Rethinking Your Approach To Training For The Weight Throw

When Larry Judge talks about the throwing events, people listen. Here he tackles the problems throwing the weight indoors may cause for hammer throwers and how they might be overcome.

INTRODUCTION

“What exactly is the weight throw? Is it a shot put? Is it the hammer throw?” Time and time again, new athletes and interested spectators just have no idea what the weight throw entails. The fault is not due to ignorance; the weight throw is simply the most obscure event in track and field. It is most popular in the United States and is mostly contested in indoor collegiate meets and weight pentathlons. It is left out of most international indoor meets and is absent from the outdoor schedule, while only a longer version of the implement is used in training by elite hammer throwers worldwide.

Nearly all hammer throwers will agree that the primary goal is to throw the hammer farther, not the weight. Most higher-level athletes ultimately strive to reach the World Championships or the Olympic Games. The weight throw is not offered as an event at either competition.

To make matter worse, the weight throw is left out of the program at the World Indoor Championships. In essence, the weight throw is something that is contested primarily in North America.

Since the goal is to throw the hammer far, it is necessary to prioritize training. This article will examine the pros and cons of participation in the weight throw and how it may impact an athlete’s hammer technique. Also, suggestions will be offered to maximize your point production at scored indoor competitions and minimize any negative impact on your hammer throwers.

ADVANTAGES OF THROWING THE WEIGHT

Throwing the weight competitively can be a valuable pursuit in and of itself, and throwing the weight as a supplement to hammer training is also valuable under the right conditions. Throwing heavy implements is a way to build specific strength. Any implement that is greater than the competitive weight, but allows for rapid turning, will allow for good development of specific power if and only if proper technique is employed.

Implements that are heavier than the competition weight offer more resistance to turning and therefore require the athlete to generate more force against the ground. The

By Larry Judge, Ph.D., and G. Martin Bingisser
short length of the weight allows for more rapid turning than with the hammer and assists in the development of the specific power needed to throw the hammer far.

Throwing the weight may also help strengthen the core. Because of the mass of the implement, the weight throw helps the thrower work on the “counter” phase of the hammer throw. Counter force is how heavy the implement feels in regard to how much your body mass has to “sit back” against the weight of the implement.

The implement is both much heavier and much shorter than the hammer, so the net comparison in counter force between the hammer and weight depends on a few different factors. Bodyweight and arm length make a difference in the net comparison in counter force but also in the utility of the weight throw for the hammer. Light athletes with longer arms should notice the most increase in counter weight (hammer to weight) whereas heavier athletes with shorter arms will notice less increase or even decrease in counter weight. The weight throw can definitely be used to practice maintaining the connection with the ball and working on the counter.

**DISADVANTAGES**

Training and competing in the weight throw may not be advantageous for the hammer thrower if the differences in the events and the technique are misunderstood. The following six reasons provide a summary of the ways in which the weight throw detracts from the training of a hammer thrower:

1. **The Problem: Expectations of Point Production**
   Most all throwing athletes arrive at college very naïve with respect to the weight throw: nine times out of ten they have never tried it. To score points in conference, regional and national meets, athletes and coaches are in a hurry and under pressure to learn the event by the beginning of the indoor season.

   What seems like a fun challenge, and a help to the hammer thrower, can actually lead to frustration and technical problems. Athletes often use improper technique with a heavier implement to get immediate results. For example, an athlete may be able to drag the ball, dip his/her shoulders and swing the upper body to make a 20- or 35-pound implement go far, and great results may be experienced.

   However, the hammer is much lighter and needs more precision than brute strength for success. It takes years of concentrated practice to establish an efficient turning rhythm in the hammer; a crash course in the weight throw disrupts a sound technical hammer pattern and may retard further development. It is recommended that beginning throwers learn the technique and rhythm with light hammers. It is very difficult for athletes to learn proper technique with a heavy implement.

2. **Technique and Rhythm**
   While many coaches and throwers profess that they attempt to use hammer technique with the weight throw, we have seen very few individuals successfully replicate hammer throw technique and rhythm when throwing the weight.

   The rhythm of the hammer throw is in large part due to the start. Correctly executed winds and entry help develop a great pattern of acceleration. Mastering the start is crucial for the hammer thrower.

