

Weight Throwing: Correcting Technical Flaws

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Introduction

The weight throw is one of the most exciting and artistic events of indoor track, yet it's a relatively obscure event. It's left out of most international indoor meets and used mostly in training by European hammer throwers. The weight is only officially thrown in Rhode Island high schools. Club athletes throw in Washington and Georgia.

Many coaches and young throwers have limited exposure to the event because little information is available. To some, the weight has maintained an air of mystery over the years to a greater extent than even the hammer. This has caused some coaches to shy away from teaching and coaching the event. The collegiate coach must teach an aspiring weight thrower from scratch. This forces coaches to play catchup and get athletes ready to compete very quickly. Unfortunately, a crash course in weight throwing can lead to technical problems, as it takes years to establish an efficient turning rhythm.

To be successful, an athlete must be able to tell the difference between correct and faulty execution. A flaw in a weight thrower's technical approach cannot be corrected until that athlete can clearly identify and understand the cause of the faulty execution. Technical correction is further enhanced by numerous executions of the ideal technical model. This ideal technical model must be formulated by the coach to fit each athlete's individual talents and anthropometric characteristics.

Problems Facing Weight Throwers

For many throwers, technique is often a small part of the challenge of weight throwing. One of the main problems is a lack of specific strength and a corresponding lack of ability to move. The weight usually feels heavy to most hammer throwers. An athlete who doesn't feel "strong" with the implement won't be able to succeed. The throws coach must devise a workout that will improve levels of physical conditioning and simultaneously incorporate a working technical model.

Many coaches get impatient when athletes can't perform the ideal technique, yet coaches may fail to realize the real cause of athletes' technical difficulties: lack of strength. Difficulties may be overcome by overloading the system in the weight room, throwing with overweight and underweight implements, and performing assistance exercises with medicine balls and kettle bells. This overload eventually allows the athlete to advance technically and perform more efficiently.

Unfortunately, efficient technique does not result from copy-

ing the technique of a current champion. A champion's form may be optimal for a person with the same physical attributes as the champion but far removed for a person less endowed or less well trained. The coach must set the model for each athlete.

There are a variety of techniques used in the weight today. The coach must choose which technique best fits the athlete with whom he is working. In teaching technique to beginners, special attention should be paid to the development of the "right reflexes," as technique can only be mastered if muscle contractions and relaxations can be coordinated and synchronized to produce maximum total effort relative to weight throwing. What's required from the athlete is concentration on the right movements. If the wrong reflexes are formed in the athlete's motor pattern, they are difficult to rectify. During the initial stage, the athlete should not be "distance conscious" and must be conditioned to concentrate on the developing the right movements in order to establish the right reflexes.

After establishing an appropriate technique for each athlete and drilling the proper reflexes, coaches must detect and correct faults in the athlete's performance. The greatest difficulty here is locating the causes of the observed faults. According to Bondarchuk (Russian Gold Medalist in the hammer and coach of world record holder Yuri Sedykh), there are two kinds of commentators and evaluators. Commentators concentrate strictly on performance and point out mistakes. Evaluators find the cause of the mistake and figure out how to fix it. For example, a coach may see an athlete's low point shift to the left (effect), but to be of assistance to him, the coach must identify the reason for the shift (cause), which may be overlapping with the right foot or tightness in the arms and shoulders. The coach must devise a way to train the athlete's motor pattern to become faster by either improving the athlete's physical conditioning or making a technical adjustment. When making corrections, it's necessary to be positive. Telling an athlete he is "too slow" conjures up negative images in the athlete's mind: the athlete may be going as fast as he can!

In working with weight throwers, the coach attempts to teach very large people to move with the grace of a ballet dancer. Herein lies one of the keys to successful weight throwing: balance. To complicate matters, the balance required from the weight thrower is a rotational balance seldom learned in traditional sports. However, if the athlete's rotational balance is lacking, a clean set of turns is unachievable. Because of the sequential nature of the turns of the throw, balance problems in the start or first turn have to be avoided. Each part of the throw can have problems that may affect the next part of the throw, and therefore, the final product.

Throwing

The Start

At the start of the weight throw, the winds often cause technical problems. Because of the mass and the length of the implement, athletes may have particular trouble controlling the implement in winds. Problems like lifting the shoulders, flexing the traps and bending the trunk forward cause athletes to lose their balance when winding. Reaching too far back with the hands when passing the weight handle over the head also causes balance problems during the winds. Other problems to watch for are basic body position errors, including not staying opposite the ball, bending the knees during the hook-up and not countering the hips in relation to the shoulders and the ball.

