Nutrition exam 3 - Short Answers for Exam (study guide)

Nutrition (Campbellsville University)

HP 480 – Sports Nutrition

Exam # 3 – Chapters 15 – 17 and 19 - 21

For the multiple choice questions record your answer on the ANSWER SHEET. For the short answer questions number and record your answers on the BACK OF THE ANSWER SHEET. Please write clearly because, any answer that is not legible will be marked wrong.
Good Luck!!

1. The primary energy system used during explosive, maximal exercise of short duration (e.g., 1 repetition maximum lift) is?

A. ATP-PCr/phosphagen system
B. Anaerobic glycolysis (lactic acid system)
C. Aerobic glycolysis
D. Oxidation of fats and carbohydrates

2. The amount of protein required by strength/power athletes is:

A. <0.8g per kg body weight
B. 0.8-1.0g per kg body weight
C. 1.5-2.0g per kg body weight
D. >2.0g per kg body weight

3. Endurance athletes are at an increased risk for developing iron deficiency anemia because of:

A. Injury to red blood cells caused by repetitive trauma from foot strikes
B. Gastrointestinal bleeding
C. Living or training for extended amounts of time at altitude
D. All of the above
E. A and B only

4. Which of the following statements is false concerning the ATP-PCr energy system?

A. ATP is stored in the muscle at a lesser concentration than PCr
B. The ATP-PCr system represents the most rapidly available source of usable energy for the muscle
C. The ATP-PCr system does not depend on transporting oxygen to the working muscles to produce energy
D. The ATP-PCr system requires a long series of chemical reactions in order to provide energy for muscular contractions

5. The quality of protein in a food is determined by:

A. The number of grams of protein
B. It's essential amino acid content
C. It's non-essential amino acid content
D. It's glycemic index

6. The most common, single nutrient deficiency is of:

A. Calcium
B. Magnesium
C. Iron
D. Zinc

7. Whey protein is considered to be an excellent source of protein because:

A. It's high bioavailability
B. It's content of several critical amino acids such as leucine, isoleucine, and valine
C. Absorption is faster with whey protein than with casein
D. All of the above
E. B and C only

8. Creatine supplementation has been reported to increase creatine and PCr content by _____?

A. 5%-10%
B. 10%-40%
C. 30%-60%
D. 50%-80%

9. Athletes at a higher risk for developing hyponatremia during prolonged exercise include:

A. Athletes who have high sweat rates
B. Those athletes with fewer opportunities to drink during exercise
C. Athletes who are "salty sweaters"
D. All of the above
C. A and C only

10. Which of the following are important to consider when considering protein intake?

A. Timing of the intake
B. Quality of the intake
C. Quantity of the intake
D. All of the above
E. Only B and C

11. Which of the following is not considered an antioxidant?

A. Vitamin A
B. Vitamin B12
C. Vitamin C
D. Vitamin E

12. Which of the following is not a theoretical benefit of creatine supplementation?

A. Increased single and repetitive sprint performance, muscle mass, and strength during training
B. Possible enhancement of aerobic capacity via greater shuttling of ATP from mitochondria and buffering of acidity
C. Increased fat oxidation
D. Greater training tolerance

13. Before exercise and at times other than post-exercise, the strength/power athlete should consume what type of carbohydrate?

A. Simple carbohydrates
B. High glycemic index carbohydrates
C. Limited intake of carbohydrates is optimal
D. Low glycemic index carbohydrates

14. The potential side effects of carbohydrate loading include:

A. Weight gain
B. Lack of appetite
C. Dehydration
D. Hyponatremia

15. Which of the following would be the best dietary source of creatine?

A. Herring
B. Tuna
C. Pork
D. Shrimp

16. Immediately post-exercise, the sources of carbohydrate should consist of:

A. Complex carbohydrates
B. Moderate to high glycemic index carbohydrates
C. Limited intake of carbohydrates is optimal and consume only protein
D. Low glycemic index carbohydrates

17. This vitamin can be obtained from ultraviolet light in the sun:

A. Vitamin A
B. Vitamin D
C. Vitamin E
D. Vitamin K

18. In the case of carbohydrate, strength/power athletes should consume approximately:

A. 55%-60%
B. 10%-20%
C. 30%
D. 40%-45%

19. Which of the following sports/activities would likely benefit the least from creatine supplementation?

A. Football
B. Marathon
C. Weightlifting
D. Basketball

20. Endurance athletes pursuing a vegetarian eating style may need to pay particular attention to consuming enough:

A. Iron
B. Zinc
C. Total calories
D. All of the above
E. A and C only

21. During resistance exercise which macronutrient is the preferred fuel substrate?

A. Fat
B. Protein
C. Carbohydrate
D. Both A and C equally

22. Which of the following is the most common side effect from creatine supplementation reported in the scientific literature?

