

1. Several vitamins become activated from their inactive precursor form called _____.
 - A) provitamins
 - B) covitamins
 - C) coenzymes
 - D) enzymes

2. The fat-soluble vitamins include vitamins _____.
 - A) A, B, C, and D
 - B) A, B, C, and K
 - C) A, D, E, and K
 - D) A, C, D, and K

3. Sedentary adults require about 3.785 L (1 gal) of water each day to maintain optimal body functions.
 - A) 2 pints
 - B) 1 gallon
 - C) 2 gallons
 - D) 4 gallons

4. The bioavailability of minerals is largely affected by _____.
 - A) vitamin–water interaction
 - B) type of exercise
 - C) mineral–fiber interaction
 - D) mineral–water interaction

5. Cells that synthesize bone are called _____.
 - A) osteoclasts
 - B) osteoblasts
 - C) osteocams
 - D) osteosynthetic

6. The Dietary References Intakes (DRI) encompass all of the following standards except:
 - A) ESADDI
 - B) RDA
 - C) EAR
 - D) AI

7. When no RDA exists, the _____ values may be used to determine proper consumption levels.
- A) UL
 - B) AI
 - C) EAR
 - D) ESADDI
8. The highest average daily nutrient intake level likely to pose no risk of adverse health effects:
- A) UL
 - B) AI
 - C) EAR
 - D) ESADDI
9. A highly chemically reactive atom, molecule, or molecular fragment that contains at least one unpaired electron in its outer orbital or valence shell is a/an _____.
- A) antioxidant
 - B) coenzyme
 - C) free radical
 - D) hydroxyl
10. _____ comprises the yellow and yellow-orange pigment that give color to vegetables and fruits.
- A) Chlorophyll
 - B) Anthocyanin
 - C) Carotene
 - D) Purine
11. Which of the following is a factor that influences the amount of water lost through sweating?
- A) Water intake
 - B) Relative humidity
 - C) Time of day
 - D) Type of activity

12. Small amounts of water are lost directly from the skin's surface as _____.
A) urine
B) sweat
C) waterless vapor
D) insensible perspiration
13. Fluid located inside of the cells is known as _____.
A) intracellular fluid
B) extracellular fluid
C) plasma fluid
D) interstitial fluid
14. Differences in the relative percentage of total body water among individuals result largely from variations in _____.
A) body composition
B) race
C) ethnicity
D) age
15. The DASH diets is designed to _____.
A) help with weight loss
B) help gain muscle mass
C) reduce risk factors for renal disease
D) reduce hypertension
16. Some vitamins act as _____ that combine with a protein compound to accelerate chemical reactions.
A) coenzymes
B) cominerals
C) proenzymes
D) polypeptides
17. Which of the vitamins does the body readily excrete?
A) Vitamin D
B) Vitamin A
C) Vitamin E
D) Vitamin C

18. Recommended daily calcium intake for adults age 51 and older is _____ mg.
- A) 800
 - B) 1200
 - C) 1600
 - D) 2000
19. As a result of exercise training, hemoglobin may become _____ in the blood.
- A) deformed
 - B) more concentrated
 - C) larger
 - D) less concentrated
20. As a result of exercise training, the percentage of water in the intracellular compartment _____.
- A) becomes reduced
 - B) remains the same
 - C) increases
 - D) decreases
21. Risk factors for osteoporosis except:
- A) cigarette smoking
 - B) sedentary lifestyle
 - C) early menopause
 - D) high carbohydrate diet
22. Compounds that give rigidity to bones and teeth are composed of _____.
- A) potassium and calcium
 - B) phosphorous and iron
 - C) iron and calcium
 - D) phosphorus and calcium
23. Vitamin _____ promotes growth and mineralization of bones and increases calcium absorption.
- A) A
 - B) D
 - C) C
 - D) K

