

Pre-season training for the hammer and weight throw

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As well as being technically demanding, the hammer throw is a physically demanding event. Preseason training must address general fitness, but must also provide a technical foundation and specific conditioning to ensure success for the thrower in the indoor and outdoor seasons. Most hammer throwers will also compete in the weight throw during the indoor season, so preseason training must account for the special challenges of that event too.

All training, regardless of time of year or event, must address the five bio-motor elements: skill, speed, strength, suppleness, and stamina. I have presented the bio-motor elements in the order of descending importance for the hammer and weight thrower. I believe that this order of emphasis does not depend on the time of year, but instead remains the same throughout the training year.

What are the elements, what do these elements mean and how can they be measured?

Skill: Proficiency in accurately performing the skill of throwing the hammer and weight under competition conditions; the coach assesses the skill level as he compares the thrower's skills against technical norms. Also, comparing performance at practice against performance in the meets will reveal if the skill is stable under competition conditions.

Speed: Rate at which general and specific skills can be performed. For example, a hammer thrower must be able to turn rapidly (specific skill). This can be measured by throwing of light implements. Also, being able to perform general skills (sprinting, agility drills) rapidly is a plus.

Strength: Ability to overcome outside resistance. Lifting exercises are a good expression of strength and are easily testable. For a hammer thrower, the ability to squat, snatch and clean large weights is important, but not nearly as crucial as being able to move with the implements. Heavy implements reveal weaknesses in the thrower's technique and specific strength.

Suppleness: Range of movement in joints, or combinations of joints, is important for all sport skills, including the hammer and weight throw. A hammer thrower must have good range of motion in the shoulder girdle to obtain maximum radius and a good range of motion in the ankles to allow for proper turning. Additionally, the thrower must have good flexibility in all the muscles that connect to the hips and vertebral column in order to prevent injury to the spine. An athletic trainer can perform range of motion tests and problems can be identified and corrective exercises can be prescribed for the thrower.

Stamina: Not many throwers have a lot of general endurance; send them on a 10 mile run, and most would not return... ever. However, an athlete that throws the hammer or weight 30-60 times in a session must have a high level of specific endurance to complete all those throws with good technique. Add in some weight lifting and other conditioning and you are really tapping into the thrower's stamina!

The challenge for the coach is to prepare a pre-season training plan that addresses the five bio-motor elements. First we need to re-examine the bio-motor elements to see what should be done during the pre-season as we address each element.

Skill: Any major changes to the thrower's technique should be addressed during the pre-season. The first step is to assure that the thrower understands the nature of the technical errors and also understands what the correction will look like and how it is made. Video analysis is invaluable for improving the cognitive understanding of the thrower and improving coach-athlete communication. Next, the thrower can begin his error correction either with full throws or drills, or any combination of throws and drills; both approaches are valid. One of the most helpful tools for the pre-season is doing multiple turns with a variety of implements. Ten or more turns with a hammer, medicine ball on a rope, or stick will not only give the

thrower a chance to work on his ability to turn, but it will also act as a specific conditioning tool. Working up to 300 turns a session will enhance the specific stamina of your thrower!

Speed: Both general speed and specific speed have a role in the ultimate performance of the hammer or weight thrower. It is important to include speed training from the very beginning of the year. One approach that I like is to start the year throwing light hammers. Not only does this get the thrower thinking and moving quickly, it also prepares the body for the stresses of heavy hammers and throwing weight work to be done later. In addition, more throws can be done with light hammers, which allows the hammer throwers to build a base of specific endurance.

For general speed, there are a variety of approaches that are suitable for the pre-season. I like to start short and work to long with sprinting. Most of my work in the pre-season would involve 10-20 meters sprints from a stand or crouch. I feel that this approach is a great way to get the thrower started sprinting while minimizing the risk of injury. It is important to note that fast sprinting is a great general speed exercise, but that the correlation between fast sprinting and fast turning with the hammer is not strong. Therefore, while some sprinting should remain in the program throughout the year, it should never take the place of the more specific work with the hammer.

Strength: The value of good strength training for the hammer thrower can never be underestimated, but it is possible to overemphasize this bio-motor element.

