

The Athlete' Guide to Sports Supplements

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The Athlete's Guide To Sports Supplements Course Objectives

After completing The Athlete's Guide To Sports Supplements course, the participant will:

1. Determine what classifies a substance as a supplement.
2. Understand the regulation of dietary supplements.
3. Understand the different categories of micronutrients and macronutrients.
4. Learn what performance variables are targeted for each supplement used.
5. Learn the difference between marketing hype and scientifically proven supplements.
6. Understand the different processes and demands on the body during exercise and competition, and how supplements may aid in these mechanisms.
7. Understand the safety and health concerns with taking certain sport supplements.
8. Comprehend what popular supplements are and how they work on the body.
9. Learn actual research studies that have been used on human subjects with supplements and the benefits they create.
10. Learn the dosage recommendations and limits for supplements.

11. Develop a plan for recommending supplements for special population, such as, the master athlete, those competing in extreme environments, and those with special dietary needs.
12. Learn supplement trends for the future of sports and fitness.
13. Receive a practical reference guide for recommending supplements based on the needs of the athlete.
14. Understand the major risks associated with supplement use and how to limit them.
15. Learn the appropriate supplement recommendations for fuel usage, aerobic endurance, anaerobic capacity, strength, power, hypertrophy, immunity, joint support, and antioxidants.
16. Understand key nutritional recommendation for athletes and their special needs for macro and micronutrients.



The Athlete's Guide To Sports Supplements Course Examination

For each question, choose the best answer.

1. According to the Dietary Supplement Health and Education Act of 1994, which of the following would not be considered a dietary supplement?
 - A. Carbohydrates
 - B. Herbs
 - C. Tobacco
 - D. Minerals
2. From 2000-2001 the International Olympic Committee investigated supplements from 215 suppliers and found what percentage contaminated with banned substances?
 - A. 1%
 - B. 8%
 - C. 15%
 - D. 20%
3. Minerals and vitamins, collectively, are known as what?
 - A. Macronutrients
 - B. Micronutrients
 - C. Fat Soluble
 - D. Amino Acids
4. Which micronutrient is needed in small quantities to aid enzyme formation, immune system function, and reproduction?
 - A. Water-soluble vitamins
 - B. Fat-soluble vitamins
 - C. Major minerals
 - D. Trace minerals
5. Which of the following minerals would be classified as a major mineral?
 - A. Zinc
 - B. Iron
 - C. Chromium
 - D. Sodium
6. Which of the following would be classified a water-soluble vitamin?
 - A. Biotin
 - B. Calciferol
 - C. Retinol
 - D. Selenium

7. An athlete in the final 72 hours of precompetition using a carbo-loading technique, should increase their carbohydrate intake by approximately what percent?
- A. 10%
 - B. 15%
 - C. 20%
 - D. 25%
8. All of the following are essential amino acids EXCEPT:
- A. Glutamine
 - B. Isoleucine
 - C. Tryptophan
 - D. Leucine
9. Safety is an issue when consuming this type of supplement since several studies have found them to be contaminated with metals like lead, mercury, and arsenic?
- A. Mineral supplements
 - B. Herbal supplements
 - C. Carbohydrate supplements
 - D. Amino Acid supplements
10. What will likely be the hottest trend for the future of supplements?
- A. Intravenous
 - B. Lotions
 - C. Customization
 - D. Supplements for children
11. According to the USADA, in order for third party testing to be credible it must have all of the following EXCEPT:
- A. Has external accreditations
 - B. Has a conflict of interest
 - C. Evaluates the dietary supplement for overall safety and quality
 - D. Has a validated and accredited method to test for prohibited substances.
12. All of the following are MAJOR risks associated with dietary supplement use EXCEPT:
- A. Supplement purity
 - B. Supplement safety
 - C. Supplement allergies
 - D. Unproven supplement claims
13. Which Act requires manufacturers of supplements to notify the FDA of any serious adverse effects related to their products?
- A. Dietary Supplement and Nonprescription Drug Consumer Protection Act
 - B. Dietary Supplementation Health and Education Act
 - C. US Food and Drug Administration Act
 - D. Bay Area Laboratory Co-Operative Act
14. Which of the following would be a helpful resource for getting more information about research performed using supplements?
- A. United States Anti-Doping Agency
 - B. Pub Med
 - C. Council for Responsible Nutrition
 - D. Supplement Safety Now