24. _____ pose the greatest health risk if regularly consumed in excess.
- A) Vitamins D and E
 - B) Vitamins A and D
 - C) Vitamins A and B-complex
 - D) Vitamins C and E
25. The amino acid homocysteine may increase stroke and heart attack risk by _____.
- A) damaging the internal layer of arterial walls
 - B) decreasing the risk for blood clots
 - C) promoting the creation of vitamins that line the arterial wall
 - D) decreasing cholesterol levels
26. Vitamins C, E, and beta-carotene _____.
- A) serve as protective antioxidant agents to blunt potential cellular damage from free radical attack
 - B) reduce the frequency and duration of fungal infections
 - C) facilitate energy metabolism during exercise
 - D) reduce the risk of osteoporosis
27. Which of the following is true regarding osteoporosis?
- A) It afflicts between 5 and 10 million Americans.
 - B) It accounts for more than 4.5 million bone fractures yearly.
 - C) It represents a bone density value greater than 2.5 standard deviations below the mean.
 - D) It coincides with the marked increase in estrogen production associated with menopause.
28. Hormone that conserves sodium via the kidneys.
- A) Norepinephrine
 - B) Glucagon
 - C) Aldosterone
 - D) Antidiuretic hormone
29. Which of the following is classified as a trace (minor) mineral?
- A) Potassium
 - B) Chromium
 - C) Sodium
 - D) Calcium

30. Calcium plays an important role in _____.
A) bone and tooth formation, blood clotting, and nerve transmission
B) thyroid activity, blood clotting, and heart function
C) blood clotting and heart function
D) heart function and thyroid activity
31. The daily water intake requirement of a sedentary adult in a temperate climate equals about _____ L.
A) 0.5
B) 1.0
C) 1.5
D) 2.5
32. Prolonged cessation of the menstrual cycle contributes to _____.
A) loss of bone mass
B) gain in aerobic capacity
C) increase in plasma levels of estrogen
D) development of hypertension
33. Provitamins _____.
A) represent vitamin supplements advertised by professional athletes
B) facilitate the loss of water-soluble vitamins
C) represent vitamins in inactive form
D) represent precursors of water-soluble vitamins
34. The majority of body water is contained within the _____.
A) adipose tissue
B) intracellular compartment
C) interstitial space
D) extracellular compartment
35. Metabolic water represents the _____.
A) majority of a sedentary adult's daily water requirement
B) water contained in ingested foods
C) water required for the hydrolysis of food nutrients
D) water formed in the hydrolysis of food nutrients

36. Dietary iron deficiency may cause _____.
A) osteoporosis
B) sickle cell syndrome
C) anemia
D) decreased anaerobic exercise performance
37. Calcium _____.
A) forms bones and teeth when combined with phosphorous
B) is essential for blood clotting when combined with phosphorous
C) absorbs more readily with ingestion of vitamin E
D) increases skin cancer risk when deficient in the diet
38. Which of the following serve as structural components of hydrogen carrier molecules in glycolysis?
A) Vitamins C and E
B) Riboflavin and niacin
C) Vitamins A and D
D) Beta-carotene and vitamin K
39. Which of the following is not a risk factor for osteoporosis?
A) Being overweight
B) Cigarette smoking
C) Caucasian or Asian ethnicity
D) Frequent meat consumption
40. Cessation of the menstrual cycle for at least three consecutive months is called _____.
A) primary oligomenorrhea
B) eumenorrhea
C) secondary amenorrhea
D) menses

41. A true statement about free radicals and antioxidants.
- A) A normal to above normal intake of vitamin E and beta-carotene may eliminate the progression of coronary artery narrowing and reduce heart attack risk.
 - B) Nutritive-reducing agents include vitamins D, C, and E, and beta-carotene, the vitamin A precursor.
 - C) Antioxidant scavenger enzymes include catalase, glutathione peroxidase, superoxide dismutase, and phosphofructokinase.
 - D) Antioxidants exert a destructive effect on the lipid components of the cell's plasma membrane.
42. The accumulation of potentially damaging free radicals is called _____.
- A) oxidative stress
 - B) redox state
 - C) oxygenation enhancement
 - D) electron scavenging
43. Superoxide dismutase _____.
- A) catalyzes the catabolism of lipids within muscle
 - B) catalyzes the conversion of free radicals to oxygen and water
 - C) inhibits mitochondrial oxygen uptake
 - D) facilitates oxygen transfer across the alveolar membrane
44. Which of the following statements is true?
- A) Consuming a 1000-milligram vitamin C supplement daily for 6 weeks causes undesirable changes in cellular DNA.
 - B) Antioxidant vitamins protect the plasma membrane.
 - C) Vitamin E increases prostate cancer risk.
 - D) Vitamins increase damage to cellular constituents.
45. Foods or parts of foods that provide medical or health benefits are known as:
- A) vitamins
 - B) minerals
 - C) oxidants
 - D) nutraceuticals
46. Vitamins play an important physiologic role related to _____.
- A) fluid osmolality
 - B) metabolic reactions
 - C) temperature regulation
 - D) diffusion