   When throwing the weight, the start is frequently done very differently from the hammer with most throwers using either a pitch start with no winds or only one wind. The weight wind is usually slower and much flatter than a wind with a hammer.

   By using a different start, it is...
hard to develop the correct hammer throw rhythm. The same thing goes with the hammer turns. Many throwers will use fewer turns when throwing the weight. For instance, most four-turn throwers use three turns in the weight throw. This also negatively affects hammer throwing rhythm and technique.

Many throwers will use a heel turn in the weight and a toe turn in the hammer. Jumping back and forth between the toe and heel turn on the entry negatively impacts the motor pattern. A consistent start is the key to developing the proper throwing rhythm. In order to develop good four-turn technique one must always throw with four turns.

3. Competitions

If an athlete throws the weight, the competitive season begins early and significantly affects the amount of preparation time the athlete can have. The weight throw season typically begins in December or early January and climaxes in mid-March.

The hammer throw season, on the other hand, does not begin until late March or early April in America. For three months the weight thrower must focus on competition rather than preparation. Of course the athlete can do some training with the hammer while competing in the weight throw, but the quality of the hammer throw training is significantly reduced.

In order to be in good form for competitions, one cannot train as many days during the week or do as much volume in training. In addition, travel to and from meets reduces the number of valuable training and rest days.

Lastly, athletes will normally taper their training during the end of the weight throw season. Tapering during the winter will further reduce the athlete’s training volume. Because of the technical nature of the event, the hammer throw should be trained just like the other outdoor events (discus and javelin) with ample time for preparation. A long indoor season may aid in developing competition readiness as far as psychological development but can also lead to mental burnout for American throwers to be prepared for the European season in July and August.

4. The Implement

The implement itself is not enough like the hammer to produce a significant positive transfer benefit. The weight is too short, making the speed and countering components of the throw significantly different. The timing of the turns is very different than the hammer. The length of the implement causes the tempo to be more rapid than the hammer. Furthermore, the weight of the implement requires athletes to be more rigid in the early turns.

Europeans will throw short and heavy hammers in training, but the different lengths used are longer than the standard 16” American implement to more accurately simulate the hammer throw.

The short length and the heavy weight of the implement make it a strength event. The requirements for success are much different from the speed and technical precision required in the hammer. Hammer throwers have to be very relaxed and long in the entry and very patient and precise in their right foot pick-up and placement.

A similar analogy could exist if a javelin thrower competes with the turbo-jav during the indoor season. The turbo-jav is similar to the javelin but the timing and the throwing motion are very different because it is a different implement. Throwing the turbo jav could potentially disrupt a javelin thrower’s rhythm and technical pattern.

5. Specific Strength

Good training plans include very specific, less specific and general exercises. The quantity of each in a quality training plan will depend upon the athlete’s training age, his or her strengths and weaknesses, the phase of the training year, as well as many other
factors. One thing that is present in all training plans is some amount of very specific work: if you want to throw the hammer far, you must practice throwing the hammer. For a hammer thrower, throwing the competition hammer on the regulation length wire using the same technique as will be employed in the meet is an example of the most specific type of exercise.

To continue on this point, while the weight throw may increase specific strength, it does not do so in the best way. It is ideal to use some short and heavy implements that are different weights and lengths. However, these implements should only amount to a small portion of the overall throwing volume. To properly train the weight throw, you must use many of the same principles used training the hammer. You must use heavy and light weights to work on specific strength and speed.

As mentioned above, top European throwers will use short and heavy implements in their training, but they will be longer than the 35-pound weight used in the United States. For instance they will use implements that are 9 kilograms (19.84 lbs.) and 110 centimeters (36.61”) in length or 12.5 kilograms (27.56 lbs.) and 85 centimeters (33.5”) in length. These implements allow one to increase specific strength while ingraining the correct hammer throwing muscle memory.

Europeans will also throw the competition hammer during the same training session as they throw the short and heavy hammers. This facilitates the transfer of the training benefit from throwing shorter, heavier hammers to the competition implement.

The problem with the weight throw is that you are spending a large portion of your training time focusing on being a weight specialist. The 16-inch 20- and 35-pound weight throw itself is nowhere to be found in European training and is not the best method to develop specific strength for the hammer throw.

6. Volume

In addition to the reduction of the volume of hammer throws and lifting in training brought on by early weight throwing competitions, the overall throwing volume is also reduced. If one only throws the weight during the winter, the amount of throws per training session is reduced. The weight creates more wear and tear on the body and tires the athlete quicker.

