the nutritionist, all registered dietitians are nutritionists, but not all nutritionists are registered dietitians.

   REF: p. 3

2. Nutrition is the process by which living things use food to obtain nutrients for energy, growth and development. Energy is the measure of heat equivalent to 1000 calories needed to do work.
   a. Both statements are true.
   b. Both statements are false.
   c. The first statement is true; the second is false.
   d. The first statement is false; the second is true.

   ANS: C
   The second statement confuses energy with the definition of a kilocalorie. Energy is the ability or power to do work. Kilocalories are related in that the potential energy value of foods within the body is expressed in terms of the kilocalorie. More frequently, the term *calorie* is used incorrectly. A kilocalorie (kcal) is a measure of heat equivalent to 1000 calories.

   REF: pp. 3-4

3. Increase in consumption of which of the following has the greatest effect on an increase in body weight?
   a. Carbohydrate intake
   b. Protein intake
   c. Fat intake
   d. Total kilocalories

   ANS: D

There is little evidence that any individual calorie food group (carbohydrate, protein, fat) has a unique effect on body weight. Kilocalories are the key factor to controlling body weight—not the proportions of fat, carbohydrates, and protein, but balancing caloric intake with energy expenditure.

REF: p. 6

4. Each of the following is true regarding weight maintenance except one. Which one is the exception?
   a. 1600 to 2400 kilocalories are recommended for adult women.
   b. 2000 to 3000 kilocalories are recommended for adult men.
   c. Kilocalories from alcohol do not count because they are expended rapidly.
   d. A patient needing 2000 kcal/day should limit saturated fat intake to 20 g or less.

   ANS: C
   Like energy-producing nutrients (carbohydrates, proteins, and fats), kilocalories from alcohol must be balanced with energy expenditure. In short, kilocalories from alcohol contribute to weight gain in the same manner as any other substance consumed.

   REF: p. 10 | p. 13

5. Dietary guidelines recommend lowering caloric requirements for older adults because metabolic rate increases with age.
   a. Both the statement and the reason are correct and related.
   b. Both the statement and the reason are correct but are not related.
   c. The statement is correct, but the reason is not correct.
   d. The statement is not correct, but the reason is correct.
   e. Neither the statement nor the reason are correct.

   ANS: C
   Metabolic rate decreases with age. For this reason, the caloric requirements are lowered. Failure to lower the caloric intake without an accompanying increase in expenditure of energy will result in weight gain. For older individuals, this can be very serious because joint and cardiac function can be further stressed.

   REF: p. 4

6. The terms *calorie* and *kilocalorie* are synonymous and can be used interchangeably. The term *kilocalorie* is an older term, often associated with the metric system.
   a. Both statements are true.
   b. Both statements are false.
   c. The first statement is true; the second is false.
   d. The first statement is false; the second is true.

   ANS: B
   The terms *calorie* and *kilocalorie* are not synonymous. Although they are used interchangeably, this is incorrect. They are both metric units and have different values. A kilocalorie is a measure of heat equivalent to 1000 calories. The term *calorie* is incorrectly used in discussing nutrition; *kilocalorie* is the appropriate term.

   REF: p. 4

7. Each of the following nutrients provide energy except one. Which one is the exception?
   a. Proteins
   b. Carbohydrates
   c. Fats
   d. Vitamins
   e. Alcohol

   ANS: D
   Vitamins do not provide energy, nor do minerals. Although proteins, carbohydrates, fats, and alcohol provide energy, the body cannot use energy from the energy-containing components of food without adequate amounts of vitamins and minerals.

   REF: p. 4

8. Increasing the variety of foods often causes nutrient excesses and toxicities. A dietary change to eliminate or increase intake of one specific food or nutrient usually alters the intake of other nutrients.
   a. Both statements are true.
   b. Both statements are false.
   c. The first statement is true; the second is false.
   d. The first statement is false; the second is true.

   ANS: D
   Increasing the variety of foods is recommended to reduce the probability of developing isolated nutrient deficiencies, nutrient excesses, and toxicities resulting from nonnutritive components or contaminants in any particular food. For example, because red meats are an excellent source of iron and zinc, decreasing cholesterol intake by limiting these meats can reduce dietary iron and zinc intake.

