

Organising the training of hammer throwers

Mohamad Saatara outlines in detail the specifics of training hammer throwers

THE goal for this article is to provide an outline and methodology for the training of hammer throwers. As with any endeavour, precise planning, organisation and goal setting are the hallmarks of success. The initial step in coaching the hammer throw is to devise an overall technical model which can then be taught to athletes. The athlete's physical and psychological characteristics must be considered as they will have an extensive influence on the athlete's execution of movement and performance.

Initially, a long term plan and an outline of training goals should be devised. It is important to note that long term training plans do not have to be specific, they are used as an overall guide for progression. Testing methods can be successfully utilised to monitor the progress of the thrower. Testing can also be used to motivate the thrower during periods when there are no competitions or when the thrower is still not ready to compete.

GENERAL TECHNICAL MODEL

There is extensive material presented regarding hammer throw technique, the following is an overview of the most important technical aspects of the hammer throw. For discussion purposes the hammer throw is divided into three general segments: initial swings and entry, the turns and the final delivery. The turns can also be divided into two parts: the double support phase defined as when both feet are on the ground, and the single support phase when only one foot is on the ground. It is very important to emphasise that the throw is a seamless

movement, from the initial swing to the final delivery. Many technical and developmental problems can be avoided if this idea is reinforced early on in an athlete's training. The hallmarks of efficient technique are proportionally long double support phases during which the thrower can accelerate the implement, an athletic and stable posture through which the thrower can move quickly, and maximised turning radius of the hammer. Several main points should be observed as an athlete throws:

- 1. Posture and initial entry:** The thrower must maintain a posture where the centre of gravity is kept over the feet. The head is kept in a neutral position while the shoulders, upper back, and arms are relaxed. The knees and ankles maintain a comfortable flexed or bent position. The degree of bending of the knees is dependent on experience, personal preference, and general strength levels. The posture in the initial swings and entry is of the utmost importance because the movements of the entry dictate the movement of the athlete through the consecutive turns and delivery. The turning action is initiated by the musculature of the feet, legs and torso.
- 2. Effective radius and acceleration of the hammer:** The hammer should be kept as far away from the athlete as possible while maintaining proper posture. During the initial swings the hammer is kept on the right side of the body. The low point of the hammer is kept to the right of the athlete until entry into the first



Weight training for the hammer

turn when the low point is moved in front of the athlete and is left there for the duration of the throw. The implement maintains a long circular or semi-ovoid path through the turns. The hammer is accelerated at the initiation of each double support phase, with a pushing action of the right side of the body. At no time should the hammer be accelerated by a “pulling” or “dragging” action by the musculature of the left side of the body as this will lead to the reduction of an effective radius and also lead to a breaking action during the turns, along with a host of other detrimental effects. The athlete must not interfere with the position of the low and high point of the hammer during the throw. The thrower should not “counter” or pull the hammer into the turns and the release as this will cause a marked change in the path of the hammer and disrupt balance.

3. Movement of the feet: The feet should move through the throw with precise and deliberate action. The pivoting action of the feet should be

performed with the mass of the athlete placed directly over the feet. The axis of rotation should be maintained near or over the left foot which allows the right side to be free to be moved violently from turn to turn. The feet should move through the throw in conjunction with the hammer or slightly earlier.

The precise pivoting action of the left foot must be emphasised. The turns are initiated by a pivoting and driving action of the right foot followed by the pivoting of the left heel. The right foot can be placed either on the heel, flat or on the ball of the foot. The pivoting action of the right foot should always conclude with a deliberate and forceful drive from the ball of the foot.

4. Rhythmic movement through the throw: There should be a deliberate increase in the velocity of the hammer through the throw with maximum velocity achieved at the point of release. This increase in speed should be dictated by the movement of the feet and lower body. In

each turn the thrower must strive for longer double support phases. The athlete must never try to "force" the hammer with the upper body, as this will disrupt the rhythmic character of the throw. The thrower must remain relaxed through the release of the hammer. The throw is concluded with a forceful movement of the feet. The release should feel relaxed, fast and athletic.

DEVELOPING TRAINING PLANS

Organising the training of hammer throwers must follow a long and short term plan. Zaitchouk, Bundarchuk, Verkhoshansky, along with others have described detailed methods of developing long term and short term training plans for the hammer throw. Constructing a training plan for the hammer throw can follow classic periodisation models, or be divided into blocks of specific work.

Training for hammer throwers should be geared toward developing specific power, and technical proficiency. It is of the utmost importance to develop the movement patterns associated with high velocity activities as early in training as possible. This is due to the way the nervous system learns and organises movement. Movement is not only organised by the pattern of muscular recruitment but also by how fast muscles are recruited and used.

Initially the mechanical and rhythmic characteristics of a throw should be emphasised. Walking with one or two hammers, drills for foot work, and performing throws from multiple turns (4 to 10 turns) are excellent ways of developing these aspects of the throw. These exercises should always be concluded with a relatively fast release. Technical proficiency at high velocities can be accomplished by initially using lighter hammers, or competition weight hammers on shorter (-10cm to -15cm from competition length) wires. Once the athlete has developed the requisite technical proficiency event specific strength and power can be developed by using kettle bells, puds, and heavier hammers (men: 8kg up to 12kg; women: 5kg up to 8kg) with regular and short wires.

The initial step in devising a training plan is to measure the athlete's physical abilities to provide a baseline of the thrower's technical and physical characteristics. The Test Quadathlon, vertical jump test, and other tests to measure the athlete's ability for power output are very useful. The thrower's event specific abilities can be observed by how fast and how accurately he or she can perform turns with and without implements, how efficiently the thrower delivers the hammer or a kettle bell from preliminary swings, one, two and three turns. The coach should also inquire about the thrower's own performance goals for the short and long term. Analysis of the previous year's performances also provides great insight into the thrower's abilities. Testing and evaluation of the athlete should also be performed at regular intervals throughout the training periods to provide feedback on the effectiveness of training.