Establishing the proper low point in the wind is important in establishing balance in the first turn. Sometimes athletes wind and keep the low point too far to the right. This can cause the athlete to drag the weight or to stand up, thus losing power and radius. Conversely, the low point of the weight's swing can be too far to the left, which results in a lack of power in the impulse phase and fouls as the weight hooks at release.

The athlete may not emphasize the forward and upward part of the swing. The winds are a rehearsal for the turns, and an overly short impulse on the winds is likely to lead to short drive phases in the turns. Keeping the arms long and relaxed is a challenge with a heavy implement. The range established in the pendulum and the winds must match that of the throw. Not raising the left heel when turning the trunk to "meet" the weight may also lead to balance problems.

Getting the ball moving in the start differs from athlete to athlete. Athletes can use a variety of techniques to get the ball moving prior to starting into the winds. There is also the option of eliminating the wind altogether and beginning with the pitch start.

Because of the mass of the implement, many athletes have trouble starting the throw. Athletes sometimes shift their weight to the left leg too quickly following the second wind. This can cause the athlete to overplace on the first turn, leading to an unloaded right foot and a choppy transition into the second turn. An off-balance start takes energy away from the turns and leads to weak positions. Poor balance in the entry causes the athlete to use the turns to resume a good throwing position, rather than using them to accelerate the weight. Sitting back opposite the ball is helpful. Controlling the height of the ball and keeping the eyes level aid in balance.

When winding, the athlete must block the right leg at the back of the circle in a good solid squat position with the torso erect; the blocked right side improves the ability to counter the weight. Since a poor start can create problems in the first turn, the coach must make sure the start is controlled. The athlete should stay opposite the ball during all preliminary movement and hook up with it at zero degrees. The hook-up (figure 1) sets up the balance for the whole throw. The thrower must establish a firm center by dropping the hips and firming up the midsection. It's also important that the athlete is balanced and effectively uses the right side in the entry. The right side must be established as the engine.

The Turn

The transition to the first turn is one of the most difficult elements of the weight throw. It sets up the whole throw, wherein the body becomes a rotating axis for the weight. Incorrect execution of this phase reduces the effectiveness of the turns and unbalances the throwing rhythm.

The key to the first turn is to keep the head in line with the whole "weight system": The feet, knees, hips, torso, arms and head all must move in sync. A common fault in the entry is starting the left leg before the right. The athlete then tightens and loses radius, leading to an off-balance entry. Another common turning fault occurs when the right leg sweeps around the left in a wide arc. This causes the thrower to drag the ball, break the system and catch the weight with a wide base. The athlete must think of closing down the knees and keeping the right knee behind the left. If the first turn is properly executed, the thrower should catch the ball at approximately 225 degrees with the torso in line with the ball and the head erect. The right foot should be placed on its ball (figure 3) with the hips slightly ahead of the shoulders.

Improved awareness of weight head speed leads to better rhythm. The thrower must look slightly to the right during the drive phase. When the athlete's head is allowed to move ahead of the ball, the athlete is unable to sense the speed of the weight head. Keeping the head still allows the athlete to use his vision to sense weight speed. The athlete must think of waiting on the ball at the low point with the shoulders back and the majority of the body weight on the left heel.

Another common problem is turning the feet too late and too slowly, so the weight takes the lead. However, this isn't a problem if the thrower can overtake the ball in single support; that is, when the athlete steps over the left leg with the right foot and is balanced on one leg.

Athletes may also place insufficient weight on the right side. Placing too little body weight over the bent right leg during the foot placement prevents the right leg from executing the drive phase. On the other hand, too much weight on the right side causes the thrower to lose posture. The athlete senses this and becomes even more active with the left side; that is, moving the right leg too slowly and too far from the left turn (often referred to as the discus leg). This turning in place causes the lower body to rotate more slowly. The athlete then places the right foot behind the shoulder axis in both the vertical and rotational planes, leading to a late placement of the right leg.

An athlete turns in the same place if he bends the head and upper body too far forward. This is called "drilling for oil." To remedy this, cue the position of the shoulders at the low point, and instruct the thrower to slide the shoulders back and lift the chin progressively during each turn. Having the athlete think of sitting back on the left heel and pushing the hips forward at the low point is also helpful.

When the orbit of the weight is too steep on the early turns, the thrower gets pulled off the ground and loses contact with the ring. Bending the arms on the turns causes the athlete to lose radius. Instead, the athlete must keep the weight in front of him. The coach can cue the athlete by telling him to feel the weight on both shoulders. Flat orbits through 90° help the thrower feel the ball.