Throwing any implement that is heavier than normal, or doing any hammer drill with added resistance is going to improve specific strength as long as the movement pattern is correct. While it is possible to begin pre-season training with heavy hammers, it is often better to save the heavy hammer throwing until some adaptation to training has occurred. I favor more turning with heavy hammers, and less throwing during this early period of training. I would recommend throwing of kettle-bells (also known as puds) during this time. Not only will this improve specific strength, but it will also help to condition the body for the demands of the in-season training.

The pre-season is also a time to work on the lifting technique of the thrower. It is necessary to perform all lifts correctly, not only for safety reasons, but also to improve effectiveness. Don't turn your throwers into Olympic lifters or Powerlifters, but instead assure that they have good basic technique in all the lifts that you will use during the upcoming year.

Using exercises arranged into a circuit is also very beneficial during the pre-season. Circuit training, either with or without weights, not only can improve general strength, but with different exercises can boost specific strength as well. The effect of the cardiovascular system is strong if the circuit is done with short rest periods, and circuit training has a good effect on improving body composition

Suppleness: The pre-season is the most sensible time to work on improving a thrower's flexibility. As mentioned before, a good place to start is the comparative range of motion assessment that is performed by someone (like an Athletic Trainer or Physical Therapist) qualified. In this type of test, the ranges of motion of all major joints are compared to norms and also between the two sides of the thrower's body. The information gained from this type of assessment will allow for the rational planning of a flexibility routine. All too often we see throwers stretching patterns that are already good and ignoring patterns that are poor. I would argue that it is better to have poor flexibility in all your joints rather than having good flexibility in some joints and poor movement in others. When all the joints are tight, they share stress equally, but when only a few joints don't move as they should, the stress is placed squarely upon them, and they become overstressed. Well planned stretching can correct this problem.

Keeping these ideas in mind, let's look at one example of a pre-season week of training for a hammer thrower:

Monday

Warm-up: 15 minutes of general exercises (jogging, skipping, lunging, bending, calisthenics)

Sprinting: 6 x 20 meters, full speed, on grass with 2' rest

Hammer drills: 60 minutes

- sets of 10 turns with hammers and other implements
- practice starts with the hammer
- release drills with the medicine balls

Lifting: power cleans 4 x 5, back squats 4 x 10, bent over rows 4 x 10

- working on good technique
- 1'30 rest between all sets

Stretching: with a partner for 15 minutes

Tuesday

Warm-up: same as Monday

Jumping: 10 reps each of 6 in-place jumping exercises, on grass, 30 seconds rest

Hammer throwing: 60 minutes

- using light hammers

Kettle-bell throws: 5 exercises with 10 throws each

Weight circuits: 3 x 10 with 2' rest between sets

Front squats

Pull-ups

Plate twists

Crunches with weight

Lunges

Chin-ups

Plate twists

Sit-ups with medicine ball throw

Stretching: self stretching for 15 minutes

Wednesday

Games: 45-60 minutes

Stretching: with a partner for 15 minutes

Thursday

Warm-up: same as Monday

Sprinting: 8 x 10 meters, full speed, on grass with 2' rest

Hammer drills: 60 minutes

- sets of 10 turns with hammers and other implements
- practice starts with the hammer
- release drills with the medicine balls

Lifting: power cleans 4 x 5, back squats 4 x 10, bent over rows 4 x 10

- working on good technique
- 1'30 rest between all sets

Stretching: self stretching for 15 minutes

Friday

Warm-up: same as Monday

Jumping: 6 reps each of 10 in-place exercises, on grass with 30 seconds rest

Hammer throwing: 60 minutes

- using light hammers

Kettle-bell throws: 10 exercises with 5 throws each

Weight circuits: 3 x 6 with 2' rest between sets

Front squats

Pull-ups

Plate twists

Crunches with weight

Lunges

Chin-ups

Plate twists

Sit-ups with medicine ball throw

Stretching: with a partner for 15 minutes

Saturday

Games: 30 minutes as a warm-up

Hammer throwing: 90 minutes

- using normal weight hammers

Sunday

Rest and relaxation

There are many ways that the pre-season training can be constructed to address the five bio-motor elements. What I have outlined above is simply one approach. I suggest that it be adapted to meet the needs of your throwers and your particular situation.