   REF: p. 4

9. Precursors are substances from which an active substance is formed. Nonessential nutrients cannot be synthesized from other substances.
   a. Both statements are true.
   b. Both statements are false.
   c. The first statement is true; the second is false.
   d. The first statement is false; the second is true.

   ANS: C
   Nonessential nutrients can be used by the body; they either are not required or can be synthesized from dietary precursors. Carotene is a precursor to vitamin A. It is found in fruits and vegetables and is converted to an active form of vitamin A by the liver.

   REF: p. 4

10. Which nutrient is the most important?
    a. Protein
    b. Carbohydrate
    c. Minerals
    d. Water

    ANS: D

Water is the most important nutrient. After water, nutrients in highest priority are those that provide energy, which must be provided from foods or can be supplied from quantities stored in the body.

REF: p. 4

11. The human body has adaptive mechanisms that tolerate modest ranges in nutrient intakes. The metabolic rate usually increases to compensate for decreased caloric intake.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    The metabolic rate usually decreases to compensate for decreased caloric intake. This is an adaptive mechanism that "saves" energy for future needs in situations of decreased nutritional intake.

    REF: p. 4

12. *Healthy People* (HP 2020), issued by the U.S. Department of Health and Human Services has resulted in a reduction of deaths from cardiovascular disease, stroke, and some cancers. It also has resulted in decreased dental caries in children aged 2 to 4 years and adults aged 53 to 44 years.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    Although progress has been made in some areas, other areas show declines in health. Dental caries increased for the age groups identified in the question. There has also been an increase in the number of overweight and obese Americans, and little to no progress in the area of reducing health disparities for minority and low-income groups.

    REF: p. 5

13. Each of the following accurately describe aspects of the dietary reference intakes (DRIs) published by the Food and Nutrition Board of the Institute of Medicine (IOM) except one. Which one is the exception?
    a. The DRIs replace the older recommended daily allowances.
    b. Current DRIs attempt to estimate required nutrients to improve long-term health.
    c. DRIs specifically address individuals whose requirements are affected by a disease state.
    d. The DRIs attempt to establish maximum safe levels of tolerance for nutrients.

    ANS: C

The dietary reference intakes (DRIs) were intended for planning and assessing diets of healthy Americans and Canadians. They are inappropriate for malnourished individuals or patients whose requirements are affected by a disease state. The DRIs replace an earlier publication, the recommended daily allowances (RDAs). Note that there is also a new RDA which is intended as a goal for achieving adequate intakes.

REF: p. 5

14. Which set of guidelines is intended to assess nutrient adequacy or planning intakes of population groups, not individuals?
    a. Old recommended dietary allowances (RDA)
    b. Estimated average requirement (EAR)
    c. New recommended dietary allowances (RDA)
    d. Tolerable upper intake level (UL)

    ANS: B
    The estimated average requirement (EAR) is the amount of a nutrient that is estimated to meet the needs of half of the healthy individuals in a specific age and gender group. This set of values is useful in assessing nutrient adequacy or planning intakes of population groups, not individuals.

    REF: p. 5

15. The average amount of a nutrient that seems to maintain a defined nutritional state is measured by the:
    a. recommended daily allowance (RDA).
    b. estimated average requirement (EAR).
    c. adequate intake (AI).
    d. acceptable macronutrient distribution ranges (AMDR).

    ANS: C
    To overcome shortcomings in both the EAR and the RDA, an AI was established. Derived from mean nutrient intakes by groups of healthy people and based upon scientific judgments, an AI is the average amount of a nutrient that seems to maintain a defined nutritional state. Values were established for various life stages for several nutrients, including fluoride. AMDRs were established for the macronutrients, fat, carbohydrate, protein, and two polyunsaturated fatty acids, to ensure sufficient intakes of essential nutrients.