15. A study in which the subjects and the researches are not aware of when the experimental medication or procedure has been given or followed is referred to as what?
- A. Clinical trial
 - B. Statistical significance
 - C. Double-blind
 - D. Placebo-controlled
16. Supplements that aid in the body's ability to produce ATP would be targeting which performance variable?
- A. Recovery
 - B. Muscular Function
 - C. Hydration Status
 - D. Fuel Usage
17. Which of the following sports primarily utilizes aerobic metabolism?
- A. Cross-country skiing
 - B. Baseball
 - C. Soccer
 - D. Weight lifting
18. The need for oxygen relies on maximal aerobic capacity and what other physiological parameter?
- A. Cardiac Output
 - B. Anaerobic Threshold
 - C. VO2 Max
 - D. Aerobic Threshold
19. When testing supplements effectiveness on improving aerobic capacity, research will look at the following variables that may be effected by the supplement EXCEPT:
- A. VO2 Max
 - B. Anaerobic threshold
 - C. Mitochondrial density and enzyme levels
 - D. Muscular endurance
20. Which of the following is an example of a banned substance that helps improve blood volume and red blood cell production?
- A. Erythropoietin and plasma expanders
 - B. Beetroot
 - C. Phosphate salts
 - D. Ecdysteriods
21. If an athlete is trying to improve anaerobic endurance, he or she should focus on all of the following EXCEPT:
- A. The amount of ATP on hand
 - B. The amount of force an muscle can produce
 - C. The amount of glycogen available
 - D. Lactate tolerance
22. Which of the following is an example of a neurological adaptation that takes place during training?
- A. Increase in the amount of ATP stores
 - B. Increase in the amount of muscle glycogen stores
 - C. Increase in the size of muscle fibers
 - D. Increase in the rate of contraction of muscle fibers

23. A decrease of ____% in body weight due to dehydration can negatively affect performance.
- A. 1%
 - B. 2%
 - C. 3%
 - D. 4%
24. Electrolytes and _____ are two key ingredients that can increase fluid intake.
- A. Carbohydrate
 - B. Fat
 - C. Protein
 - D. Vitamins
25. Which system of the body needs to replace used glycogen and ATP stores for adequate recovery between training sessions?
- A. Neuromuscular System
 - B. Metabolic System
 - C. Endocrine System
 - D. Antioxidant Defense System
26. All of the following are categories of fat burners and weight-loss supplements EXCEPT:
- A. Steroid based
 - B. Stimulant based
 - C. Appetite suppressants
 - D. Fat malabsorptive
27. Despite no scientific proof of improvement, many athletes will take this supplement to help improve energy production through enhanced mitochondrial energy production.
- A. Citrulline Malate
 - B. Hoodia Gordonii
 - C. Pyruvate
 - D. Acetyl-L-Carnitine
28. Too high doses of antioxidants may interfere with the positive adaptation effects of exercise, such as:
- A. Vasoconstriction
 - B. Vasodilation
 - C. Muscle Hypertrophy
 - D. Stroke Volume
29. When choosing an Alpha-lipoic acid supplement, what should you look for on the label?
- A. R label
 - B. S label
 - C. R/S label
 - D. Q label
30. Although definitive conclusions on Arginine supplementation are hard to make, they may assist with the following EXCEPT:
- A. Testosterone production
 - B. Growth hormone production
 - C. Synthesis of creatine
 - D. Nitric oxide production