A. Muscle cramping
B. Muscle soreness
C. Weight gain
D. Muscle pulls/tears

23. Which of the following is not a fat-soluble vitamin?

A. Vitamin A
B. Vitamin C
C. Vitamin D
D. Vitamin E
E. Vitamin K

24. Which of the following is a true statement? In relation to recovery from resistance training:

A. Carbohydrates are more important than protein
B. Protein is more important than carbohydrates
C. Lipids are more important than both protein and carbohydrates
D. It is important to consume a combination of protein and carbohydrates

25. Which of the following organizations ban the use of creatine among their athletes?

A. Major League Baseball
B. National Football League
C. International Olympic Committee
D. All of the above
E. None of the above

26. The most severe physiologic stress an endurance athlete can face is while performing exercise:

A. In the heat
B. In extreme cold
C. At altitude
D. During gale-force winds

27. Which of the following does not contribute to the daily energy requirement of the strength/power athlete?

A. Basal metabolic rate
B. Physical activity
C. Macronutrient quality
D. Thermic effect of food

28. Several diseases are secondary to obesity, including:

A. Cardiovascular disease
B. Osteoarthritis
C. Diabetes
D. All of the above
E. Only A and C

29. Which of the following is a powerful scavenger of free radicals?

A. Vitamin A
B. Vitamin C
C. Vitamin D
D. Vitamin E

30. Mixed muscle protein synthesis rate is _____ in humans after an acute bout of resistance training.

A. Decreased
B. Increased
C. Not changed
D. Depends on the type of resistance training

31. Endurance athletes can best improve their performance during prolonged exercise lasting 4 hours or longer by:

A. Fat loading before the event
B. Consuming carbohydrate rich fluids and/or foods at regular intervals throughout the event
C. Taking salt tablets or eating salty foods during exercise
D. Carbohydrate loading before the event

32. Research has shown that dietary amino acid absorption is _____ with whey protein than with casein protein.

A. Faster
B. Not changed
C. Slower
D. It depends on how much protein is consumed

33. Which of the following minerals is important in preventing osteoporosis?

A. Calcium
B. Chromium
C. Magnesium
D. Zinc

34. To ensure optimal gains in lean muscle mass, a proper protein source should be consumed immediately _____ the athlete's workout.

A. After
B. Before
C. Before and after
D. During

35. Signs of chronic dehydration include:

A. Rapid, otherwise unexplainable weight loss
B. Small amounts of dark-colored urine with a strong odor
C. Stress fractures
D. All of the above

36. Research has shown that sweat induced body weight losses as small as _____ can elicit significant negative consequences on exercise performance.

A. 1%
B. 2%
C. 4%
D. 10%

37. This mineral is the most abundant in the body.

A. Calcium
B. Iron
C. Magnesium
D. Zinc

38. Health professionals should recommend a comprehensive weight loss regimen including a (an):

A. Modest reduction in energy intake only
B. Increase in energy expenditure only
C. Modest reduction in energy intake, and increase in energy expenditure with behavioral modifications
D. Only taking dietary supplements

39. The first component to consider regarding the diet of the strength/power athlete is what?

A. Protein content
B. The daily energy requirement of the athlete
C. Carbohydrate content
D. Both A and B

40. To perform best under extreme conditions, such as cold or altitude, endurance athletes should focus on:

A. Consuming only carbohydrate rich fluids and foods
B. Increasing their protein intake to cover increased losses caused by muscle damage
C. Consuming enough calories to meet their energy needs
D. Consuming carbohydrate and protein in a 4:1 ratio