    REF: p. 6

16. Each of the following is true of the acceptable macronutrient distribution ranges (AMDRs) except one. Which one is the exception?
    a. AMDRs were established to ensure sufficient intakes of the micronutrients.
    b. One focus of the AMDRs is reduction of chronic disease.
    c. Macronutrients are fat, carbohydrate, protein, and two polyunsaturated fatty acids.
    d. Consuming amounts outside the AMDRs increases risk of insufficient intake of essential nutrients.

    ANS: A

AMDRs were established for the macronutrients, fat carbohydrate, protein, and two polyunsaturated fatty acids. The goal of the guideline is to ensure sufficient intakes of essential nutrients, while reducing risk of chronic disease.

REF: p. 6

17. Acceptable macronutrient distribution ranges (AMDRs) are expressed as a percentage of total energy intake, because an intake of each depends on intake of the others or of the total energy requirement of the individual. Increasing or decreasing one energy source while consuming a set amount of kilocalories affects the intake of the other sources of energy.
    a. Both the statement and the reason are correct and related.
    b. Both the statement and the reason are correct but are not related.
    c. The statement is correct, but the reason is not correct.
    d. The statement is not correct, but the reason is correct.
    e. Neither the statement nor the reason is correct.

    ANS: A
    An example of one source of energy being substituted for another: If an individual who routinely consumes 2,000 kcal decides to reduce amount of fat, either the protein or carbohydrate intake would need to increase proportionately.

    REF: p. 6

18. The nutrient-based reference value that is defined as dietary energy intake predicted to maintain energy balance in healthy individuals of a defined age, gender, and weight is the:
    a. acceptable macronutrient distribution ranges (AMDR).
    b. estimated energy requirement (EER).
    c. recommended daily allowance (RDA).
    d. estimated average requirement (EAR).

    ANS: B
    The estimated energy requirement (EER) is similar to the EAR. The major difference is that the EAR is the amount of a nutrient that is estimated to meet the needs of half of the healthy individuals in specific groups, whereas the EER addresses all healthy individuals in terms of age, sex, weight, height, and physical activity. Because energy requirement depends on activity level, four different activity levels are provided.

    REF: p. 6

19. Each of the following is true regarding considerations that a dental hygienist must make when making dietary recommendations except one. Which one is the exception?
    a. The dietary reference intakes (DRI) can be used as an assessment guide for all patients.
    b. An individual's exact requirement for a specific nutrient is not known.
    c. The upper limits (ULs) can be used to warn patients of adverse effects of excessive intake of nutrients.
    d. The DRIs are general guidelines and do not provide specific requirements.
    e. Specific foods or groups of foods should be discussed rather than nutrients.

    ANS: A

DRIs are designed as an assessment guide for healthy patients only. These guidelines apply to average daily intakes, and they should be met by consuming a variety of foods whenever possible. Patients with specific illnesses or dietary imbalances should be referred to as registered dietitian.

REF: pp. 5-6

20. The 2010 Dietary Guidelines, released in 2011, reflect the preponderance of scientific evidence based on current nutrition-related health problems and contain technical information. *MyPyramid*, released with the 2010 publication, translates the dietary guidelines into a consumer-friendly form for the public.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    In 2010, the well-known food guide *MyPyramid* was replaced with *MyPlate*. This new food guidance system provides assistance in implementing the recommendations of the Dietary Guidelines and the DRI from the Institute of Medicine. *MyPlate* is a system that includes interactive websites and educational modules. This resource can be referenced at www.chooseMyPlate.gov.

    REF: p. 7

21. Each of the following accurately describes features of *MyPlate* except one. Which one is the exception?
    a. *MyPlate* replaces the well-known food guide, *MyPyramid*.
    b. The interactive website is intended to help consumers apply personalized dietary guidance.
    c. Whereas *MyPyramid* was more specific in many areas, *MyPlate* provides more general information.
    d. Foods providing similar types of nutrients are grouped together and emphasizes proportionality of food selections.
    e. *MyPlate* is designed as a food guidance tool for the general public.