31. This supplement is often taken by athletes due to its ability to enhance immune function and protect against illness.
- A. Sea Buckthorn
 - B. Leucine
 - C. GABA
 - D. Astragalus
32. The two types of saponifiables from avocado and soy seem to work synergistically in what ratio?
- A. 1:1
 - B. 1:2
 - C. 1:3
 - D. 1:4
33. When digested, the nitrates from this supplement are converted to nitric oxide, which serves as a vasodilator.
- A. Sodium Bicarbonate
 - B. Colostrum
 - C. Beetroot
 - D. Ginkgo Biloba
34. Randomized, controlled studies have demonstrated that which supplement can increase carnosine levels within the muscle?
- A. Creatine
 - B. Beta-alanine
 - C. Grape Seed
 - D. Pyruvic Acid
35. What can be taken with Beta-alanine to enhance its performance response?
- A. Fats
 - B. Amino Acids
 - C. Carbohydrates
 - D. Creatine
36. Which supplement should expecting mothers take extra precautions since large doses can be harmful to the fetus?
- A. Folic acid
 - B. Vitamin D
 - C. Egg Protein
 - D. Beta-carotene
37. An athlete who is looking for an alternative to nonsteroidal anti-inflammatories may want to try which supplement?
- A. Boswellia Serrata
 - B. Cordyceps Sinensis
 - C. Glutathione
 - D. SierraSil
38. Which of the following is NOT a Branched-Chain Amino Acid?
- A. Leucine
 - B. Isoleucine
 - C. Valine
 - D. Glutamine

39. Branched-Chain Amino Acids are unique because they can be:
- A. Used to improve lipolysis
 - B. Oxidized in the muscle for fuel
 - C. Catabolized in the liver
 - D. Metabolized in the digestive tract
40. What is the most common protocol for ratio of leucine:valine:isoleucine?
- A. 1:1:1
 - B. 1:1:3
 - C. 3:1:1
 - D. 1:3:1
41. What is the most likely reasoning that caffeine may assist to better sustain exercise intensities for athletes?
- A. Increased fat oxidation
 - B. Increased glycolysis
 - C. Increased amino acid sparing
 - D. Increased creatine availability
42. What is the upper limit of caffeine the NCAA allows for urine testing?
- A. 1 mcg/mL
 - B. 1.5 mcg/mL
 - C. 2 mcg/mL
 - D. 2.5 mcg/mL
43. Supplementation of calcium appears to be beneficial in promoting optimum body composition and weight loss, but primarily for what individual?
- A. Elite athletes
 - B. Recreational athletes
 - C. Those with suboptimal calcium intake
 - D. Those who are sedentary
44. All of the follow types of carbohydrates have a fast oxidation rate, EXCEPT:
- A. Glucose
 - B. Maltose
 - C. Waxy Maize Starch
 - D. Amylose
45. Bonking refers to:
- A. Depletion of muscle glycogen stores
 - B. Depletion of liver glycogen stores
 - C. Muscle cramping during exercise
 - D. Depletion of ATP stores
46. Which of the follow is the appropriate amount of carbohydrates to consume during training or competition lasting longer than 3 hours?
- A. 60-90 g/hour
 - B. 30-60 g/hour
 - C. 90-120 g/hour
 - D. 120-150 g/hour
47. What would be the most appropriate carbohydrate source during competition?
- A. Whole grains
 - B. Pulp free juice
 - C. Waxy Maize Starch
 - D. Sports drink