47. Minerals _____.
A) regulate metabolism as part of enzymes and hormones
B) come mainly from animal dietary sources
C) occur in limited quantities in the plant kingdom
D) can catalyze metabolic reactions by themselves
48. Three sources that supply the body's water needs:
A) liquids, fruits, and vegetables
B) foods, fluids, and metabolism
C) fruits, liquids, and solids
D) lipids, proteins, and carbohydrates
49. Excess vitamin B₆ intake _____.
A) can cause liver and nerve damage
B) has no known side effects
C) accelerates osteoporosis
D) stunts growth if accompanied by excessive vitamin B₁₂ intake
50. Coenzymes _____.
A) activate lipid clearance from arterial walls
B) are inactive vitamin precursors
C) are composed of fat-soluble components
D) participate in chemical reactions
51. Shared the Nobel Prize in Physiology or Medicine for discovery of vitamin B₁ (thiamine).
A) Eijkman
B) Saltin
C) Bouchard
D) Asmussen
52. Women consuming vegetarian-type diets _____.
A) are at a higher risk for developing iron insufficiency
B) are at a lower risk for developing iron insufficiency
C) should decrease intake of vitamin C-rich foods
D) should consume fat-soluble vitamins to increase heme iron absorption

53. Maintaining a diet with recommended levels of vitamin C _____.
A) can raise serum uric acid levels and precipitate gout in people predisposed to this disease
B) reduces the risk for several types of cancer
C) reduces hypertension risk
D) decreases endurance exercise performance
54. _____ provides for the greatest loss of daily water.
A) Urine
B) Feces
C) Insensible perspiration
D) Pulmonary ventilation
55. Vitamin B₁ _____.
A) facilitates pyruvate conversion to acetyl-CoA in carbohydrate breakdown
B) needs may be higher in physically active people
C) acts as a catalyst in glucose synthesis
D) serves as part of CoA that augments aerobic macronutrient breakdown
56. Which of the following represents a prudent, nonpharmacologic behavioral approach to treat athletic amenorrhea?
A) Reduce training level by 40% to 60%.
B) Gradually increase total energy intake.
C) Increase body weight by 10% to 15%.
D) Decrease daily calcium intake
57. Free radicals are produced by these environmental factors except:
A) cigarette smoke
B) exposure to cleaning supplies
C) environmental pollutants
D) heat and ionizing radiation
58. This diet lowers blood pressure:
A) low protein
B) mineral water
C) high sodium
D) DASH

59. Which of the following turns inactive enzymes into active form?
- A) Vitamins
 - B) Minerals
 - C) Coenzymes
 - D) Trace minerals
60. Cortical bone represents the _____.
- A) spongy, less dense, and relatively weaker bone found in the vertebrae and ball of the femur
 - B) bone cells destroyed by the body
 - C) bone cells created by the body
 - D) dense, hard outer layer of bone in the shafts of the long bones of the arms and legs
61. _____ represents a midway condition between normal bone mass and osteoporosis.
- A) Osteomalacia
 - B) Osteofibrosis
 - C) Osteopenia
 - D) Osteochondrosis
62. Which of the following does not represent a risk for osteoporosis?
- A) Being male
 - B) Slight build or tendency to be underweight
 - C) Sedentary lifestyle
 - D) Early menopause
63. The only vitamin not available in a vegan's diet is _____.
- A) vitamin E
 - B) folic acid
 - C) ascorbic acid
 - D) vitamin B₁₂
64. Components of the female athlete triad include all of the following except:
- A) disordered eating
 - B) hypertension
 - C) amenorrhea
 - D) osteoporosis

