Sports Nutrition  
Study Guide Test 1

General Principles of Nutrition: What's On a Food Label
1. Know the six major classes of nutrients and the three major functions of nutrients in the body.
2. Be able to distinguish between essential and nonessential nutrients and between micronutrients and macronutrients.
3. Be able to define and know the difference between the dietary reference intake (DRI), the recommended dietary allowance (RDA), the adequate intake (AI), and the tolerable upper intake level (UL). (http://books.nap.edu/books/0309085373/html/)
4. Understand and be able to explain the new Food Guide Pyramid. (http://www.mypyramid.gov/pyramid/index.html)
5. Be able to read, understand, and interpret a food label. (http://www.oznet.ksu.edu/library/fntr2/l883.pdf)
6. Be able to convert kilocalories (kcal) to kilojoules (kJ) and vice versa. (4.2 kJ = 1 kcal)
7. Know the caloric equivalent of 1 gram of carbohydrate, fat, protein, and alcohol.

Fuel Sources for Muscle and Exercise Metabolism: Central Fatigue Hypothesis
1. Understand the fundamentals of the human energy systems, i.e. understand how ATP is resynthesized via the ATP-PC system, anaerobic glycolysis, aerobic glycolysis, and the Krebs cycle and electron transport.
2. Know the approximate number of Calories stored in the body in the various storage forms.
3. Know which energy substrate (carbohydrate, fat, protein) can be used in each energy system. Know the “time capacity” of each energy system, i.e. how long can each system function?
4. Know the approximate proportion of energy substrate used at rest.
5. Know the range of caloric expenditure per minute that the human is capable of.
6. Know the factors that influence the substrate utilization during exercise.
7. Be able to define fatigue and know the primary potential causes of fatigue resulting from high intensity exercise and from prolonged exercise. Know which of the potential causes of fatigue can be influenced by nutrition. Specifically understand the effect of Nutrition on the Central Fatigue Hypothesis.

Chapter 5: Carbohydrates: Carbohydrates and Fats for Training and Recovery; Dietary Carbohydrates and Performance; Glycemic Index and Performance
1. Be able to define the following: carbohydrate, simple carbohydrate, complex carbohydrate, monosaccharide, disaccharide, oligosaccharide, polysaccharide, glucose polymer, starch, and fiber.
2. Know the three monosaccharides and which monosaccharides are components of sucrose, lactose, and maltose.
3. Know the end-products of carbohydrate metabolism and what eventually happens to these end products when they reach the blood.
4. Know the normal concentration of glycogen in wet muscle and in the liver.
5. Know the typical rate of glucose output by the liver at rest and during exercise.
6. Be able to identify substrates used in gluconeogenesis and the approximate contribution of gluconeogenesis to liver glucose output.
7. Understand the “glycemic index,” the kinds of carbohydrates that have a high and low glycemic index and the impact the glycemic index may have on sports nutrition.
8. Know the normal range of values for fasting blood glucose, hypoglycemia and hyperglycemia.
10. Understand the concept of “reactive hypoglycemia.”
11. Understand the relationship between carbohydrate use and intensity of exercise, level of training, diet, and environment.

12. Know the recommendations for carbohydrate consumption before (supercompensation, 3-5 hours before, 30-60 minutes before), during, and after exercise.

13. Know the four factors that promote glycogen restoration following exercise and how to optimize each of these factors to restore glycogen.

14. Be able to identify the appropriate form and amount of carbohydrates to be consumed before, during and after exercise.

15. Know whether alcohol can serve as a significant source of energy for exercise.