48. Which is a main difference between whey and casein?
- A. Whey is more slowly digested
 - B. Casein releases amino acids into the blood stream more rapidly
 - C. Only whey is a milk protein
 - D. Casein releases amino acids at a more prolonged rate
49. How may the hydrophilic nature of chia seeds help improve athletic performance?
- A. May increase fat oxidation sparing glycogen stores
 - B. May allow an athlete to stay hydrated better
 - C. May keep an athlete more full
 - D. May reduce bloating and gas
50. Which supplement is believed to assist in weight loss by binding with consumed and limiting its absorption?
- A. Hoodia Gordonii
 - B. Selenium
 - C. Choline
 - D. Chitosan
51. Studies show that choline supplementation is only beneficial when choline levels are depleted. This can occur during which type of exercise?
- A. Shorter than 1 hour at intensities greater than 65%
 - B. Longer than 1 hour at intensities under 70%
 - C. Choline levels are depleted during any exercise intensity and duration
 - D. Longer than 2 hours at intensities greater than 70%
52. Which common spice has the potential benefit of control blood sugar levels and improve insulin sensitivity?
- A. Nutmeg
 - B. Cinnamon
 - C. Cumin
 - D. Salt
53. Which supplement is thought to improve aerobic performance by speeding up the clearance of ammonia and recycling lactate?
- A. Sodium Bicarbonate
 - B. Echinacea
 - C. Citulline Malate
 - D. Melatonin
54. What type of triglycerides are found in large amounts in coconut?
- A. Short-chained
 - B. Medium-chained
 - C. Long-chained
 - D. Heavy-chained
55. Athletes who suffer from muscle wasting diseases, like muscular dystrophy would most benefit from which supplement?
- A. Milk Protein
 - B. Coenzyme Q10
 - C. Glucosamine
 - D. Calcium

56. What common supplement may increase liver and spleen size and lead to insulin resistance?
- A. Zinc
 - B. Ginseng
 - C. Creatine
 - D. Conjugated Linoleic Acid
57. Where is approximately 95% of the body's creatine stored?
- A. The liver
 - B. Muscle tissue
 - C. The blood
 - D. The pancreas
58. What supplement was Baltimore Raven's star, Ray Lewis, accused of using to accelerate his recovery of a torn biceps tendon?
- A. Deer Antler
 - B. Dehydroepiandrosterone
 - C. Human Growth Hormone
 - D. Arginine
59. DHEA is a precursor to what anabolic hormone?
- A. Growth hormone
 - B. Insulin-like growth factor
 - C. Testosterone
 - D. Insulin
60. What herb may help reduce degenerative stresses on the joints during sports and training?
- A. Devil's Claw
 - B. Cat's Claw
 - C. Elderberry
 - D. Fenugreek
61. Athletes who are concerned with a positive drug test for amphetamines should use caution if considering this supplement:
- A. Ginkgo Biloba
 - B. Huang Qi
 - C. Dimethylamylamine
 - D. Medical Mushrooms
62. What type of steroid can be found in plant sources, such as spinach, quinoa, and chestnut?
- A. Androgens
 - B. Ecdysteroids
 - C. Estrogens
 - D. Progestogens
63. What supplement used to decrease the risk of infections, should be used cyclically due to its loss of effectiveness with long term use?
- A. Echinacea
 - B. Zinc
 - C. Beetroot
 - D. Probiotics
64. Which source of protein has the highest biological value of any protein?
- A. Whey protein
 - B. Egg protein
 - C. Casein protein
 - D. Pea protein

65. Which of the following is a type of fiber with FDA approval as a cholesterol reducing agent?
- A. Inulin
 - B. Pectin
 - C. Pysllium
 - D. Cellulose
66. What supplement, rich in essential fatty acids, has a scientific name that means, “most useful”?
- A. Alpha linolenic acid
 - B. Beta-glucans
 - C. Fenugreek
 - D. Flaxseed
67. What supplement, when combined with antidepressants, can lead to serotonin syndrome?
- A. 7-Dihydroxyflavone
 - B. 5-HTP
 - C. 5-Diamino-5-Oxopentaenoic Acid
 - D. CoQ10
68. Those who suffer from megaloblastic anemia may benefit from which vitamin supplement?
- A. Folic Acid
 - B. Thiamine
 - C. Transition Movements
 - D. Breakaway Speed
69. What is one problem with taking an oral GABA supplement?
- A. It does not cross the wall of the intestines
 - B. It does not cross the blood-brain barrier
 - C. It becomes toxic when taken orally
 - D. It is absorbed too quickly by the blood stream
70. A number of clinical studies using this supplement have shown a decrease in exercise-induced pain associated with resistance training?
- A. Garlic
 - B. Cocoa
 - C. Ginger
 - D. Cinnamon
71. Which type of Ginseng is believed to help the immune system by enhancing the number of immune cells in the blood?
- A. Siberian
 - B. American
 - C. Eleuthero
 - D. Panax
72. Which is the most abundant amino acid in the body, which may improve recovery and immune response?
- A. Leucine
 - B. Arginine
 - C. Glutamine
 - D. Valine

