

## **Managing Training Adjustments for Speed and Power Athletes**

### **Boo Schexnayder, Schexnayder Athletic Consulting**

#### **Introduction**

For years, periodization has been the buzz word associated with process of planning, sequencing, and detailing various training cycles in order to achieve athletic improvement and insure that the best results come at the most critical times. Periodization is a convenient process. While there is an art to it, following the basic tenets of training theory typically guarantee success.

Managing training is a much more daunting task. Training management refers to the process of making adjustments to the training plan as a result of observed changes, adaptations, successes and failures. Complicating further the issue of training management is the absence of written materials on the subject and a lack of resources available to the coach. It is the purpose of this article to provide a system of training organization, and demonstrate appropriate rationale for changes.

#### **Speed and Power**

In sprints, jumps, and throws, development of one's speed and power capabilities are the most important factor when an athlete is trying to reach high levels of performance. The training program must be geared toward speed and power development at all times for several reasons.

First of all, these speed and power related qualities are the most important ones. Secondly, these qualities are much more difficult and time consuming to develop than others. In short, if other areas are not addressed adequately, the training program is relatively easy to repair. But, if speed and power development is not adequately addressed, an athlete is doomed to produce poor performances for an extended time.

The first step toward developing a god speed and power program is to make it a priority. Many coaches claim to do so, but the speed/power component in many programs is sacrificed to achieve gains in other areas that are not nearly as critical (and much more easily repaired if underdone).

#### **Organizing Training**

The first step in designing or managing a training program is to identify the qualities that must be developed. Following is a list of qualities that are specific to performance in all speed and power oriented sports. These qualities are all specific to event demands and their improvement is dependent upon development of neural recruitment, rate coding, and synchronization abilities.

- Accelerative Power
- Absolute Speed
- Speed Endurance
- Power
- Elastic or Reactive Strength
- Absolute Strength

The training modalities most commonly used to develop these abilities include these listed below. Because of the high level of demand they place on the nervous system, we will call them Neuromuscular Training Modalities and Neuromuscular Training collectively.

- Acceleration Development Work
- Resisted Running
- Speed Development
- Speed Endurance Work
- Olympic Lifts
- Multiple Jumping
- Static Lifting
- Ballistic Lifting
- Multiple Throwing

There are a number of other athletic qualities that must be developed that are just as crucial to success. While these are not necessarily specific to the demands of competition, these abilities perform a supportive function, effectively supporting the development of the specific abilities and often fostering recovery from neuromuscular training. These are:

- Mobility
- General Strength
- Endocrine Fitness
- Anaerobic Fitness
- Postural Function

These qualities are typically developed through the following training modalities: Because of the varied demands they place on several systems, we will call them General Training Modalities and General Training collectively.

General Strength Exercises

Medicine Ball Exercises

Dynamic Flexibility Exercises

Circuit Training

Hurdle Mobility Work

Tempo Running

### **Assembling the Training Program**

When we consider assembling the training program, it becomes obvious that both lists of qualities must be addressed, and training design requires drawing from both lists of training modalities. Since Neural development is key to speed and power gains, and prevention of neural fatigue is a priority, we will organize the program and group activities according to their neural demand. Thus, in its simplest form, the training plan should be organized into days of high and low neural demand. On days of high neural demand, activities would be selected from the list of Neuromuscular Training Modalities. On other days, activities would be selected from the list of General Training Modalities.

### **Gray Areas**

While this basic method of assembling training is based on general and neuromuscular themed activities on different days (with no crossover or mixing), one should realize that the training picture is not black and white, but composed of shades of gray. For example, resisted running displays some general characteristics, showing less neural demand than other speed training elements, and a high metabolic component. For this reason, the training program would not necessarily be disrupted if some resisted running was done on a day of general training. There are creative ways to combine these elements, and as long as the demands on the nervous system are constantly being observed and managed, the program will be effective.

### **Training Ratios**

One of the most important variables in training is the ratio of the amount of neuromuscular work to the amount of general work. This ratio is something that should be a key point of adjustment, depending upon an athlete's state of training, age, ability level, training age, and

competitive schedule. While most good speed power development training programs hover between a 40%/60% and a 60%/40% balance, the key to successful training management is knowing how and when to adjust this ratio.

### **Managing Training – Adjusting the Ratio**

As athletes move through the training cycles and competitive seasons, certainly results cannot be totally predictable. There will be times when athletes become excessively worn down, and times when they will feel great. Adjusting the neuromuscular to general work ratio is the most important management tool available to the coach in these instances. In the following text we will examine several frequent scenarios and appropriate management techniques using adjustments of this ratio.

### **Managing Training - Ability Level & Training Age Adjustments**

The key variable in determining the intensity of a speed/power exercise is the athlete's ability level. Athletes who are fast and powerful train more intensely because of their ability level. Less talented athletes who are not able to express high speed power levels exhibit lower levels of training intensity as a result. An important concept to understand is that the athlete (as much as the training design) determines the intensity of the workout

This contrast also can be likened to a single athlete over the course of a career. At a young training age, the athlete demonstrates lower speed power characteristics, so training intensities are lower than later in life, when the athlete has become faster, more powerful, and thus shows greater training intensity.

Athletes with greater horsepower "beat themselves up" more in training. These higher level athletes, because of this increased intensity require more recovery from these workouts. For this reason, less talented athletes and athletes of low training age can and should perform a higher percentage of neuromuscular training in their training programs. The lower intensities they exhibit minimize the risks of overtraining and injury. Conversely, the neuromuscular training portion of the program should be smaller proportionally for talented athletes with higher training ages. The great intensity at which these athletes train increase the risk of overtraining and injury, and forms a need for additional supportive training and recovery opportunities. A beginning athlete may train using neuromuscular training modalities 4-5 times per week effectively, while a high level athlete may find 2-3 times plenty.

## **Managing Training - Training Readiness**

Training speed and power requires high intensities in training. When for any reason (fatigue, injury, overtraining, etc.), athletes are not capable of producing these high intensities, training speed and power is useless. Athletes must be able to produce speed and power levels in training that are near their maximums in order to effectively train those qualities.

Assessing this state of training readiness for each athlete is an important part of training management. Whether done by scientific (through testing) or subjective (by observation) means, it should be an ongoing process once an athlete has reached a training age where the improvement curve seems to level off and genetic potential is approached.

When not ready to train speed and power, training the supporting qualities so essential to recovery is an effective alternative. In short, when training readiness is low, increasing the amount of general training maintains a healthy balance between the two types of training and provides the athlete the most appropriate training stimulus at those times.

## **Training Management - Understanding Aggregate intensities**

A commonly accepted premise of training theory is maintenance of high intensities late in the specific preparatory period and throughout the competitive season. It is important to understand that this premise refers not to training intensities, but aggregate intensities. Aggregate intensities are the valued intensities of all athletic stressors, including training, testing, travel, and competitions.

At certain times during the competitive season, competitions come very frequently, and travel may compound demand. During these times, training speed and power would create an overtraining situation. At such times, training the supporting qualities using general training modalities effectively maintains the training balance and provides contrast to the high neuromuscular element found in the competitions.

Conversely, when there are breaks in the competitive season and athletes have effectively recovered, the need for high intensity requires an increase in the percentage of neuromuscular training when compared to the situation described above.