41. Which type of muscle fiber shows greater glycogen depletion after resistance training?

A. Type I
B. Type II
C. Both muscle fiber types will show almost the same amount of glycogen depletion
D. Depends on the type of resistance training

42. This vitamin is a component of flavin adenine dinucleotide and flavin mononucleotide.

A. Thiamin
B. Riboflavin
C. Niacin
D. Folate

43. Which of the following vitamins is/are not fat-soluble?

A. Vitamin A
B. Vitamin E
C. Vitamin C
D. Vitamin K
E. Both C and D

44. In terms of weight loss, the crucial components of green tea extract are:

A. Caffeine
B. EGCG
C. Ephedrine
D. All of the above
E. Only A and B

45. Endurance athletes are at high risk for developing a full-blown eating disorder because of:

A. Unrealistic expectations about altering body size and shape
B. Being involved in sports that favor or emphasize leanness
C. Belief that losing weight will result in an improved performance
D. All of the above
E. Only A and B

46. The majority of the strength/power athlete's dietary fat should come from what source(s)?

A. Monounsaturated fat
B. Polyunsaturated fat
C. Saturated fat
D. All of the above
E. Only A and B

47. The largest B vitamin is:

A. Vitamin B6
B. Biotin
C. Vitamin B12
D. Vitamin C

48. Dieting can:

A. Interfere with growth in children
B. Increase the chance for illness
C. Make it difficult for the athlete to meet their micronutrient needs
D. All of the above
C. Only A and C

49. Caffeine is an important component of green tea because it:

A. Inhibits an enzyme that would otherwise be quickly hydrolyzed and is an important part of increasing thermogenesis
B. Suppresses appetite
C. Blocks fat absorption in the intestine
D. Works synergistically with EGCG to prolong the thermogenic process

50. What is the most important nutritional ergogenic aid for athletes?

A. Protein
B. HMB
C. Water
D. Leucine

51. Which macronutrient might be needed in greater amounts in younger athletes in comparison to their sedentary peers?

A. Protein
B. Fat
C. Carbohydrate
D. All of the above

52. To determine how much fluid is lost during prolonged exercise, an endurance athlete must:

A. Visit an accredited laboratory and have their sweat rate tested
B. Compare their pre-exercise and post-exercise body weights
C. Record their fluid intake during exercise and collect their urine
D. Weigh themselves periodically during exercises

53. Peak bone mineral density is achieved

A. By the end of puberty
B. In middle age
C. By age 30

54. This vitamin aids in the absorption of calcium.

A. Vitamin A
B. Vitamin D
C. Vitamin E
D. Vitamin K

55. The female athlete triad includes all of the following except:

A. Low calcium intake
B. Amenorrhea
C. Disordered eating
D. Osteoporosis
E. Both A and B

56. Chromium is the second largest selling mineral to:

A. Selenium
B. Zinc
C. Calcium
D. Iron

57. Which of the following statement(s) is/are true regarding water-soluble vitamins?

A. They dissolve in water
B. They can accumulate to a large degree in the body
C. They do not accumulate to a large degree in the body
D. They dissolve in fat
E. Both A and C

58. Relative to body weight, why do children need more protein and a greater percentage of essential amino acids than adults need?

A. Children are more active than adults are
B. Children are experiencing more physical growth than adults are
C. Children have smaller bodies than adults
D. Children have higher metabolism than adults do

59. To effectively carbohydrate load before prolonged exercise, athletes must:

A. Eat only carbohydrate rich foods and drinks the day before and morning of
B. Reduce their training
C. Eat a carbohydrate rich diet for 3 days leading into the event/race
D. Eat a low fat diet for 3 days leading into the event/race
E. Only C and D

60. In children, who are athletes, inadequate calcium intake and low BMD have been associated with which of the following conditions?

A. Stress fractures
B. High blood pressure
C. Shin splints
D. All of the above
E. Only A and C

61. Which of the following statement(s) is/are true regarding fat-soluble vitamins?

A. They dissolve in water
B. They do not accumulate to a large degree in the body
C. They can accumulate to a large degree in the body
D. Both A and B

62. A value intended to meet or exceed the amount necessary to maintain nutritional adequacy of the particular nutrient, is called what?