73. Which is an example of an antioxidant that can cross the blood-brain barrier?
- A. GABA
 - B. Vitamin C
 - C. Grape Seed
 - D. Acai Berry
74. Who would be the best candidate for taking an HMB supplement?
- A. Elite athletes
 - B. Master athletes
 - C. Body builders
 - D. Untrained individuals
75. What condition is found in endurance athlete due to an increase in blood volume during training with lower than normal levels of hemoglobin?
- A. Anemia
 - B. Sports anemia
 - C. Diabetes
 - D. Sickle-cell anemia
76. Which amino acid has the ability to signal cells to start protein synthesis?
- A. Leucine
 - B. Isoleucine
 - C. Valine
 - D. Glutamine
77. All of the following increase the risk of magnesium deficiency EXCEPT:
- A. A low protein diet
 - B. Regular consumption of alcohol
 - C. Drinking too much soda
 - D. A high fat diet
78. What type of triglycerides does not need carnitine to transport them into the mitochondria?
- A. Short-chained
 - B. Medium-chained
 - C. Long-chained
 - D. Heavy-chained
79. Which of the following food sources has the highest amount of ALA?
- A. Canola Oil
 - B. Chia Seeds
 - C. English Walnuts
 - D. Flaxseed Oil
80. Which of the following food sources has the highest amount of EPA?
- A. Pacific herring
 - B. Oysters
 - C. Salmon
 - D. Sardines
81. What ratio of EPA:DHA would work best for anti-inflammatory benefits?
- A. 1:1
 - B. 1:2
 - C. 2:1
 - D. 1:3

82. Excess sugar intake can increase the chances of developing a deficiency in which mineral?
- A. Sodium
 - B. Potassium
 - C. Magnesium
 - D. Fluoride
83. Probiotics help improve the immune system by improving nutritional support in the intestines where approximately what percentage of the body's immune system is?
- A. 25%
 - B. 40%
 - C. 50%
 - D. 70%
84. There are a number of studies that support the benefit of this supplement use for treatment of osteoarthritis and depression?
- A. Boron
 - B. SAMe
 - C. Willow Bark
 - D. Glucosamine
85. What helps maintain fluid levels by controlling whether water will be retained or excreted as urine?
- A. Potassium
 - B. Magnesium
 - C. Sodium
 - D. Chloride
86. Those suffering from Crohn's disease or who have had gastric bypass surgery may benefit from taking this supplement due to impaired absorption:
- A. Boron
 - B. Choline
 - C. Riboflavin
 - D. Selenium
87. Due to toxic levels, what is the upper limit daily recommendation for selenium?
- A. 400 mcg
 - B. 500 mcg
 - C. 600 mcg
 - D. 700 mcg
88. What is the body's most important natural buffering agent of hydrogen ions during exercise?
- A. Beta-alanine
 - B. Sodium bicarbonate
 - C. Sodium ascorbate
 - D. Arginine
89. What would be an appropriate protein daily intake for strength athletes?
- A. .9 g/kg/bw
 - B. 1.5 g/kg/bw
 - C. 2 g/kg/bw
 - D. 2.2 g/kg/bw