65. Compared to fat-soluble vitamins, water-soluble vitamins _____.
A) must be consumed regularly, usually daily or within a several-day period
B) can be routinely consumed in excess above the RDA without any health risk
C) are inorganic compounds
D) consist of vitamins A, D, E, and K
66. The majority of the body's iron is found in _____.
A) myoglobin
B) hemosiderin
C) hemoglobin
D) ferritin
67. Factors that contribute to female athlete triad include the following except:
A) amenorrhea
B) osteoporosis
C) disordered eating
D) dehydration
68. True or false? Fat-soluble vitamins dissolve and are stored in the body's fatty tissues so there is no need to consume them daily.
A) True
B) False
69. True or false? Consuming a true "fat-free" diet will not lead to the development of a fat-soluble vitamin insufficiency.
A) True
B) False
70. True or false? Children are more susceptible than adults to developing complications from consumption of excess fat-soluble vitamins.
A) True
B) False
71. True or false? Sweating, even during extreme physical activity, probably produces a negligible loss of water-soluble vitamins.
A) True
B) False

72. True or false? Most individuals require salt tablets to maintain adequate sodium levels.
- A) True
 - B) False
73. True or false? Low-energy availability, menstrual dysfunction, and impaired bone health are components of the female athlete triad.
- A) True
 - B) False
74. True or false? Trabecular bone represents the spongy, less dense, and relatively weaker bone most prevalent in the vertebrae and ball of the femur.
- A) True
 - B) False
75. True or false? Supplemental vitamin D can improve skeletal muscle function and muscular strength in frail vitamin D-insufficient individuals.
- A) True
 - B) False
76. True or false? Physical activity can produce reactive oxygen from an electron leak in the mitochondria, probably at the cytochrome level, which produces superoxide radicals.
- A) True
 - B) False
77. True or false? There is limited evidence to recommend for or against the use of multivitamins in the prevention of cardiovascular disease.
- A) True
 - B) False
78. True or false? A deficiency of the mineral zinc can result in growth failure.
- A) True
 - B) False
79. True or false? The body manufactures just about all of the required vitamins.
- A) True
 - B) False

80. True or false? Swimming is one of the best physical activities to promote bone health.
- A) True
 - B) False
81. True or false? Approximately 100 to 200 milliliters of fluid are lost per day through water droplets in exhaled air.
- A) True
 - B) False
82. True or false? Excessive intake of milk and milk products facilitates bone loss.
- A) True
 - B) False
83. True or false? Pharmacologic approaches are considerably more effective than dietary approaches in treating borderline hypertension.
- A) True
 - B) False
84. True or false? Sodium, potassium, and chlorine are collectively called erythrocytes.
- A) True
 - B) False
85. True or false? Aldosterone is a hormone that acts on the kidneys to conserve calcium.
- A) True
 - B) False
86. True or false? Vitamin K occurs only in foods of animal origin.
- A) True
 - B) False

87. True or false? Carotenes comprise the yellow and yellow-orange pigment precursors of vitamin A that give color to vegetables (carrots, squash, corn, and pumpkins) and fruits (apricots and peaches).
- A) True
B) False
88. True or false? Trabecular bone represents the dense, hard outer layer of bone.
- A) True
B) False
89. True or false? Plasma membrane damage occurs during oxidative stress during a chain reaction known as lipid peroxidation.
- A) True
B) False
90. True or false? Micronutrients are molecules required in large amounts by the body and are a source of energy.
- A) True
B) False
91. True or false? Potassium represents the chief extracellular mineral.
- A) True
B) False
92. True or false? Heme iron is iron that is obtained from plant sources.
- A) True
B) False
93. True or false? Sodium and chloride represents the chief extracellular minerals.
- A) True
B) False
94. True or false? Vitamins A, C, and E represent “antioxidant” vitamins.
- A) True
B) False

95. True or false? Weight-bearing exercise provides the most effective exercise mode for stimulating bone mass development.
- A) True
 - B) False
96. True or false? Myoglobin aids in oxygen storage and transport within red blood cells.
- A) True
 - B) False
97. True or false? Hemosiderin transports iron in the blood.
- A) True
 - B) False
98. True or false? Vitamins A, D, E, and K are fat-soluble vitamins.
- A) True
 - B) False
99. True or false? Vitamin supplementation above the RDA improves aerobic exercise performance.
- A) True
 - B) False
100. True or false? Adequate mineral intake usually occurs when consuming a well-balanced diet.
- A) True
 - B) False
101. True or false? Water makes up between 40% and 70% of the total body mass.
- A) True
 - B) False
102. True or false? Water helps protect the heart, lungs, intestines, and eyes.
- A) True
 - B) False