A. Recommended Daily Allowance (RDA)
B. Adequate Intake (AI)
C. Basal Metabolic Rate (BMR)
D. Recommended Amount (RA)

63. Which of the following can signal that an endurance athlete's nutrition program is out of sync with their training program?

A. Frequent upper respiratory illnesses
B. Slow recovery from training bouts
C. Nagging injuries
D. All of the above
E. Only B and C

64. Iron is a component of which of the following in the human body?

A. Hemoglobin
B. Myoglobin
C. Muscle fibers
D. All of the above
E. Only A and B

65. Which of the following are common challenges faced by endurance athletes?

A. Consuming enough of certain key nutrients
B. Timing food intake around exercise
C. Consuming adequate calories
D. All of the above
E. Only A and B

66. Young athletes may have an increased risk for heat related illness (heat cramps, heat exhaustion, and heat stroke) in comparison to adults, due to what factor(s)?

A. Young athletes weigh less than adults do
B. Young athletes have less muscle mass than adults do
C. Young athletes have grater surface area relative to their body mass
D. All of the above
E. Only B and C

67. Which of the following strategies are best to combat chronic dehydration in the endurance athlete?

A. Drink only water when the athlete feels thirsty
B. Develop a consistent habit of "going out the door" fully hydrated
C. Drink large amounts of water just prior to activity
D. Make sure to drink fluids during activity

68. What micronutrient(s) should athletic women be especially concerned about in their diets?

A. Iron
B. Zinc
C. Magnesium
D. All of the above
E. Only A and B

69. Which of the following athletes would be the most likely to have difficulty meeting their daily zinc requirements?

A. A male athlete who eats meat every day
B. A male athlete who is a vegetarian
C. A female athlete who is a vegetarian
D. A female athlete who eats meat every day

70. A well-designed diet for a strength/power athlete meets and/or provides what four conditions? (4 points)

4-6 meals a day, with snacks. Protein. Fat. Hydration.

71. What are the two main nutritional issues that youth athletes face? (2 points)

The ability to reach the necessary caloric intake and macro intake (for growth and development). The potential development of eating disorders.

72. Please explain carbohydrate loading. Be sure to include the following information: Who should carbohydrate load, why carbohydrate load, and what is the best way to carbohydrate load. (7 points)

Carbohydrate loading is best for ultra-endurance athletes (4+ hours), marathoners, triathlon athletes, and continuous high intensity bouts longer than 90 minutes. By Carb loading you increase your glycogen stores, and as an endurance athlete you have a greater demand during your activity. By doing this you can delay fatigue, keep a higher pace for longer, and helps to prevent hypoglycemia during activity. At least 3 days before the event, up to 5, you will increase your carbohydrate intake and reduce your training.

73. Please explain how you would prescribe a calorie plan that fits with a strength/power athlete's body weight goals. Include recommendations for an athlete who wants to maintain their body weight, an athlete who wants to lose fat mass (include how many calories in one pound), and an athlete who want to gain muscle mass (include how many calories in one pound of muscle) (7 points)

First, you need to know the BMR of the athlete. This will help to make sure that caloric needs are met. If they want to maintain their weight, then you need to multiply the BMR and the PAL (physical activity level) factor. To increase or decrease body weight you need to increase or decrease your energy balance, respectively. To lose weight, your caloric intake should decrease 3500 Calories weekly (500 daily). That is the number of calories in a pound of body fat. This will ensure a safe weight descent. To gain weight they should consume 300-500 more calories daily, this can be tough for some to do, so it is smart to eat protein and energy bars or powders. One pound of muscle is 2500 calories.

74. Fully describe the uses of iron in the human body. In addition, what is the condition called when someone has low iron levels, what population is more likely to have this condition, and what problems can low iron levels lead to? (5 points)

Both hemoglobin and myoglobin contain iron, and they transport oxygen though the blood and muscles, respectively. Athletic women are most likely to have low iron, a deficiency of

iron is called anemia. This is the most common deficiency. If you have this you will have a reduced oxygen transport capacity and a reduced cellular oxygen capacity. It can also effect other processes like the electron transport chain and protein synthesis. Iron can be found in meat and poultry, fruits and vegetables, and bread and grain products. You can also take iron supplements.