# DIET-1050: SPORTS NUTRITION

## Cuyahoga Community College

### Viewing: DIET-1050 : Sports Nutrition

**Board of Trustees:**
January 2020

**Academic Term:**
Fall 2021

**Subject Code**
DIET - Dietetic Technology

**Course Number:**
1050

**Title:**
Sports Nutrition

**Catalog Description:**
Nutrition implications for human physical and athletic performance including energy and specific nutrients. Emphasis on food selection to enhance performance and nutrition recommendations with regard to varying athletic activities. Calculation of individual energy needs based on weight and activity level. Assessment of body composition and appropriate use of ergogenic aids. Designed for the causal exerciser, elite athlete, coaches, trainers, and persons recognizing the importance of nutrition to fitness.

**Credit Hour(s):**
3

**Lecture Hour(s):**
3

**Lab Hour(s):**
0

**Other Hour(s):**
0

### Requisites

**Prerequisite and Corequisite**
ENG-0995 Applied College Literacies, or appropriate score on English Placement Test; or departmental approval.

Note: ENG-0990 Language Fundamentals II taken prior to Fall 2021 will also meet prerequisite requirements.

### Outcomes

**Course Outcome(s):**
Describe and discuss the rationale for choosing a healthy diet based on Dietary Guidelines, My Plate, and the Nutrition Facts Panel (Nutrition Label) with regard to varying athletic activities.

**Essential Learning Outcome Mapping:**
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**
1. Identify recommended nutrients and their primary food sources, emphasizing those that are of primary concern to athletes.
2. State the role of carbohydrates on energy metabolism and exercise.
3. Recall the role of proteins and amino acid intake on muscle building and exercise.
4. Describe the role of fats, fat burning, essential fatty acids and trans fats on exercise.
5. Identify and discuss the role of vitamins in performance, their food sources, and classifications.
6. Explain the need of minerals/electrolytes in physical performance.
7. Evaluate the benefits and risks of vitamin supplementation.

8. Evaluate sports nutrition promotional literature for fraudulent claims.
9. Identify specific energy needs based on gender, body weight, BMI, and activity level.

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**Course Outcome(s):**

Characterize weight management as related to athletes by assessing body composition and determine appropriate nutrient choices.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Discuss the role of exercise and diet on weight control and body composition.
2. Explain the importance of body composition to physical performance.
3. Recognize the benefits and risks of various ergogenic aids.

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**Course Outcome(s):**

Apply the techniques of hydration and body temperature regulation through fluid replacement and heat exchange mechanisms.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Discuss various hydration techniques to use before, during, and after exercising.
2. Discuss the consequence of poor water balance.
3. Describe heat regulation mechanisms.

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**Methods of Evaluation:**

1. Quizzes
2. Examinations
3. Student assignments

**Course Content Outline:**

1. Introduction to Sports Nutrition
    a. Definition of sports nutrition
    b. Basic nutrients
        i. Carbohydrates
        ii. Proteins
        iii. Fats
        iv. Vitamins
        v. Minerals
        vi. Water
    c. How the body produces energy
    d. The Dietary Reference intakes
    e. Enriched and fortified foods
    f. The basic nutrition guidelines
        i. Dietary Guidelines for Americans
        ii. Define the MyPlate food guidance system
    g. Food labeling: How to interpret and use as guidance in food choices
        i. FDA.gov
        ii. Use of ingredient list
        iii. Nutrition fact panel
        iv. Percent daily value
        v. Nutrient content claims
        vi. Health claims
    h. Factors to consider in developing an individualized sports nutrition plan for athletes
        i. Health history of athlete
        ii. Sport's bioenergetics and logistics

iii. Athlete"s total weekly training and competition time
iv. Athlete's living arrangements, access to food, and travel schedule