Throwing

The beginning thrower may not turn the left foot to 180° on the heel, causing him to veer to the left side of the circle. This is referred to as drift. Turning too long on the left before picking up the right foot causes the athlete to overplace. It can cause the athlete to turn in the same place. Overplacing is also caused when the athlete doesn't finish the drive phase with the right side. The athlete must think of pushing the right knee and hands through 90° until the right foot comes off the ground. The orbit, called a loaded step, is relatively flat.

The Head

Inability to control the position of the head is the source of many technical problems. Where the athlete's head goes, the body follows. A beginning thrower may drop the head to watch what the feet are doing in the turns. However, dropping the head causes the athlete to bend over, with too much weight on the right. You must instead teach the athlete to control the head position. Think of using blinders like a basketball player does when learning to dribble.

An athlete may mistakenly turn their head in the back of the ring during entry into the first turn. Turning the head prematurely causes the athlete to drag the weight, thus reducing radius and ball speed. When winding, the head should be up, the shoulders should be level, and the eyes should be focused outside the ring to the right. Looking to the right catches the weight early in front of the thrower, thereby increasing the duration of impulse on the weight in the swings and creating more balance. Keeping an eye on a spot 1–2 feet beyond the ball to the right on the catch is helpful. It keeps the athlete from leading with the head on the work phase and into the next turn. The ball must pass the point where the thrower is looking before beginning the turn.

In more advanced throws, difficulties arise in the later turns. An athlete often has trouble keeping the head in line with the spine. This is essential for high-speed throwing.

The Shoulders

An athlete must control the position of the shoulders throughout the throw to achieve success. The shoulders must counter the ball in the later turns. A common mistake is trying to counter the weight with the hips. This is a very advanced technique that elite throwers use in the early turns of a throw to gain radius. They get their shoulders back in the later turns. If not, ball speed is sacrificed. It's advisable to go ahead and counter the weight with the shoulders right away to ensure balance and control. A weight thrower should keep their shoulders level throughout the start to create balance prior to entry into the first turn. The shoulder axis must coincide with the weight's orbit or trajectory.

A common problem with the shoulders in an intermediate to advanced thrower is dropping the left shoulder in the single support phase to facilitate a longer radius in the catch. This causes the athlete to bend the trunk forward on the work phase. The athlete may then lose acceleration and "drill for oil." The shoulders must follow the same path as the steepening ball. If the right-handed thrower raises the left shoulder in the single support phase, they bend the right arm. That, in turn, causes the thrower to lose radius.

The Release

Problems in the release are almost always the result of a technical problem in an earlier part of the throw. If the center of balance is too far to the right during the delivery and the legs are overextended, the thrower gets no power from the legs. The delivery may then be too flat, and the thrower may use only his upper body in the delivery.

Countering is very important in the release. The back must be firm to prevent the thrower's torso from absorbing ballistic force from the legs. The arms must be kept long to keep angular velocity high.

After the delivery, a number of problems can occur. These include stopping the rotation instead of following through or stepping out of the front half of the circle instead of lifting the implement. These faults can be corrected by drilling the athlete in one- or two-turn throws.

Another common mistake is to watch the throw sail away. Watching the throw land is a sure way to foul. To achieve maximum radius, the athlete must look up at release to maintain control and stay in the ring. The cue is "eyes to the sky." The distance from the back of the head to the implement needs to be maximized. If it's a good throw, the athlete can regain control and still see it land.

Conclusion

Coaches must attack the athlete's main areas of weakness. Working on these common technical problems can solve many difficulties for the young thrower. Coaches must also be aggressive when analyzing technique. Doing many throws is important, but doing them correctly is the key. Observe the throw from different vantage points on the field. Use video to analyze the throw and to show the athlete what his technique looks like. Use videos of top-level throwers to show technical points to the athlete.

Many coaches attempt to correct the effect that they have detected and miss the underlying cause that produced it. This is analogous to a doctor treating only the symptoms of a disease. A throws coach must be equipped with knowledge of biomechanics to choose appropriate techniques and detect the root of faults in an athlete's execution. If an athlete has trouble turning the right leg, create drills to teach him how to feel the correct sensation. Be creative and devise your own drills or aids to help you teach the correct feel. Talk to another coach or a high-level thrower to find out what innovations he uses in teaching or learning the throw.

Athletes and coaches alike are always seeking a magical formula for success. The only way to achieve success in the weight is by following a consistent training regime that incorporates a system of overload, progressive resistance and recovery.

Each athlete differs in natural talent and physical characteristics. Therefore, the coach must choose a model that best fits each athlete. The bottom line is: Select a model that's strong, snappy and dynamic. Remember that there is no magic answer or workout for success in the throws, but there are ways to make the magic happen.