90. This alkaloid can bind with alpha and beta adrenal receptors which may result in an increase in metabolic rate and fat oxidation:
- A. Synephrine
 - B. Piperine
 - C. Capsicum
 - D. Curcumin
91. A study of ultra endurance runners found that those taking this type of juice twice a day before and during competition reported significantly less pain:
- A. Apple juice
 - B. Tart cherry juice
 - C. Pineapple juice
 - D. Coconut water
92. Which non-essential amino acid helps increase the release of calcium creating more muscular excitability?
- A. Alanine
 - B. Tyrosine
 - C. Glycine
 - D. Taurine
93. What supplement should coffee and tea drinkers consider taking, since both drinks have chemicals reducing the availability of this vitamin?
- A. Folic Acid
 - B. Niacin
 - C. Thiamine
 - D. Biotin
94. One study found which supplement to be twice as effective as glucosamine and chondroitin in promoting joint health?
- A. MSM
 - B. UC-II
 - C. Omega 3 fatty acids
 - D. Devil's claw
95. Which vitamin should master athletes who follow a strict vegetarian diet consider taking?
- A. Vitamin A
 - B. Vitamin E
 - C. Vitamin K
 - D. Vitamin B12
96. Most studies show that Vitamin C supplementation works best during which situation?
- A. During deficiencies
 - B. During intense training or competition
 - C. For untrained athletes
 - D. For elite athletes
97. What level of Vitamin D would be considered moderately deficient?
- A. 10 ng/mL
 - B. 15 ng/mL
 - C. 30 ng/mL
 - D. 40 ng/mL

98. What supplement would athletes training at altitude benefit from because of its ability to enhance oxygen usage?
- A. Vitamin C
 - B. Beta-alanine
 - C. Vitamin E
 - D. Caffeine
99. What source of protein are researchers finding to be the best in terms of stimulating protein synthesis after resistance training?
- A. Whey
 - B. Casein
 - C. Soy
 - D. Egg
100. What foods should NOT be taken with Zinc since they can impair absorption?
- A. High glycemic index foods
 - B. High fiber foods
 - C. Proteins
 - D. Medium-chained triglycerides
101. Zinc deficiencies may lead to lower levels of what hormone?
- A. Estrogen
 - B. Insulin
 - C. Growth hormone
 - D. Testosterone
102. At what age do athletes tend to see about 5-10% drops per decade in VO₂ Max?
- A. 20
 - B. 30
 - C. 40
 - D. 50
103. All of the following, may increase the aging effect on bone EXCEPT:
- A. Smoking
 - B. Alcohol
 - C. Increased carbohydrate intake
 - D. Inactivity
104. Which macronutrient need increases with the aging athlete?
- A. Protein
 - B. Fat
 - C. Carbohydrates
 - D. Vitamins and minerals
105. What type of protein in the GI tract declines with age making it more difficult to absorb vitamin B₁₂?
- A. Extrinsic factor
 - B. Intrinsic factor
 - C. Leucine
 - D. Whey

106. All of the following are important factors the masters athletes may need to address with supplementation EXCEPT:
- A. Immune Support
 - B. Joint Support
 - C. Meeting calorie needs
 - D. Preservation of lean body mass
107. Which of the following supplements would be appropriate for a master's athlete to help preserve muscle mass?
- A. Fish oils
 - B. MSM
 - C. Vitamin C
 - D. Whey protein
108. Which of the following supplements would be appropriate for a master's athlete to help support immune function?
- A. Avocado soybean unsaponifiables
 - B. Fish oils
 - C. Calcium
 - D. Leucine
109. Which of the following supplements would be appropriate for a master's athlete to help improve joint support?
- A. Zinc
 - B. HMB
 - C. SAMe
 - D. Calcium
110. The primary goal when working with children and adolescent athletes is:
- A. To maximize supplement potential
 - B. To develop proper movement skills
 - C. To increase anabolic hormone levels
 - D. To increase overall total caloric intake
111. Which of the following is NOT one of the five guidelines of food for children athletes?
- A. Meeting energy needs
 - B. Nutrient timing
 - C. Hydration
 - D. Eating Infrequently
112. Which supplement may be a good choice for a young athlete to help enhance energy metabolism?
- A. Biotin
 - B. Vitamin B12
 - C. Folate
 - D. Vitamin A
113. Which situation would be a proper place to start an adolescent athlete on a dietary supplement routine?
- A. They do not have a solid food foundation
 - B. They have reached full maturity
 - C. They can be training consistently for 6 months
 - D. They have taken supplements before

