STRUCTURE & FUNCTION EDUCATION

Bridging the Gap From Rehab to Performance: Chapter 9 - Fundamental Performance (Home Study)

I. Module 1: General Introduction

a. Video – Message from Sue Falsone, PT, MS, SCS, ATC, CSCS, COMT, SFDN
b. Video – How to Use this Course
c. Survey - Before We Begin (goals, experience, roadblocks)
d. Course Objectives
e. Disclaimer

II. Module 2: General Introduction

Objectives: Upon completion, the student will be able to:

- Understand how Fundamental Performance fits within the BTG model
- Describe the difference between core stabilization and core propulsion
- Discuss the importance of kinetic linking during programming

a. Introduction Letter to Chapter 9
b. Video: Fundamental Performance #1 (5 minutes)
c. Read: A Systematic Review of Meta-Analyses Comparing Periodized and Non-periodized Exercise Programs: Why We Should Go Back to Original Research (3363 words)
   Afonso J, Rocha T, Nikolaidis PT, Clemente FM, Rosemann T, Knechtle B. A Systematic Review of Meta-Analyses Comparing Periodized and Non-periodized Exercise Programs: Why We Should Go Back to Original Research. *Front Physiol.* 2019;10:1023. Published 2019 Aug 7. doi:10.3389/fphys.2019.01023
d. Read: *Bridging the Gap*: Chapter 9 (12,500 words)
e. Quiz: 4 Questions

III. Module 3: Movements and Programming

Objectives: Upon completion, the student will be able to:

- Describe how fascia relates to movement training
- Describe different types of movement categories and list upper and lower body exercises for each category
- Describe different training variables and how they can be manipulated in programming

a. Watch: Movements and Programming #1 (12 minutes)
b. Watch: Movements and Programming #2 (18 minutes)
c. Read: Fascial tissue research in sports medicine: from molecules to tissue adaptation, injury and diagnostics: consensus statement (4846 words)

Zügel M, Maganaris CN, Wilke J, et al. Fascial tissue research in sports medicine: from molecules to tissue adaptation, injury and diagnostics: consensus statement. *Br J Sports Med*. 2018;52(23):1497. doi:10.1136/bjsports-2018-099308

d. Programming Progressions and Variables (9 minutes)
e. Read: Current Concepts in Periodization of Strength and Conditioning for the Sports Physical Therapist (5476 words)
   Lorenz D, Morrison S. CURRENT CONCEPTS IN PERIODIZATION OF STRENGTH AND CONDITIONING FOR THE SPORTS PHYSICAL THERAPIST. *Int J Sports Phys Ther*. 2015;10(6):734-747.
f. Read: Eccentric Exercise Program Design: A Periodization Model for Rehabilitation Applications (9771 words)
   Harris-Love MO, Seamon BA, Gonzales TI, Hernandez HJ, Pennington D, Hoover BM. Eccentric Exercise Program Design: A Periodization Model for Rehabilitation Applications. *Front Physiol*. 2017;8:112. Published 2017 Feb 23. doi:10.3389/fphys.2017.00112
g. Quiz (6 questions)

IV. Module 4: Time Under Tension

Objectives: Upon completion, the student will be able to:

- Describe the different types of variables that can be manipulated in a strength program
- Discuss the different physiological adaptations that can occur due to manipulation of above variables
- Understand the different time under tension and load parameters needed to achieve a specific physiological adaptation

a. Video: Time Under Tension (7 minutes)
b. Read: Periodized Resistance Training for Enhancing Skeletal Muscle Hypertrophy and Strength: A Mini-Review (3849 words)
   Evans JW. Periodized Resistance Training for Enhancing Skeletal Muscle Hypertrophy and Strength: A Mini-Review. *Front Physiol*. 2019;10:13. Published 2019 Jan 23. doi:10.3389/fphys.2019.00013
c. Read: Effects of linear and daily undulating periodized resistance training programs on measures of muscle hypertrophy: a systematic review and meta-analysis (5906 Words)
   Grgic J, Mikulic P, Podnar H, Pedisic Z. Effects of linear and daily undulating periodized resistance training programs on measures of muscle hypertrophy: a systematic review and meta-analysis. *PeerJ*. 2017;5:e3695. Published 2017 Aug 22. doi:10.7717/peerj.3695
d. Video: Load Considerations (35 minutes)
e. Read: The training—injury prevention paradox: should athletes be training smarter and harder? (5777 words)
   Gabbett TJ. The training—injury prevention paradox: should athletes be training smarter and harder? *Br J Sports Med*. 2016;50(5):273-280. doi:10.1136/bjsports-2015-095788

f. Read: Wearable sensors for monitoring the internal and external workload of the athlete (12567 words)
Seshadri DR, Li RT, Voos JE, et al. Wearable sensors for monitoring the internal and external workload of the athlete. *NPJ Digit Med*. 2019;2:71. Published 2019 Jul 29. doi:10.1038/s41746-019-0149-2
g. Quiz (5 questions)

V. **Module 5: Plyometrics**

Objectives: Upon completion, the student will be able to:

- Define common plyometric terminology
- Discuss current concepts of fascia as it relates to plyometric training
- Describe four different types of plyometrics, based on their amplitude and training characteristics
- Understand plyometrics/power as a function of load and time
- Discuss the different training needs for a novice and expert trainee

a. Watch – Plyometrics (28 minute)
b. Read - Current Concepts of Plyometric Exercise (7954 words)
Davies G, Riemann BL, Manske R. CURRENT CONCEPTS OF PLYOMETRIC EXERCISE. *Int J Sports Phys Ther*. 2015;10(6):760-786.
c. Read - The Effect of Plyometric Training in Volleyball Players: A Systematic Review (9602 words)
Silva AF, Clemente FM, Lima R, Nikolaidis PT, Rosemann T, Knechtle B. The Effect of Plyometric Training in Volleyball Players: A Systematic Review. *Int J Environ Res Public Health*. 2019;16(16):2960. Published 2019 Aug 17. doi:10.3390/ijerph16162960
d. Watch – Training Age (6 minutes)
e. Read: Effects of Resistance Training in Youth Athletes on Muscular Fitness and Athletic Performance: A Conceptual Model for Long-Term Athlete Development (8359 words)
Granacher U, Lesinski M, Büsch D, et al. Effects of Resistance Training in Youth Athletes on Muscular Fitness and Athletic Performance: A Conceptual Model for Long-Term Athlete Development. *Front Physiol*. 2016;7:164. Published 2016 May 9. doi:10.3389/fphys.2016.00164
f. Quiz (5 questions)

VI. Course Wrap Up

a. Read – Conclusion Message
b. Complete Course Evaluation

Video: 120 minutes; Reading: 89970 words; Quiz: 20 questions
Mergener Formula = 4 + 2 hours of video = 6 CEUs