i. Practical application of sports nutrition knowledge

2. Nutrients: Ingestion to energy metabolism
   a. Digestion process, absorption, transported and assimilated into body:
      i. Carbohydrates
      ii. Fats
      iii. Proteins
   b. Absorption, transport, and assimilation into the body:
      i. Minerals
      ii. Vitamins
      iii. Water
   c. Process of energy metabolism and why is it important
      i. Definition of energy
      ii. The body's source of chemical energy
      iii. Cellular production of ATP
      iv. The three energy systems
         1. Phosphagen system
         2. Anaerobic energy system
         3. Aerobic energy system
   d. Carbohydrates
      i. Define
      ii. Classify
      iii. Functions
      iv. Amounts to consume
      v. Sources of dietary carbohydrates
      vi. Define glycemic index, glycemic load and impact in sports nutrition
      vii. Timing and amount and types of carbohydrate intake before, during, and after exercise
   e. Fats
      i. Define
      ii. Classify
      iii. Functions
      iv. Amounts to consume
      v. Sources of dietary fat
      vi. Using Nutrition Facts panel to calculate percentages of fat in goods
      vii. Impact of fats on daily training and performance
      viii. Timing and amounts of fat intake before, during and after exercise
   f. Protein
      i. Define;define difference between complete and incomplete protein
      ii. The importance of protein to athletes
      iii. Recommended daily protein consumption for athletes
      iv. Functions
      v. Define nitrogen balance
      vi. Sources of dietary protein by food group
      vii. Protein supplements: Questions to ask before use
         1. Is it necessary
         2. What is the quantity of amino acids in the product
         3. What is the cost of the protein supplement
         4. Will protein supplements enhance performance
         5. Are there any risks associated with taking the supplement
      viii. Why protein is essential for daily training
      ix. Timing, amounts, types of protein, amino acid source recommendations before, during, and after exercise.
   g. Vitamins
      i. Define
      ii. Classify vitamins as water soluble and fat soluble
      iii. Define dietary needs for vitamin intake
      iv. Define function, sources, and role of water soluble vitamins in the diet: thiamin, riboflavin, niacin, Vitamin B6, Vitamin B 12, folate, biotin, pantothenic acid, choline, Vitamin C

v. Define function, sources, and role of fat soluble vitamins in the diet: Vitamin A, carotenoids, Vitamin D, Vitamin E, Vitamin K
vi. Define function, sources, and role of antioxidants
vii. Define function, sources, and role of phytochemicals

h. Minerals
i. Define
ii. Classify minerals as major and trace minerals.
iii. Define function, sources and role of major minerals: calcium, phosphorus, magnesium, sodium, chloride, potassium, sulfur
iv. Define function, sources and role of trace minerals: iron, zinc, chromium, fluoride, copper, manganese, iodine, molybdenum, selenium and other trace minerals

i. Water
i. Define function, sources, and hydration levels of water in the body
ii. Describe consequences of varying hydration levels
iii. Define daily fluid requirements, includes sources (water, beverages, foods)
iv. Describe role of water and hydration in pre-exercise, exercise, and post-exercise.

j. Nutritional Ergogenics
i. Define ergogenics
ii. Define dietary supplements and how they are used by athletes, how they are regulated, and safety of supplements
iii. Define doping and role of ergogenic aids.
iv. Review commonly used dietary supplements and ergogenics commonly used by athletes and review their safety
v.

3. Practical Application of Sports Nutrition
a. Nutritional consultation with athletes: Review of evidence based practice
b. Weight Management: Review of concerns relating to overweight, underweight, obesity, weight status, disordered eating
c. Endurance and Ultra Endurance Athletes: Review of classification and varying nutrient needs.

## Resources

Dunford, Marie and Doyle,J. Andrew. *Nutrition for Sports and Exercise*. 4th edition. Boston: Cengage, 2019. 2019.

Clark, N. *Nancy Clark's Sports Nutrition Guidebook*. 6th Edition. 2019.

Fink, H., and Mikesky, A. *Practical applications in Sports Nutrition.* 5th. Burlington,MA, Jones Bartlett Learning, 2018.

Academy of Nutrition and Dietetics; Eatright.org. *Sports Nutrition Care Manual*. 2019.

**Resources Other**

https://www.choosemyplate.gov/
https://health.gov/dietaryguidelines/
https://www.nal.usda.gov/fnic/dietary-reference-intakes (https://www.nal.usda.gov/fnic/dietary-reference-intakes/)
https://www.fda.gov/food/food-labeling-nutrition/changes-nutrition-facts-label

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