114. If a child athlete wants to start taking dietary supplements which of the following would be a good place to start?
- A. Beta-alanine
 - B. Creatine
 - C. Fish oils
 - D. Prohormones
115. An athlete may see hormonal balance and functionality of metabolic systems start to deteriorate if their energy intake falls below what amount?
- A. 10 kcal/lb
 - B. 11 kcal/lb
 - C. 12 kcal/lb
 - D. 13 kcal/lb
116. The combination of disordered eating, menstrual irregularities, and diminished bone health is referred to as what?
- A. The female trinity
 - B. The female athlete triad
 - C. Anorexia
 - D. Bulimia
117. What is the most common micronutrient deficiency found in female athletes?
- A. Iron
 - B. Sodium
 - C. Potassium
 - D. Magnesium
118. What is the first line of defense for the female athlete to help improve performance?
- A. Supplementation
 - B. Whole food intake
 - C. Nutrient timing
 - D. Anabolic steroids
119. What supplement may be a good recommendation for a female athlete suffering from cramping associated with PMS?
- A. Beta-alanine
 - B. Iron
 - C. Magnesium
 - D. Zinc
120. Due to the need a rebuilding tissue after an injury, the injured athletes first concern is:
- A. Calorie intake
 - B. Nutrient timing
 - C. Supplementation
 - D. Dieting
121. What should be the goal from macronutrient breakdown for the injured athlete for Protein:Carbohydrate:Fat?
- A. 30%:50%:20%
 - B. 45%:30%:25%
 - C. 30%:20%:50%
 - D. 25%:45%:30%

122. All of the following are goals for supplementation of the injured client EXCEPT:
- A. Preservation of lean body mass
 - B. Improving anaerobic threshold
 - C. Joint support
 - D. Antioxidants
123. Which of the following supplements would help an injured athlete prevent muscle atrophy?
- A. Vitamin D
 - B. Leucine
 - C. SAMe
 - D. Tart cherry juice
124. Which of the following supplements would help an injured athlete reduce inflammation?
- A. Curcumin
 - B. HMB
 - C. Calcium
 - D. Vitamin C
125. In order to maintain optimal blood glucose levels and replenish glycogen stores used during training, what would be a sufficient amount of carbohydrate consumption per day?
- A. 1.5 g/lb
 - B. 2.5 g/lb
 - C. 3.8 g/lb
 - D. 4.9 g/lb
126. For preworkout fueling, it is recommended that 1 hour of digestion time should be allotted for how many calories consumed before the workout?
- A. 100-200 cal
 - B. 200-300 cal
 - C. 300-400 cal
 - D. 400-500 cal
127. Which of the following supplements may increase blood sugar?
- A. Biotin
 - B. Niacin
 - C. Zinc
 - D. Fiber
128. Which of the following supplements may decrease blood sugar?
- A. Vitamin C
 - B. DHEA
 - C. Caffeine
 - D. Ginseng
129. High doses of which supplement can actually elevate blood sugar and reduce performance and health?
- A. Vitamin A
 - B. Vitamin B12
 - C. Vitamin C
 - D. Vitamin D