103. True or false? The loss of body water from profuse sweating has minimal consequences.
- A) True
 - B) False
104. True or false? The body can synthesize all vitamins except vitamin E.
- A) True
 - B) False
105. True or false? Calcium requirements are often not met.
- A) True
 - B) False
106. True or false? Measuring serum ferritin concentrations provides useful information about iron reserves.
- A) True
 - B) False
107. True or false? Extracellular water volume exceeds intracellular water volume.
- A) True
 - B) False
108. True or false? Each pound of weight lost during exercise is equal to a 750-milliliter fluid loss.
- A) True
 - B) False
109. True or false? Vitamins A and D, niacin, and folic acid become activated from their inactive precursor or provitamin form.
- A) True
 - B) False
110. True or false? Men are immune to developing osteoporosis because of sex differences in bone structure.
- A) True
 - B) False

111. True or false? Rich sources of folic acid (folate) include enriched whole-wheat products, legumes, green vegetables, meat, eggs, milk products, and liver.
A) True
B) False
112. True or false? Free radicals facilitate low-density lipoprotein (LDL) cholesterol oxidation, thus accelerating atherosclerosis.
A) True
B) False
113. True or false? Researchers from the National Eye Institute found that those with a high intake of lutein and zeaxanthin have a lower risk for macular degeneration.
A) True
B) False
114. True or false? A free radical is a highly reactive atom with an unpaired electron.
A) True
B) False
115. True or false? Daily consumption of excess fat-soluble vitamins can produce serious toxic effects.
A) True
B) False
116. True or false? Lycopene is a potent antioxidant that makes tomatoes red and has been linked to reduced heart disease and cancer risk.
A) True
B) False
117. True or false? From a survival perspective, food is of greater importance than water.
A) True
B) False
118. True or false? Hydrogen and oxygen bond to form carbohydrates when food molecules catabolize for energy.
A) True
B) False

119. True or false? Because it is readily compressible, water gives structure and form to the body through the turgor provided for body tissues.
- A) True
 - B) False
120. True or false? Consuming recommended amounts of folate supports fetal nervous system development in early stages of pregnancy.
- A) True
 - B) False
121. True or false? Depletion of the body's sodium content to critical levels creates a condition termed hypocalcemia.
- A) True
 - B) False
122. True or false? The hormone aldosterone acts on the kidneys to conserve sodium.
- A) True
 - B) False
123. True or false? The chief intracellular mineral is calcium.
- A) True
 - B) False
124. True or false? A compound with some similarities to hemoglobin that aids in oxygen storage and transport within the muscle cell is myoglobin.
- A) True
 - B) False
125. True or false? Maintaining a diet with appropriate amounts of antioxidants decreases the risk for heart disease, diabetes, osteoporosis, cataracts, premature aging, and some cancer.
- A) True
 - B) False

Answer Key

1. A
2. C
3. B
4. C
5. B
6. A
7. B
8. A
9. C
10. C
11. B
12. D
13. A
14. A
15. D
16. A
17. D
18. B
19. D
20. C
21. D
22. D
23. B
24. B
25. A
26. A
27. C
28. C
29. B
30. A
31. D
32. A
33. C
34. B
35. D
36. C
37. A
38. B
39. A
40. C
41. C
42. A
43. B
44. B

- 45. D
- 46. B
- 47. A
- 48. B
- 49. B
- 50. D
- 51. A
- 52. A
- 53. B
- 54. A
- 55. A
- 56. B
- 57. B
- 58. D
- 59. C
- 60. D
- 61. C
- 62. A
- 63. D
- 64. B
- 65. A
- 66. C
- 67. D
- 68. A
- 69. B
- 70. A
- 71. A
- 72. B
- 73. A
- 74. A
- 75. A
- 76. A
- 77. A
- 78. A
- 79. B
- 80. B
- 81. B
- 82. B
- 83. B
- 84. B
- 85. B
- 86. B
- 87. A
- 88. B
- 89. A
- 90. B

- 91. B
- 92. B
- 93. A
- 94. A
- 95. A
- 96. B
- 97. B
- 98. A
- 99. B
- 100. A
- 101. A
- 102. A
- 103. B
- 104. B
- 105. A
- 106. A
- 107. B
- 108. B
- 109. A
- 110. B
- 111. A
- 112. A
- 113. A
- 114. A
- 115. A
- 116. A
- 117. B
- 118. B
- 119. B
- 120. A
- 121. B
- 122. A
- 123. B
- 124. A
- 125. A