    ANS: C
    *MyPlate* provides more specific and personalized dietary guidance to help individuals achieve a healthful lifestyle through better eating and increased physical activity. It is more specific in certain areas than *MyPyramid* was. In addition, *MyPlate* is designed as a food guidance tool for the general public and not a therapeutic diet for any specific health condition.

    REF: p. 16

22. The messages of *MyPlate* convey include each of the following except one. Which one is the exception?
    a. Fruits and vegetables should fill half the plate.
    b. Fruit juices should be consumed frequently.
    c. Lean proteins foods should be chosen in moderation.
    d. Whole grains should occupy about one fourth of the plate.
    e. Physical activity is encouraged through the activity tab that has links to

*MyJournal*.

ANS: B
Although any fruit or 100% fruit juice counts as part of the fruit group, *MyPlate* suggests that people minimize fruit juice. Because of their fiber content, fresh, frozen, canned, or dried fruits are recommended. Note that the physical activity tab has links that discuss methods for incorporating an individualized exercise plan. The "Super Tracker" and *MyJournal* can help to plan, analyze, and track food intake and physical activity. Note that milk products, especially fat-free or low-fat, should be incorporated

REF: p. 16

23. Surveys show that most Americans eat only about half of the recommended vegetables per week. The high water and high-fiber content of vegetables counteract the low levels of cholesterol present in many dark-green vegetables.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    Vegetables do not contain cholesterol. They are primary sources of the required nutrients dietary fiber, vitamin A (carotenoids), vitamin C, folic acid, and potassium. The total amount of red, orange, and dark-green vegetables recommended per week is 7 cups, but surveys show that most American eat only about 3.5 cups per week.

    REF: p. 18

24. Which of the following food provides the most protein?
    a. Beans
    b. Red peppers
    c. Asparagus
    d. Celery

    ANS: A
    Beans are an unusual vegetable because they are in both the vegetable and protein groups. Beans contain protein, fiber, calcium, folic acid, and potassium.

    REF: p. 18 | p. 19

25. It is difficult for consumers to identify whole grain products, because labeling is inconsistent and color is a poor indicator.
    a. Both the statement and the reason are correct and related.
    b. Both the statement and the reason are correct but are not related.
    c. The statement is correct, but the reason is not correct.
    d. The statement is not correct, but the reason is correct.
    e. Neither the statement nor the reason is correct.

    ANS: A

The difficulty in identifying whole grains is a major barrier to consuming adequate amounts of whole grains. Descriptive labels such as “100% wheat,” “stone ground,” and “multigrain” do not guarantee whole grain. In addition, color is a poor indicator because molasses or caramel food coloring may be added.

REF: p. 19

26. Each of the following is true of dietary considerations from the milk and milk product groups except one. Which one is the exception?
    a. Fortified milk products are important sources of vitamin D.
    b. Many mild substitutes are not fortified with vitamin D.
    c. Children 2 to 3 years of age need 2 cups of milk daily.
    d. Whole milk and many cheeses are high in unsaturated fat.

    ANS: D
    Whole milk and many cheeses are high in saturated fat and can have negative health consequences. Low-fat or fat-free milk products provide little or no fat and should be chosen most often to avoid consuming more kilocalories than needed.

    REF: p. 19

27. The dairy group includes butter and cream because they are high in calcium, riboflavin, and protein.
    a. Both the statement and the reason are correct and related.
    b. Both the statement and the reason are correct but are not related.
    c. The statement is correct, but the reason is not correct.
    d. The statement is not correct, but the reason is correct.
    e. Neither the statement nor the reason is correct.

    ANS: E
    High-fat products such as butter and cream are not included in the dairy products group, because they are not high in calcium, riboflavin, and protein.

    REF: p. 19

28. Consumption of milk and milk products can promote the achievement of peak bone mass in children and adolescents. Studies indicate that higher dairy consumption is associated with decreased dental caries, but has no effect on periodontal disease.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    Studies indicate that higher dairy consumption correlates with decreased prevalence and severity of both dental caries and periodontal health.