130. Administration of what supplement has been shown to decrease insulin resistance in skeletal muscle?
- A. Thiamin
 - B. Biotin
 - C. Chromium
 - D. Folic acid
131. What supplement would be beneficial for diabetes who are often deficient in this supplement, which aids in the transportation of glucose into the cells?
- A. Thiamin
 - B. Biotin
 - C. Chromium
 - D. Folic acid
132. If an athlete has an intolerance to sulfites what food source should they avoid?
- A. Red wine
 - B. Wheat
 - C. Meat
 - D. Cheese
133. What spice could be added to an athlete's diet to reduce inflammation that is a result of a food intolerance?
- A. Cumin
 - B. Turmeric
 - C. Garlic
 - D. Pepper
134. Athletes suffering from food intolerance may want to consider taking this supplement that aids in immune function?
- A. Quercetin
 - B. Bromelain
 - C. Ginger
 - D. Probiotics
135. What is an athlete whom includes dairy in their diet but excludes eggs, fish, seafood, and meat?
- A. Semivegetarian
 - B. Vegan
 - C. Lacto-vegetarian
 - D. Lacto-ovo-vegetarian
136. According to the World Health Organization, vegetarian athletes should consume what percentage of their calculated protein intake?
- A. 90%
 - B. 100%
 - C. 110%
 - D. 120%
137. All of the following micronutrients are of concern for the vegetarian athlete EXCEPT:
- A. Vitamin D
 - B. Vitamin C
 - C. Zinc
 - D. Calcium

138. Which of the following would be good advice for a vegetarian athlete, in terms of nutritional recommendations?
- A. Decrease intake of B12
 - B. Decrease intake of iron
 - C. Reduce dairy intake
 - D. Increase zinc intake
139. Which supplement may help the vegetarian athlete by boosting muscle carnosine levels?
- A. Creatine monohydrate
 - B. Iron
 - C. Beta-Alanine
 - D. Whey protein
140. What percentage of water lost during exercise should be consumed to replace it?
- A. 75%
 - B. 100%
 - C. 125%
 - D. 150%
141. What supplement recommendation would you give an athlete training in the heat in order to prevent central nervous system fatigue?
- A. Gatorade
 - B. Tyrosine
 - C. Sodium
 - D. Potassium
142. Exercise capacity would be reduced by what roughly what percent at 2100 m?
- A. 1%
 - B. 3%
 - C. 6%
 - D. 9%
143. Athletes training at altitude may experience weight loss due to what?
- A. Decreased appetite
 - B. Increased fat oxidation during exercise
 - C. Increased resting metabolic rate
 - D. Decrease absorption of consumed calories
144. All of the following are PRIMARY supplement options for athletes at altitude EXCEPT:
- A. Increasing caloric intake
 - B. Antioxidants
 - C. Electrolytes
 - D. Prohormones
145. All of the following are appropriate supplements to recommend an athlete training at altitude for antioxidant support EXCEPT:
- A. Zinc
 - B. Sodium
 - C. Selenium
 - D. Vitamin E
146. What is the recommended amount of sodium intake daily for an athlete training at altitude?
- A. 300-600 mg
 - B. 500-700 mg
 - C. 1,000-2,000 mg
 - D. 2,000-3,000 mg

147. Which of the following supplements would be the best recommendation for an athlete who wants to see improvements in strength, power, hypertrophy, and recovery?
- A. Branched-chain amino acids
 - B. Beta-alanine
 - C. Beta glucan
 - D. Capsicum
148. Which of the following supplements would be the best recommendation for an athlete wanting to improve immunity and increase their intake of antioxidants?
- A. Ginseng
 - B. Grape seed
 - C. Garlic
 - D. MSM
149. Which of the following would be a good recommendation for an athlete who needs to improve aerobic capacity and anaerobic endurance?
- A. Willow bark
 - B. Tart cherry
 - C. Cat's claw
 - D. Beetroot
150. Which of the following supplements would best be recommended for an athlete interested in improving fuel usage?
- A. Sodium bicarbonate
 - B. Thiamine
 - C. Arginine
 - D. Quercetin