Course Title: **Programming For Strength Gains**

Produced by: **Fitness Learning Systems**
1012 Harrison Ave #3 Harrison OH 45030
www.fitnesslearningsystems.com 1-888-221-1612

Course Type: **e-Learning Home Study**

Credit hours: IACET (International Association for Continuing Education and Training) 0.2 (2 Hours) Approved and Accepted by several additional organizations.

Continuing Education:

To receive continuing education for this course you must receive a 75% or higher score on a multiple choice quiz.

Author:

Amy Ashmore holds a Ph.D. in Kinesiology from the University of Texas at Austin and an MS in Exercise and Sports Sciences from Florida State University. She has over 30 years of sports & fitness industry and academic leadership experience. Amy is the author of dozens of articles, blogs, and continuing education programs. She is the former Program Director for Sports Sciences and Management at the American Military University (AMU). Prior to managing the AMU program, Amy was a Professor with American Public University System (APUS), University of Tampa, and College of Southern Nevada. She lives in Las Vegas, NV with her son, Aiden, and their dog, Jimbug.

Course Summary:

This is a great time to be a part of the evolving strength training industry. Our knowledge about how to maximize strength gains under ideal programming conditions continues to grow and influence how we program. In this course, we explore how to strategically time strength sessions and design concurrent training programs that minimize interference and maximize strength gains.

Objectives:

After completing this course you will be able to:

1. Explain how timing is essential in 5 aspects of resistance training and discuss 4 new topics in research.
2. Discuss 3 topics related to muscle confusion.
3. Describe 5 variables to consider in concurrent programming.
4. Explain how chronotype is important to program periodization.
5. Discuss how intermittent rest plays a role in scheduled gains.
6. Describe how 3 different lengths of time for static stretching affect muscle performance.

Outline:

Timing is Everything
What's New?
Part 1: Advanced Training Methods
    Muscle Confusion Reconsidered
        Muscle Force Generation Capacity
        Competing Mechanisms
        Programming Tips
    Concurrent Programming
        Length of Recovery Time
        Frequency
        Mode of Cardiovascular Exercise
        Intensity
        Volume
        Programming Tips
Part 2: Anticipation Training
    Chronotype Programming
        Discover Your Chronotypes
        Programming Tips
    Scheduled Gains
        Intermittent Rest
        Programming Tips
    Factoring in Muscle Length
        Flexibility Programming
        Programming Tips
Conclusion

Bibliography:

- Aguilar AJ, DiStefano LJ, Brown CN, Herman DC, Guskiewicz KM, and Padua DA. (2016) A dynamic warm-up model increases quadriceps strength and hamstring flexibility. European Journal of Sport Sciences. 16(4):402-8.
- Avloniti A, Chatzinikolaou A, Fatouros IG, Protopapa M, Athanailidis I, Avloniti C, Leontsini D, Mavropalias G, Jamurtas AZ. (2011) The effects of static stretching on speed and agility: One or multiple repetition protocols? Journal of Strength and Conditioning Research. Nov; 25(11):2991-8.
- Avloniti A, Chatzinikolaou A, Fatouros IG, Avloniti C, Protopapa M, Draganidis D, Stampoulis T, Leontsini D, Mavropalias G, Gounelas G, and Kambas A. (2016) The Acute Effects of Static Stretching on Speed and Agility Performance Depend on Stretch Duration and Conditioning Level. Journal of Strength and Conditioning Research. Oct; 30(10):2767-73.
- Beck TW, DeFreitas JM, and Stock MS. (2011) The Effects of a Resistance Training Program on Average Motor Unit Firing Rates. Clinical Kinesiology. 65(1):1-8.
- Docherty D and Sporer B. (2000) A proposed model for examining the interference phenomenon between concurrent aerobic and strength training. Sports Medicine. 30(6):385-94.
- Doma K and Deakin G. (2013) The Cumulative Effects of Strength and Endurance Training Sessions on Muscle Force Generation Capacity Over Four Days. Journal of Australian Strength and Conditioning. 21(Supplement 1):34-8.
- Fyfe JJ, Bishop DJ, and Stepto NK. (2014) Interference between concurrent resistance and endurance exercise: molecular bases and the role of individual training variables. Sports Medicine. 44(6):743-762.
- *Horne JA, and Östberg O. (1976) "A self-assessment questionnaire to determine morningness-eveningness in human circadian rhythms". International Journal of Chronobiology. 4(2):97-110.*
- Jones TW, Howatson G, Russell M, and French DN. (2017) Effects of strength and endurance exercise order on endocrine responses to concurrent training. European Journal of Sports Sciences. 17(3):326-334.

- Mirghani SJ, et al. (2014) Influence of strength, endurance and concurrent training on the lipid profile and blood testosterone and cortisol response in young male wrestlers. Baltic Journal of Health and Physical Activity. 6(3):7-16.
- Peck E MD, Chomko G DPT, Gaz D V. MS, and Farrell, AM MLS. (2014) The Effects of Stretching on Performance. Current Sports Medicine Reports. 13 (3):179-83.
- Shrier I MD/PhD and McHugh M PhD. (2012) Does Static Stretching Reduce Maximal Muscle Performance? A Review. Clinical Journal of Sports Medicine. 22(5):450-451.
- Schroeder EA and Esser KA. (2013) Circadian Rhythms, skeletal muscle molecular clocks and exercise. Exercise and Sport Sciences Review. Oct; 41(4):10.
- Wilson JM, et al. (2012) Concurrent training: a meta-analysis examining interference of aerobic and resistance exercises. Journal of Strength and Conditioning Research. 26(8):2293-2307.