

SES-2310: ADVANCED TRAINING CONCEPTS AND TECHNIQUES

Cuyahoga Community College

Viewing: SES-2310 : Advanced Training Concepts and Techniques

Board of Trustees:

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Academic Term:

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Subject Code

SES - Sport and Exercise Studies

Course Number:

2310

Title:

Advanced Training Concepts and Techniques

Catalog Description:

Advanced concepts and principles in strength, conditioning and sport performance. Learn and understand the anatomy, biomechanics, sport metabolism, performance assessments, training methods, program design, and proper instructional and lifting techniques of strength, power, speed, agility and conditioning exercises for practical application with athletes.

Credit Hour(s):

3

Lecture Hour(s):

2

Lab Hour(s):

2

Requisites

Prerequisite and Corequisite

SES-1040 Teaching Exercise Training Techniques or departmental approval.

Outcomes

Course Outcome(s):

Explain concepts and principles of strength conditioning and sport performance related to functional anatomy, sport biomechanics, and sport metabolism.

Objective(s):

1. Explain functional anatomy as it relates to sport performance training.
2. Explain the concept of functional multiplanar biomechanics in sport.
3. Explain sport-specific metabolism and motor unit metabolism.
4. Demonstrate practical implications of sport-specific and motor unit metabolism in various sports.
5. Discuss types of fatigue and muscle damage that can occur to athletes before, during, and after training.
6. Discuss the role of anabolic hormones in sport and athletics.

Course Outcome(s):

Apply concepts of strength and conditioning that focus on assessments, corrective exercises, performance preparation, theories and techniques for health-related and performance-related components of fitness and injury prevention.

Objective(s):

1. Identify the health-related and performance-related components of fitness.
2. Discuss the role of athletic conditioning in sport.
3. Discuss various sport analysis methods.
4. Identify assessments to evaluate health-related and performance-related fitness components.
5. Explain the components and function of an integrated sports performance assessment.
6. Explain the effects of common postural distortions and movement imbalances on the human movement system.
7. Differentiate between the types of flexibility techniques.
8. Describe how cardiorespiratory training is used within an integrating training program to improve performance.
9. Differentiate between local and global stability and movement systems of the core.
10. Describe balance and its purpose in performance enhancement and injury prevention.
11. Describe plyometric training and its purpose in performance enhancement and injury prevention.
12. Describe speed, agility, and quickness and its purpose in training.
13. Describe the stages of general adaptation syndrome and the principle of specificity.
14. List and define the various types of resistance training systems.
15. Describe the utilization of Olympic lifts for improving performance.
16. Discuss the performance-related benefits of a warm-up.
17. Discuss the implementation and benefits of common recovery methods.
18. Explain how to select warm-up and recovery method activities that match the specific goals of athletes.
19. Discuss how to modify traditional exercises to make them more athletically functional.
20. Explain the mechanisms and risk factors for injuries and common injuries in sports.
21. Explain the different types of exercise employed during physical therapy and sports rehab programs.
22. Discuss the return to sport parameters follow rehab for each injury.

Course Outcome(s):

Apply knowledge of the foundational concepts of strength conditioning and sport performance for athletes in various sport programs and phases of training.

Objective(s):

1. Perform systematic health and performance-fitness assessments to obtain objective information about athletes.
2. Evaluate assessment results to develop proper and appropriate exercises and programs for athletes at any given level of training.
3. Develop a needs analysis for optimized sport performance programming.
4. Demonstrate how to apply proper exercises progressions within a warm-up and cool-down.
5. Demonstrate appropriate flexibility techniques for athletes at any given level of training.
6. Rationalize the importance of core training for improving sports performance and injury prevention.
7. Design a systematic core training program for athletes at any given level of training.
8. Design a progressive balance training program for athletes at any given level of training.
9. Design a progressive plyometric training program for athletes at any given level of training.
10. Design a speed, agility, and quickness training program for athletes at any given level of training.
11. Design a progressive resistance training program for athletes at any given level of training.
12. Determine appropriate resistance training exercises in an integrated training program.
13. Design performance enhancing cardiorespiratory training programs through the use of base and interval training.
14. Demonstrate proper cardiorespiratory, core, balance, plyometric, speed, agility, quickness, resistance training and Olympic weightlifting techniques and be able to identify improper techniques.
15. Demonstrate proper exercise selection for each training phase to ensure adaptations match athletic goals.
16. Explain how to make program adjustments what will limit the risk for overtraining.
17. Explain what physiological factors to consider when developing a program for improved sport performance.
18. Discuss proper progressions of conditioning programs to ensure athletic development while limiting the risk for injury.
19. Discuss factors that influence the development of an optimal sport-specific performance program.

