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Periodization For Strength Training

By Chris Gellert, PT, MMusc & Sportsphysio, MPT, CSCS, C-IASTM

Introduction

Strength training is something that all individuals need to do, but as a personal trainer, do you know the science behind the training? This article will the fundamental principles of periodization training as it relates to strength training.

Foundation of Periodization Training

Why is it important to understand periodization training? Periodization training is the **cornerstone** of training any client, athlete or individual post therapy, assisting them in reaching their optimal health and desired goals. Understanding and then applying these core principles with program design will provide the personal trainer with the abilities to help a client reach their goals systematically. Any strength-training program should apply the five basic laws of training to ensure adaptation occurs and avoidance of injury.

The Five Basic Laws of Strength Training

Tudor Bump, PhD is a **pioneer** in the field of strength & conditioning, program design and periodization training. Through his research and experience, he has created the five basic laws of strength training. These laws have not only proved to be essential for athletes, but

through extensive evidenced based research (randomized controlled trials (RCT) and various studies), have shown they are essential for proper development and to avoid injury. In this next section, the five basic laws are explained.

Law Number One: Develop Joint Flexibility

- Most strength training exercises use the range of motion of major joints. Proper joint Flexibility prevents stress to the weight bearing joints, prevents injuries and pain.

Law Number Two: Develop Tendon Strength

- Muscle strength improves faster than tendon and ligament strength. Tendons and Ligaments grow strong through anatomical adaptation. Without proper anatomical Adaptation, vigorous strength training can injure the ligaments and tendons. Training tendons and ligaments causes them to enlarge in diameter, increasing their ability to withstand tension and shearing.

Law Number Three: Develop Core Strength

- The arms and legs are only as strong as the trunk. Strength training programs Should first strengthen the core muscles before focusing on the periphery: arms and legs. Weak core muscles fail in these essential roles, limiting an individual or athlete to perform optimally. According to the **research**, muscles of the spine are comprised of **Type I slow-twitch (ST)** fibers because of their supporting role to the arms and legs.

Law Number Four: Develop the Stabilizers

- Prime movers work more efficiently with strong stabilizing muscles. Stabilizers contract, primarily isometric ally, to immobilize a limb so that another part of the body can act. A weak stabilizer inhibits the contracting capacity of the prime movers.
- Improperly developed stabilizers may hamper the activity of major muscles. At the shoulder, the supraspinatus and infraspinatus assist with lifting and rotating the arm.
- **The research** has shown the difference among men and women indicating that women possess weaker gluteus medius and glute minimus muscles.
- Men typically those who play sport develop tight external rotators (piriformis) and glute maximus muscles. Therefore, stretching the tight postural muscles (piriformis) and strengthening the weaker phasic muscles such as glute medius will provide increased stability at the hip.

Law Number Five: Train movements, not Individual Muscles

- Athletes should resist training muscles in isolation as in bodybuilding. Athletic skills involve the contraction of synergistic muscles that perform the movement. For example, a takeoff to catch a ball has the following kinematic chain motion: hip extension, the knee extension and finally ankle plantar flexion enabling the feet to apply a force against the ground to lift the body. Therefore, training the movement

of the athlete instead of specific muscle only is essential for optimal performance by the athlete.

Periodization Training Phases

When it comes to Periodization Training there are three main phases that an individual or athlete goes through. This includes the Preparatory Phase, Competitive Phase and Transition Phase

1. Hypertrophy Phase (Preparatory Phase)

- Occurs during the early stages of the Preparatory Phase and is usually the longest Phase within an annual plan
- The major emphasis within this period is to **develop a general framework/base level** of conditioning in order to increase tolerance for more intense training. This phase begins with training at low intensity and high volume. The goals are to develop and promote hypertrophy, improve neuromuscular activity, increase connective tissue strength and increase lean muscle mass, which will be utilized later in the training cycles.

The **specific objectives** of training are as follows:

- To acquire/improve general physical training
- Improve the biomotor abilities of a given sport
- To develop, improve or perfect technique/to teach the athlete the theory and methodology of training

2. Basic Strength Phase (Preparatory Phase Continued)

- This phase emphasizes to continue to develop/ increase muscular strength of the muscles that is required for sport-specific activity. Utilization of multi-joint exercises to allow recovery time between exercises.
- This period also serves to strengthen articular cartilage. This phase begins training at an increased intensity as well as moderate volume overall.

3. First Transition Phase

- Is just like it sounds, a “transition” where the individual or athlete is beginning to change not only intensity, but also total volume and effort with each rep.

4. Power Phase (Late Preparatory Phase)

- In essence, the goal is to develop muscular power with increased intensity and to continue sport-specific training with increased intensity and reduced training volume. Skill technique and game strategy are of primary importance as well as exercise prescription in plyometrics, speed drills, sprinting technique, etc.

Strength Training Effectiveness

In order for strength training to be effective, the body must experience a specific load. The **overload principle** is one of the seven big laws of fitness and training. Simply put, the overload principle states that you have to increase the intensity, duration, type, or time of a workout progressively in order to see adaptations within the body.

General guidelines of strength training during the Strength Phase of training:

- The training cycle typically lasts 8-12 weeks
- Intensity: 80-90% of 1 RM
- Volume: moderate
- Sets/reps: 3-6 sets at 6-8 reps
- Rest period: 2-3 minutes
- Training frequency: 2-3x week
- Application: develop stabilizers through exercises such as lunges, multidirectional lunges, multi-joint exercises

Summary:

Strength training is something that everyone can benefit from. Understanding the fundamental principles of periodization training can provide you the personal trainer to help your client achieve his/her goals.

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Chris is the CEO of Pinnacle Training & Consulting Systems(PTCS). A continuing education company that provides educational material in the forms of evidenced based home study courses, ELearning courses, live seminars, DVDs, webinars, articles and teaching in-depth, the foundation science, functional assessments and practical application behind Human Movement. Chris is both a dynamic physical therapist with 19 years experience, and a personal trainer with 20 years experience, with advanced training, has created 16 home study courses, is an experienced international fitness presenter, writes for various websites and international publications, consults and teaches seminars on human movement. For more information, please visit www.pinnacle-tcs.com.

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