

TRENDS IN SHOT TRAINING

By Jimmy Pedemonte

Leading Italian throwing coach, Jimmy Pedemonte, presents his views on contemporary trends in the shot put training, discussing periodization, strength and power development and the use of varied weight implements. The article is an edited version of the author's address to Australian throwing coaches at the Australian Institute of Sport. Pedemonte's visit to Australia was made possible by the Australian Athletic Union in conjunction with the Australian Track and Field Coaches' Association. Re-printed with permission from Modern Athlete and Coach.

Training results are considered to be reflected in the improvement of the athlete's performance, although it is still rather vague how the transfer into a tangible, positive length of a throw takes place. It should also be kept in mind that the transfer of training into performance varies between the short goals of experienced athletes in comparison to the more diluted concept applicable to youngsters.

It is therefore important to look into the principles of the most efficient organization of training cycles, as well as the best use of the methods in each cycle. In addition, it is of great importance to establish the types of throwing drills and the weight of the different implements that are considered to have the best influence on the transfer into the actual performance.

THE TRAINING CYCLE

It is generally accepted that an optimal periodization should include 7 to 8 weeks of training in each functional training cycle. The most important factor in the organization of the cycles is to obtain the highest possible carryover values into the performance. This is achieved by employing a 100% work load in the first week, followed by 80% in the second and 30 to 40% in the third. The load in the third week facilitates the recovery of the muscular and nervous systems.

During the first week of a cycle, because the athlete has been exposed to maximal work, his form drops considerably. While this first stage of "crisis" has not yet been compensated, a work load of 80% from the previous week is undertaken and the athlete's condition, particularly the capacity of the muscular system, is lowered further. The third week, characterized by a considerably reduced load, follows. During this week the phenomena of the supercompensation takes place and the athlete is expected to attain a form which is higher than at the starting level.

Now it is time to add the fourth week in which the training volume is relatively low but the intensity is greatly increased. During this week the athlete should be tested by using the standard weight implement in order to evaluate the degree of transition of the work completed during the previous three weeks into the shot put performance. It should be pointed out that, even when the athlete is working mainly with weights and heavy implements a certain number of throws with the standard shot must always be included. The intensity of these throws should never be below 80% in order to obtain constant transition and to evaluate the progress made in training.

WEIGHT EXERCISES

Not all weight training exercises, nor the different training methods available, can be utilized within the program of periodization. The weight exercises with the best specificity for the shot put are the power exercises, including the snatch, press behind the neck and the Olympic clean and jerk. Parallel squats, bench presses and full squats are next in order. These exercises are fundamental to some stages of training and always serve to overcome basic muscular inadequacies. However, it should be kept in mind that the above mentioned exercises require some time before the transition into an improved performance takes place.

To explain it, when an athlete needs an almost instant transfer, he or she should not work on squats but rather employ step-ups. This leaves the muscles less exhausted because of a shorter range of motion, yet still retains an explosive movement pattern. The most useful strength training methods are:

- The pyramid system, with or without arriving to a single repetition.
- The method of fast executed exercises with light (40 to 60%) loads. These exercises have a high transfer rate to the actual performance.
- The static-dynamic (isometric-isotonic) combination that can create considerable stimulus with only a few repetitions.
- The so called eccentric-concentric method.

OTHER EXERCISES

Particularly important, besides the weight exercises, are drills that require coordination speed and explosiveness. Most typical among these is the throwing of a barbell (15 to 25kg) from a seated frontal and upright position, similar to the release action in the shot put. This activity is often supplemented by such unconventional throwing exercises as the backward and forward overhead throws.

Among the jumping exercises it is the plyometric glide that has, without any doubt, the best carry-over value to the standard weight shot put. This exercise is

performed with the athlete's feet on a 20cm high box. The right handed athlete, facing backwards to the throwing direction, pushes off with the right leg, turning the glide into a sort of a depth jump. The left leg should remain locked in the knee joint in order to amplify the reactive forces at the landing. An immediate reaction from the legs is followed by the delivery action.

Other exercises that have fast transfer values are accelerations and sprints, provided they are performed constantly. Sprints are particularly helpful during the competitive season. In Italian training programs accelerations and sprints represented 10 to 15% of the daily work load, corresponding to 6 to 8 repetitions over 50 to 60m.

When a thrower is losing muscular 'freshness', it is wise to introduce long runs and jumping exercises to the training program. On the other hand, a lack in the dynamic component in the technique suggests that more plyometric drills and sprints are necessary. The exercise with the highest transfer into the competitive movement is, of course, the glide itself. It allows evaluating constantly the technical level and develops precise rhythm, coordination and specific speed.

VARIED WEIGHT SHOTS

Heavy shots, delivered from the glide, also have a good transfer value, provided the weight of the implement does not exceed the weight of a standard shot by more than 20%. Heavy implements do not alter the technical procedures and can stimulate an explosive plyometric reaction when the feet land in the power position.

As far as standing puts are concerned, both the heavy and the light shots can be used. When the heavy implements are employed it is advisable to use a simplified delivery position. Light shots delivered from a glide are well suited for technique development but have a rather low transfer value into the performance. It is therefore important to throw the standard weight shot when the aim in training is to improve the specific rhythm, particularly in the transformation cycles prior to competitions.

The most important element to be emphasized in the standing throw is to move the body ahead of the shot to create torque, the indispensable muscular pre-tension necessary for a dynamic execution of the final delivery action. This is achieved through the reactive speed of both feet (particularly the right foot) and the turning of the hips. For this reason some athletes still use heavy shots in their standing throws to create torque.

Our experience indicates, however, that a well timed torque does not depend on the weight of the implement but on the reaction speed of the nervous system. The intensity of the standing throws with a standard weight implement should

therefore always be medium to high and the number of throws executed depends on the capacity to maintain an optimal dynamic rhythm.

It should be pointed out that when the athlete has worked in the gymnasium with heavy weights, a session of throwing the standard weight shot should take place within 24 hours. Medium and low intensities (20m = 100%, 18m = 90%, 17m = 80%) are to be employed, concentrating on technical details. On the other hand, when the gymnasium work has been of a general nature, the throwing should take place in the sub-maximal and maximal intensity range (95% +).

With this method the principle of variation is not achieved by the “indirect variability” of alternating implements of different weight but the “direct variability”. The last is responsible for creating variations in the nervous system — through throwing the same shot at different intensities.

Finally, it is important to understand that a faster transfer into the performance takes place when weights and throwing are combined in the same workouts, instead of lifting one day and throwing the next. This is known as the combined method.