Once there is a fair understanding of the thrower's abilities and the thrower's desired performance levels a long term training plan with a set of goals can be constructed. Annual or biannual training plans seem to be the most manageable. Training for hammer throwers, therefore, can be divided into four general areas.

- 1. Throwing of the hammer:** Throwing light, medium, and heavy hammers with various length wires. Throwing the hammer from multiple turns, and throwing at different intensities.
- 2. Event specific exercises:** Turning drills with hammers. Throwing of medicine balls, shots, puds, and kettle bells with one or two hands.
- 3. General athletic exercises:** Sprints and plyometrics (performed in linear and twisting manner), running, co-ordination exercises, and gymnastics exercises.
- 4. Strength and resistance exercises:** Classic weightlifting exercises (examples: pulls, cleans, snatches, squats, presses, etc.). Twisting exercises with weight plates, dumb-bells, and bars. Bodybuilding and joint rehabilitation exercises.

During the early phases of training throwing of the hammers especially lighter hammers and

general athletic exercises should dominate the total volume of training. Maximal strength and power training along with event specific exercises should be mostly used before the competition phase and during the early competitive period. During the competitive period the focus should shift to maximising event specific power by using event specific exercises with an emphasis on maximum release velocity, multiple jumps (3-5 jumps per set), and performing rhythmic weightlifting exercises (example: performing 3 to 4 pulls with a bar bell concluded with a clean or snatch). The chart on the following page is an example of a training plan for a moderately trained male hammer thrower.

The pattern of development for this training plan initially focuses on technical execution followed by incremental development of general strength, general power, specific strength, and finally execution of the throw at competitive



The hammer combines strength and speed

levels. It is important to note that the throwing of the hammer should be the central focus of training with the other training exercises used to first extend general athletic abilities, then develop maximum strength and finally power.

CONCLUSION

The coach or trainer should have an excellent understanding of the technical model which will be used for throwing the hammer. As the old adage goes, "many roads lead to Rome." The coach must be open minded in his or her approach to teaching and training for the hammer throw and use methods and teaching guides which best fit the athlete's cognitive, physical and technical abilities. It is of vital importance for the development of hammer throwers that they should initially have an excellent "athletic" base. This means that the thrower should have the ability to move his or her body and generate power in three dimensions. As training continues the coach should also encourage the hammer thrower to build skills needed to cope with competitive situations and the stresses involved with competition. Good luck with your training and throwing.

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Training section	Duration	General goals	Throwing	Special exercises	Fitness and mobility	Resistance training
Initial conditioning	4-6 weeks	Regaining general abilities and balance	Throwing from multiple turns and drill using competition weight hammers	High volume throws with lighter medicine balls and light shots	Coordination and sprinting exercises, low intensity and high volume jumps	General strength exercises (squats, presses), circuit training
Technical development	6-8 weeks	Mastering and developing technical model at high velocities. Continuing strength and athletic abilities	Some throwing from multiple turns, throws with lighter implements, and competition hammers with short wires	Medium volume throws with medicing balls. Throws with lighter kettle bells	Sprinting, moderate intensity plyometric exercises, bounding, and jumping	General strength exercises and Olympic lifts for "base strength". Some circuit training, and light twisting exercises
General power	8 weeks	Developing maximum general power and specific strength.	Throws with heavier hammers and competition hammers, along with short heavy hammers and puds from 1, 2 and 3 turns. Throws with moderate intensity	Heavy medicine ball throws, throwing exercises with puds, kettle bells from 1, 2 and 3 turns	High intensity jumping and plyometric exercises, focus on single jumps. Short sprints	General strength exercises and Olympic lifts focused on developing maximum strength. Moderate twisting exercises
Specific power I	4 weeks	Developing event specific power. Focus on developing special exercises for event specific strength	Throws with short and heavy hammers, throws focused on developing maximum release velocity from 1, 2 and 3 turns	High proportion of training volume focused on pud and kettle bell exercises and shot throws	Bounding and multiple jumps with high intensity. Running with resistance (on hills, or with weighted vests)	General strength exercises with emphasis on explosive movement, along with twisting exercises
Competition (Indoor)	4 weeks	This is a continuation of the specific power phase with some indoor competitions	Same as above, some throws with indoor weight once or twice per week. Throws with high intensity	Same as above	Same as above	Focus on the Olympic lifts and rhythmic execution of these lifts from hanging position. Heavy twisting exercises
Specific power II	8 weeks	Developing event specific power with emphasis on velocity of movement and final velocity at release	Reduced volume of throws with short and heavy hammers, introduction of lighter hammers. Throws formoderate intensity some high intensity sessions	High intensity kettle bell amd pud exercises and throws. Throwing of heavy medicine balls	Bounding and multiple jumping exercises along with jumps performed with twisting movements	General strength exercise with emphasis on explosive movement. Olympic lifts performed from hanging position and rhythmic execution. Twisting exercise with emphasis on speed of movement
Competition (Outdoor)	8-14 weeks	Preparing for competitions	Throws performed with light and competition weight hammers. Few throws with short heavy hammers. Emphasis on competition preparation	Shot throws, kettle bell throws, puds with emphasis on final velocity	High intensity rhythmic jumps, and plyometrics very low volume	Maintenance of power levels. Olympic lifts for rhythm with very fast movements.
Rest period	4 weeks	Rest and recovery from training	Few throws or rest	None	Some distance running or easy jogging	Maintenance exercises

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