Methods of Evaluation:

1. Written assignments
2. Case study analysis
3. Discussion boards
4. Video instructional assignments

5. Workout plan assignment
6. Periodization program assignment
7. Instructional teaching assignments
8. Outside class assignment
9. Exams

Course Content Outline:

1. Introduction to advanced training concepts and strength and conditioning
 - a. Fitness vs athletic
 - b. Health-related fitness components
 - c. Performance-related fitness components
 - d. Role of athletic conditioning in sport
2. Sport needs analysis for program development
3. Performance assessment for athletes
 - a. Assessments for health-related components of fitness
 - b. Muscular fitness testing
 - c. Flexibility fitness testing
 - d. Anthropometric measures and body composition testing
 - e. Assessments for performance-related components of fitness
 - f. Speed, agility, and change of direction testing
 - g. Balance and coordination testing
4. Sport biomechanics
 - a. Principles of stability
 - b. Planes of motion and axes of rotation
 - c. Joint and musculoskeletal actions
 - d. Energy systems
5. Sport biomechanics
 - a. Principles of stability
 - b. Local and global systems
6. Sport metabolism
 - a. Energy systems
 - b. Neuromuscular system
 - c. Motor unit metabolism and physiology
 - d. Types of fatigue
 - e. Muscle damage
 - f. Role of anabolic hormones
7. Performance preparation
 - a. Warm-up
 - b. Recovery strategies
8. Foundations and techniques for Olympic weightlifting
 - a. Lifting for sport-specific purposes
 - b. Squats
 - c. Compound pulls
 - d. Olympic pulls and cleans
 - e. Snatches
 - f. Presses and jerks
9. Theories and concepts of speed, agility, and quickness training
10. Techniques for speed, agility, and quickness training
11. Considerations for programming
 - a. Physiological and logistical program considerations
 - b. Exercise selection
 - c. Training methods and systems of training
12. Programming for special performance
 - a. Traditional training phases
 - b. Integrated training phases
 - c. Integrated programming approach
13. Periodization methods for sport

- a. Traditional periodization theory
- b. Current Periodization theory
- 14. Conditioning for intermittent sports
- 15. Training methods for endurance sports
- 16. Injury prevention and return to competition

Resources

Biagioli, B. (2015) *Advanced concepts of strength and conditioning*, Coral Gables: National Council on Strength & Fitness.

National Strength & Conditioning Association. (2022) *Exercise technique manual for resistance training, 4th ed.*, Champaign: Human Kinetics.

National Strength & Conditioning Association. (2016) *Essentials of Strength Training and Conditioning, 4th ed.*, Champaign, Human Kinetics.

National Strength and Conditioning Association, McHenry, P., & Nitka, M. (2022) *NSCA's guide to high school strength and conditioning: A resource for professionals, coaches, and teachers*, Champaign: Human Kinetics.

Bompa, T. & Buzzichelli, C. (2022) *Periodization of strength training for sports, 4th ed.*, , Champaign: Human Kinetics.

National Strength and Conditioning Association, French, D., & Torres-Londa, L. (2022) *NSCA's essentials of sport science*, Champaign: Illinois.

Joyce, D., & Lewindon, D. (2022) *High-performance training for sports, 2nd ed.*, Champaign: Human Kinetics.

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