    REF: p. 19

29. Current scientific evidence shows that most people consume only half the required amount of protein. Protein supplements promoted to increase muscle mass contain several amino acids not easily absorbed from foods.

a. Both statements are true.
b. Both statements are false.
c. The first statement is true; the second is false.
d. The first statement is false; the second is true.

ANS: B
Most people consume approximately twice as much protein as they need. Although this may not be harmful, high-fat meats may be an undesirable source of kilocalories, cholesterol, and fatty acids. Protein supplements do not contain nutrients important for health other than what foods provide. These should be used only after consulting a healthcare provider or registered dietitian.

REF: p. 19

30. Macronutrients include each of the following except one. Which one is the exception?
a. Fat
b. Polyunsaturated fatty acids
c. Carbohydrate
d. Protein
e. Vitamins

ANS: E
Vitamins and minerals are considered micronutrients. Macronutrients are defined as being the classes of chemical compounds humans consume in the largest quantities and which provide bulk energy. Conversely, micronutrients are needed by the body in small amounts.

REF: p. 19

31. Which bread has the most magnesium?
a. Enriched white
b. Whole wheat
c. Whole grain
d. Rye

ANS: B
Whole wheat bread has 23 mg of magnesium per serving whereas enriched white, whole grain, and rye contain 7, 20, and 13 mg respectively.

REF: p. 14 | Table 1-2

32. Each of the following daily reference values (DRVs) is correct except one. Which one is the exception?
a. Protein: 50 g
b. Carbohydrate: 300g
c. Total fat: <65 g
d. Sodium: <2400 mg
e. Fiber: 50 g

ANS: E

The daily reference value for fiber is 25 g. Note that the daily reference values (DRVs) do not appear on the nutrient label. Instead the term *daily value* appears on the label for ease of understanding and reflects the DRV and the DRI standards to encourage a healthy diet. In addition, the DRI for protein has been established for certain groups. The 50 g of protein in the DRV is for adults and children older than 4 years of age only.

REF: p. 24 | Table 1-6

33. The process of restoring iron, thiamin, riboflavin, folic acid, and niacin removed during processing to approximately their original levels is called:
    a. fortification.
    b. enrichment.
    c. satiety.
    d. ghrelin.

    ANS: B
    The process of restoring nutrients removed during processing is called *enrichment*. This process is controlled by the U.S. Food and Drug Administration (USDA), which establishes the quantity of nutrients that can be added. White bread is an example of a highly enriched product. Fortification is the process of adding nutrients not present in the natural product or increasing the amount above that in the original product. Satiety is the feeling of fullness provided by food. Fats provide more satiety than do lean proteins. Ghrelin is an appetite-stimulating hormone that is suppressed by proteins better than by carbohydrates and lipids.

    REF: p. 13

34. The nutrient facts panel was established by the USDA and the FDA to improve health and well-being by enhancing nutritional knowledge. Nutrient content claims describe a relationship between a food or food component and reduced risk of a disease or health-related condition.
    a. Both statements are true.
    b. Both statements are false.
    c. The first statement is true; the second is false.
    d. The first statement is false; the second is true.

    ANS: C
    Two categories of claims currently can be used on food labels: nutrient content claims and health claims. Nutrient content claims describe the percentage of a nutrient in a product relative to the daily value. Health claims describe a relationship between a food or food component and reduced risk of a disease or health-related condition.

    REF: p. 21

35. Each of the following is true of terminology on food nutrition labels except one. Which one is the exception?
    a. Daily reference values (DRVs) are the levels of nutrients considerable desirable for health.
    b. A product's nutrient profile is based on the percentage of DRVs, but the term *daily value* (DV) is used on the label.
    c. For ease of standardizing the label, 2000 kcal is the reference amount for calculating the percentage of the DV in a serving.

d. The amounts for the nutrients are based on the daily value (DV).

ANS: D
For ease of labeling, although nutrient label information uses the term daily value, the amounts for the nutrients are based on the reference daily intake (RDI). Recall that the RDI is usually larger than the RDA for a specific age/gender group.