Anecdotal evidence shows the weight throw places much more stress on the lower back and knee compared to the hammer throw. The weight is also tough on the hands. Because of the increased diameter of the handle, athletes develop calluses and blisters much more quickly than the hammer. With the hammer it is fairly easy to take 30-40 throws or more per training session, whereas with the weight, fatigue sets in earlier preventing such a number of throws.

**POSSIBLE SOLUTION TO THE PROBLEM**

College coaches still need to score points in the weight throw. There is no escaping it. Schools want to win championships and points in the weight throw are often easier to get than points in some more established events. The traditional choice has always been to make your hammer throwers train the weight throw full time and contribute indoors. Hammer throwers, for the most part, are up to the challenge and will gladly do the best they can. But, they may not be the athlete best suited for the job.

Here is the solution: recruit your shot putters! Good shot putters are usually your fastest, most powerful, aggressive, and athletic specimens of all the throwing events. Putting your best athletes in the weight throw will give your team a greater chance for success. Throwing the weight has its advantages as it is a great training aid for your shot putter and will help your shot putter improve balance, coordination, and core strength.

All of the champion weight throwers I have coached (Table 1), have been either shot putters or discus throwers. Many became very good hammer throwers over time, but their initial success was in the weight throw. For example, in 2002 when Candice Scott won her first NCAA Championship in the weight throw, she was only fifth in the hammer throw 63.09 (207’0”). But, she was actually one of the favorites, according to Trackwire, to win the shot put outdoors that year, after finishing fourth indoors.

It took Candice until 2004 to develop into a internationally competitive hammer thrower as she finished 9th in Athens.

In 2004, Kim Barrett set the collegiate weight throw record early in the season and was the NCAA runner-up (75’3”). Kim recorded a best of 59’11¾ in the shot put and competed in the hammer in Athens but managed only 63.24 (207’6”). Kim was clearly a shot putter who competed in the weight throw to help the team.

If you want to be successful in the weight throw, you must put your
athletes with the biggest engine in the event. The weight helps their engine get even bigger and helps their primary event.

The key components needed for making a great hammer thrower are different: great hammer throwers have a strong core, great spatial awareness and an impressive technical pattern. Hammer throwers are not usually the biggest, strongest, and most talented members of the throwing group. The pure hammer throwers we recruited who had never thrown the weight previously were frustrated by the weight throw and never achieved the level of success that our shot putters achieved. They could never get comfortable with the timing. Physical talent can often hide weak technical patterns in the shot and weight, but cannot in the hammer.

**STRENGTH IS THE KEY TO SUCCESS IN THE WEIGHT THROW**

But why would stronger athletes with less technique throw farther in the weight than skilled hammer throwers? For many throwers, technique is often only a small part of the challenge when throwing the weight. One of the main problems is typically a lack of specific strength and a corresponding lack of ability to move. The bottom line is: the weight usually feels heavy to most first timers. An athlete who doesn’t feel “strong” with the implement won’t be able to make the implement go. The release is more important in the weight throw than in the hammer, which makes strength a key element for success. Initial problems with technique are usually the result of deficiencies in special strength; as the athlete gets stronger he or she is typically able to perform better technically.

So, why is it so much easier to achieve success in the weight throw with pure strength and why doesn’t the same approach work in the hammer? The answer is found in physics. Rotational inertia is simply how easily the angular momentum of the ball is changed for a given lead or follow. That is, leading the weight 3 inches results in greater angular acceleration than the same 3-inch lead in the hammer. A lead is defined (for a right-handed thrower) as pushing the hammer from right to left by having the hammer handle a few inches left of the axis of rotation. Similarly, a follow is when the athlete has the handle a few inches to the right of the axis of rotation. In general, the thrower accelerates the hammer during the lead, generally occurring when both feet are on the ground, and the implement decelerates slightly as the thrower follows the implement when the right foot is off the ground.

Rotational inertia is greatly decreased when the implement is shorter, and increased slightly when the implement weighs more. The net effect, for all athletes, is a much smaller rotational inertia for the weight (vs. the hammer). This makes the weight easier to control than the hammer. Because of the 16-inch length of the implement, the handle is so much closer to the ball, a strong athlete can muscle or rip the weight around in one turn. In summary, technique and precision becomes more important with the longer implement.

