



Strength Training for Elite Athletes

Part IV: Speed-Strength Methods, Plyometrics

Presented at the American Swimming Coaches Association

By Strength Sensei CP

Publication Date: 1987

Bruce Klemens photo

In this seminar, I will cover the main methods of strength training: Bodybuilding, maximal weight, eccentric training, isometrics, electrostimulation, isokinetics, strength-endurance, and speed-strength.

Speed-Strength Methods

To develop speed-strength, which is the ability to exert force rapidly, the movement must be rapid or explosive because it is the nervous system that is being trained. Speed-strength can be improved twofold:

- a) Increasing strength
- b) Increasing speed

When selecting a speed-strength program, one must know the speed-strength requirements of the sport. If strength training is performed with high loads, maximal strength, and contraction rates will be improved under these specific conditions.

Unfortunately, this type of training does not improve the contraction rates encountered in competitions where external resistance is low. In other words, the loads used for speed-strength development for swimmers will be quite different than those for hammer throwers.

Plyometrics

In incorporate plyometrics in your training, consider the following:

- Maximum tension is produced when the muscle is stretched rapidly, so keep ground contact to a minimum.
- The faster the muscle is lengthened, the greater the tension.
- The rate is more important than the magnitude of the stretch.
- Use the overload principle. Strength can only be increased if the muscle works at a greater intensity than normal. When performing depth jumps, use a box at a height where the athlete reaches maximal rebound height.
- Adequate rest is of vital importance. Take 5-10 minutes between sets and 10-15 minutes between exercises. While scientific literature has fully described the physiological phenomenon behind plyometrics, it has yet to determine the optimal loading norms for this method. However, empirical evidence tends to suggest using multiple sets of 6-10 repetitions. Training frequency varies from 2-4 times weekly, depending on the athlete's recovery rate.
- Do not use additional loads because it can cause orthopedic damage.

-- Be patient! Start with a low number of sets and exercises, and gradually increase the load.

-- Build a solid strength base before embarking on a plyometric program.

Speed-strength methods and plyometrics are powerful tools for athletic training, but you need to carefully consider these guidelines to achieve optimal results.

In Part V of this series, the final installment, I will discuss periodization.

#####