REF: p. 24

36. Qualified health claims must be supported by qualified experts because although they are supported by some evidence, they do not meet the scientific standard.
a. Both the statement and the reason are correct and related.
b. Both the statement and the reason are correct, but they are not related.
c. The statement is correct, but the reason is not correct.
d. The statement is not correct, but the reason is correct.
e. Neither the statement nor the reason are correct.

ANS: D
Health claims on foods are limited and regulated in an effort to protect consumers. Although qualified health claims are supported by some evidence, they do not meet scientific standards. For this reason, qualified claims must be accompanied by a disclaimer as specified by the U.S. Food and Drug Administration (FDA). Such a health claim must use the exact wording specified by the FDA. The other type of health claim, unqualified, must be supported by qualified experts agreeing that a relationship exists between the nutrient and product and a specific disease.

REF: p. 25

37. The Nutrition Facts Panel on brownie mix shows the following: 1 serving is one twentieth of the mix. Each serving contains 120 calories, 20 calories from fat, 17 g of sugar, and 10 g of protein. What is the approximate percentage of sugar in the brownie mix?
a. 17%
b. 27%
c. 57%
d. 73%

ANS: C
Approximately 57% of the brownie mix is sugar. This is calculated by (1) multiplying the number of grams of sugar in a product by 4 kcal/g, (2) dividing this number by the total number of kilocalories per serving, and (3) multiplying by 100 to establish the percentage of calories as sugar. Note that the label incorrectly uses the term *calorie*; the correct term is *kilocalorie*.

REF: p. 25

38. Unsweetened juices and milk contain significant amounts of sugars because of the natural content of simple carbohydrates.
a. Both the statement and the reason are correct and related.
b. Both the statement and the reason are correct, but are not related.
c. The statement is correct, but the reason is not correct.
d. The statement is not correct, but the reason is correct.

e. Neither the statement nor the reason is correct.

ANS: A
This is confusing for some patients because both beverages are encouraged in appropriate amounts. Looking at "sugars" on the label can be misleading, whereas the total carbohydrate in the product more closely reflects actual carbohydrate content.

REF: p. 27

39. Each of the following is true of obesity except one. Which is the exception?
    a. The prevalence of obesity is showing signs of leveling off.
    b. During the past 20 years, the heaviest body mass index groups have been increasing at the fastest rates.
    c. Statistics are more promising for ethnic groups because prevalence is less than in white Americans.
    d. Hypertension, osteoarthritis, and elevated blood cholesterol accompany obesity.
    e. Larger waist measurements are associated with increased health risks.

    ANS: C
    Statistics are discouraging in ethnic groups (Hispanics, African Americans, Native Americans, and Alaska natives) because the prevalence of obesity is markedly higher than in white Americans.

    REF: pp. 28-30

40. Each of the following is true regarding body weight in relation to height except one. Which one is the exception?
    a. Currently, the body mass index (BMI) is the preferred method of defining body weight in relation to height.
    b. BMI is determined mathematically by first dividing weight by height, dividing this number by height again, and multiplying this number by 703.
    c. Chronic disease risk increases in most people with a BMI greater than 25.
    d. Major ethnic differences exist regarding BMI.
    e. BMI reveals significant details about overall body composition.

    ANS: E
    Although BMI is the current preferred method of evaluating weight in relation to height, it has inherent weaknesses as a diagnostic guide. For example, a frail or inactive person with a normal-range BMI can have excess body fat and not appear out of shape. BMI reflects overall fat distribution and is cheap and quick. BMI is not appropriate for pregnant and nursing women, infants, and children younger than age 2 years, nor is it appropriate for some athletes with a large percentage of muscle.

    REF: pp. 9-10

41. Each of the following are usual results of bariatric surgery except one. Which one is the exception?
    a. Greater and sustained weight loss than conventional methods
    b. Reduced incidence of diabetes
    c. Reduced incidence and severity of cardiovascular disease
    d. A shorter life span

ANS: D
This drastic but effective measure typically results in a longer life because of the positive health effects that accompany sustained weight loss in obese patients. Side effects include altered absorption of many nutrients, pulmonary embolism, and some postoperative deaths.

REF: p. 29