**SIZE DOES MATTER**

Although not the most important factor, size does matter in the weight throw. The weight is 16” long while the hammer is 48” long. Every inch in height/radius gives the thrower more of advantage by increasing the proportional length of the implement more. Given the

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Shot Put</th>
<th>Wt. Throw</th>
<th>Discus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candice Scott</td>
<td>2005</td>
<td>17.65</td>
<td>24.17</td>
<td></td>
</tr>
<tr>
<td>Rachel Longfors</td>
<td>2005</td>
<td>20.95</td>
<td>57.03</td>
<td></td>
</tr>
<tr>
<td>Kimberli Barrett</td>
<td>2004</td>
<td>18.28</td>
<td>22.95</td>
<td></td>
</tr>
<tr>
<td>Laquanda Cotten</td>
<td>2004</td>
<td>16.29</td>
<td>22.00</td>
<td></td>
</tr>
<tr>
<td>Erin Gilreath</td>
<td>2003</td>
<td>16.04</td>
<td>22.04</td>
<td></td>
</tr>
<tr>
<td>Jesseca Cross</td>
<td>2000</td>
<td>19.17</td>
<td>22.33</td>
<td></td>
</tr>
<tr>
<td>Dawn Ellerbe</td>
<td>2000</td>
<td>16.80</td>
<td>23.60</td>
<td>59.60</td>
</tr>
<tr>
<td>Robin Lyons</td>
<td>2000</td>
<td>15.73</td>
<td>21.62</td>
<td>54.68</td>
</tr>
<tr>
<td>Lisa Misipeka</td>
<td>1997</td>
<td>16.05</td>
<td>20.53</td>
<td>52.16</td>
</tr>
<tr>
<td>Jason Gervais</td>
<td>2000</td>
<td>19.68</td>
<td>22.60</td>
<td>64.26</td>
</tr>
<tr>
<td>Jason Hammond</td>
<td>2000</td>
<td>19.26</td>
<td>20.70</td>
<td></td>
</tr>
<tr>
<td>Kevin Mannon</td>
<td>1998</td>
<td>19.90</td>
<td>22.77</td>
<td>58.46</td>
</tr>
<tr>
<td>Hyan Harrison</td>
<td>1997</td>
<td>19.00</td>
<td>20.53</td>
<td>58.20</td>
</tr>
<tr>
<td>Ron Willis</td>
<td>1994</td>
<td>18.31</td>
<td>21.98</td>
<td>57.08</td>
</tr>
<tr>
<td>Brett Murray</td>
<td>1994</td>
<td>21.30</td>
<td>21.30</td>
<td>59.42</td>
</tr>
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</table>
The discus thrower is a rotational balance that is seldom learned in traditional sports. It is the same balance that is essential to success in the discus. Some glide shot putters are more linear and may not be able to master the rotational nature of the event. If the weight thrower’s rotational balance is lacking, a clean set of turns will never be achieved. Throwing the weight in the indoor collegiate season for the discus thrower will strengthen a lanky athlete’s core and improve coordination, but won’t disrupt a completely different technical pattern.

Table II: Sample Training Plan

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Light Hammer</td>
<td>6k</td>
<td>3k</td>
</tr>
<tr>
<td>Light Hammer</td>
<td>14lb</td>
<td>3.5k</td>
</tr>
<tr>
<td>Heavy Hammer</td>
<td>18lb</td>
<td>5k</td>
</tr>
<tr>
<td>Very Heavy Hammer</td>
<td>20lb</td>
<td>6k</td>
</tr>
<tr>
<td>Very Heavy Weight</td>
<td>45lb</td>
<td>30lb</td>
</tr>
<tr>
<td>Heavy Weight</td>
<td>40lb</td>
<td>25lb</td>
</tr>
</tbody>
</table>

Each workout is performed 2x per week during the fall through the indoor season.

**Preparation Phase**

**Session A**
- 10 throws with very heavy hammer
- 10 throws with heavy hammer
- 10 throws with normal hammer
- 6 throws heavy weight

**Session B**
- 14 throws alternating light and normal
- 14 throws alternating normal and heavy
- 6 throws very heavy weight

**Precompetitive Phase**

**Session A**
- 14 throws alternating two normal hammers and one light hammer
- 14 throws alternating two normal hammers and one heavy hammer
- 8 throws competition weight

**Session B**
- 14 throws alternating heavy and very heavy
- 14 throws alternating normal and heavy
- 8 throws heavy weight

**Competitive Phase**

**Session A**
- 21 throws alternating two light hammers and one normal hammer
- 10 throws alternating one normal hammer and one heavy hammer
- 10 throws competition weight

**Session B**
- 14 throws alternating two light hammers and one normal hammer
- 14 throws alternating two normal hammers and one heavy hammer
- 10 throws heavy weight

**Competitive Phase *(Perform each session one time each week)* **

**Session A**
- 10 throws very heavy weight
- 10 throws heavy weight
- 10 throws heavy hammer

**Session B**
- 10 throws heavy weight
- 10 throws competition weight
- 10 throws alternating one normal hammer and one heavy hammer

**Rest Day**

**Session C**
- 5 throws heavy weight
- 5 throws competition weight

Outdoor season soon rolls around, and excited weight throw champions decide to pick up the hammer for the first time. Anticipation is high and expectations limitless. But, frustration ensues as weak technical patterns are exposed and distance is nowhere near championship quality. However, weight throw champions/shot putters and discus throwers focus on their specific event with renewed enthusiasm as the weight throw has created a nice diversion, but not distraction, during the indoor season. And waiting in the shadows is the hammer thrower who has continued to focus on his/her primary event, using the weight throw primarily as a supplementary activity. The results are posted and the hammer thrower opens up the outdoor season with a smile as a personal best is recorded in the very first meet. The following are suggestions for creating the correct balance in training the weight throw:

Have your hammer throwers emphasize the hammer in their training program in the fall through the start of the indoor season...
Continue working special strength with pud and plate throws and other release exercises. Have them take 6-8 weight throws at the end of each workout. This will enable them to keep in touch with the weight and will help them work on specific strength.

Four weeks before the main competition (Conference or NCAA Championships) have them train the weight specifically. This means 25-30 throws with varied weights. Take 6-8 hammer throws at the end of each workout to keep in touch with the hammer. Throwing longer weights or even the hammer helps the athlete work on patience and waiting on the ball.

Have your shot put and discus throwers train the weight full time during the fall though the indoor season. Have them perform their normal shot put and discus workout regimes in the fall and throughout the indoor season. Start the training for the weight throw with special strength exercises, turns and drills in the preseason, and proceed to one-turn throws with varied weight implements during the conditioning period.

In November add the full technique weight throws to the training plan. This means 20-30 throws with varied weights. Include special strength exercises to supplement core development. Training the weight specifically will allow them to progress very quickly. They don’t have to worry about the hammer throw until the outdoor season. The hammer will be thrown as a second or third event outdoors to help with points at scored meets including conference and regional championships. Putting your shot put and discus throwers in the event along with your hammer throwers will really help improve team chemistry and will help foster a very intense training environment.

CONCLUSION

In the United States, we rely heavily on the collegiate system to develop international level competitors in all events. If America ever wants to regain the dominance in the hammer throw that it experienced prior to the 1960’s, we must rethink the approach we are taking to training. Too much emphasis is being placed on strength and not enough time is spent working on technique. The emphasis on strength has worked well in the men’s shot put. But, the hammer and shot put are very different events.

The collegiate system places emphasis on an event (the weight throw) that is counterproductive to the development of the hammer. Often times, the weight throw is usually the first experience that a beginning thrower will get with the rotational event. The first message weight throwers get when picking up this implement is that they have to get a lot stronger to be good at the event.

From the beginning many throwers are programmed to get strong instead of learning to master the technique. It takes about 8 years to master the skills necessary to be an international level competitor in the hammer throw. Unfortunately, our collegiate season cuts the training time of a hammer thrower in half and many leave the sport before technical mastery is achieved.

Because of the complex technical movements involved in throwing the hammer and contemporary high performance standards, athletes must have coaching at a much earlier age than presently is the practice in the United States. Recruit your shot putters and discus throwers for the weight throw and follow my recommendations for training your hammer throwers and you will have a successful indoor campaign and end the season with a smile on your face at the outdoor championships as your hammer throwers will be able to reach their full potential.

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Larry Judge, with Candice Scott, Erin Gilreath and Kim Barrett, 2004 record breakers.