

# **Ascendance of American Hammer Throwing**

## **(Kraychir Girls – McCullough - Henning)**

Harold Connolly

In July 2004, American youth hammer throwing began its transformational ascendance. The names Kraychir, McCullough, and Henning and their coaches Hank Kraychir, (former nationally ranked shot putter/discus thrower), Conor McCullough Sr., (two-time Olympic hammer thrower for Ireland), and Marty Engel, (former Olympic hammer thrower and American record holder) met for the first time at the US Olympic Training Center. These three coaches initiated the development of two girls, Katie and Casey Kraychir, ages 12 and 13, and two boys, Conor McCullough and Walter Henning, ages 13 and 15, into America's hope for ascendance to the victory stands of future World Championships and Olympic Games.

This presentation will convey to you in the words of the three coaches and Derek Yush, Walter's collegiate coach, how they have guided the greatest interscholastic prospects in American hammer throwing history on their challenging journey. Though each coach has his unique art of instruction, training strategies, and methods of preparing for major competitions, perhaps there are commonalities of approach that have led to the successes of these young hammer throwers, which may be effectively useful in the training of any hammer throwers.

The presentation is structured for an initial review of the four coaches' and Walter Henning's submissions (read ideally in advance of the presentation), followed by Power Point and video illustrations of the coaches' methods, and concluding with an in-depth discussion, questions and answers.

Among the topics to be explored:

- The ideal age to begin hammer throwing training for optimum results.
- The progression of steps in introducing hammer to a beginner of any age.
- Specific drills to develop the rhythm of hammer throwing.
- Employing variable weight and length hammers.
- The methods and emphasis in developing hammer throwing specific/general strength and power.
- The training and competition relationship of hammer throwing with weight throwing, shot putting, and discus throwing.
- Peaking performance for major competitions.

# Conor McCullough's High School Hammer Throw Training

Conor McCullough Sr.

## 1. As a young boy what was Conor doing athletically before he took up any hammer throwing?

Starting at age 8 Conor had two years of formal gymnastic training. When he was 8 and 9, he'd also do some agility and stretching exercises with me that I taught him when I was still training. At that age as a little kid, he couldn't do more than 15 or 20 minutes of these exercises, but he'd do some of them with me then he'd go off to play. When I'd switch to something else I felt he could do, I'd bring him back and forth to join me. Before he experienced any specific hammer throwing movements, I taught him how to stretch his core and his major muscles, and we'd practice various gymnastic-like flips that he had fun doing. Sometimes he'd do little one leg hops around a cone, that sort of thing he felt was fun. And then I also had this short dowel (about 3 1/2 feet) that he used to imitate the snatches I was doing with a barbell. He wouldn't do many, usually three or four reps. I'd also have him put the dowel across his shoulders, and I taught him the proper positions for jump squats, which he took to very naturally. He'd never do more than three or four, and then he'd runoff to play. Every training implement I put in his hands, from the dowel to simulate a bar, to his first short, light hammers, I adjusted to make them proportional to his height and strength.

## 2. What steps did you take to teach him how to make heel toe turns?

He was 8 1/2 - 9 years old when I placed a short dowel in his hands, coached him to hold it out in front of him with his arms out straight and walk around in place in tight rotations. The main thing was for him to keep going around. I wanted to develop his vestibular system so that he could just rotate in circles, leaving the arms totally relaxed, and after a comfortable number of rotations, release the dowel in the right direction.

After he was comfortable with walking around in place with the dowel and developed the correct sense of direction with his release, I introduced the concept of the heel toe turn and broke it down into quarters. The first-quarter he turned with both feet simultaneously pushing the dowel to 90°, the next quarter he turned to 180°, and then to 260 / 270 range, then rotating to the starting point. Soon he was doing sets of three or four heel toe turns with the dowel. I had him do these turns on a concrete or asphalt surface, but I preferred to have him learn turns on a high school cinder track or a surface with sand on it. With that surface if the feet landed a little wrong, the feet could keep moving. If he was going a little he crooked, I'd tell him what to do to straighten it, and he'd keep going.

From the very beginning of Conor's hammer throw training to the present, he has been coached to perform turning drills and actual throws with rhythm and effective technique not only from his natural right-handed side, but also from the opposite left hand side with his eyes open and completely closed.

## 3. When did you first put a shortened hammer in his hands?

I put together a 1-pound hammer with a little handle and short wire. I believe using light hammers adapted to the height of the thrower is critical in developing a youth hammer thrower. I purposely didn't have him wind it around his head. I didn't want more emphasis involving his upper body when he began to learn the rhythm of turning with the hammer; I wanted it primarily on his legs and feet. I didn't want more learning of the upper body than the lower body, because with two winds and a

turn, the traditional ways of teaching a beginner, the arms are working twice as much, causing upper body dominance. I just had him let the ball out in front of him as he stood there and had him walk around keeping his arms relaxed, letting the ball lengthen them out straight as the forces increased. He'd walk around in place on the soles of his feet in tight little rotations and the ball would rise off the ground. It would be a game. Walk around, four or five rotations, and let it go, experiencing how it felt as he released it in the correct direction. At that stage I also did not want to apply the heel toe turns he had learned with the dowel. I didn't want to over coach him with body positions or the geometric points on the hammer's orbit. I just wanted him to stand up, walk around in place and let the hammer go in the right direction. A coaching strategy I have always followed with Conor is to always release the hammer at the end of turning drills. I believe the thrower should avoid abruptly stopping the movement of the hammer while performing practice turning drills.

To progress into heel toe turns with his little hammer, after four or five walk arounds with the hammer in his hands, he just transitioned, from the soles of his feet into applying the heel toe turns he previously learned with the dowel.

Later I taught him to pass the ball around his torso with the wraparound entry (passing the ball around behind his body with his left hand and picking it up behind him with his right, then joining his hands together as the hammer swept out around 90°) into multiple turns. I broke it down into quarters. The first-quarter he turned to 90, the next quarter he turned to 180°. When he got good at the 180, I said, "Okay, now don't quite go all the way to 180, but a little bit short of 180 then you roll on the outside of the left foot". Because his arms were not involved with winding around his head and shoulders, as he mastered gradually the technique of turning with rhythm, he was able to focus on developing very quick feet with passive relaxed arms. If he was going a little he crooked, I'd tell him what to do to straighten it, (the answer usually was to wait longer across the front) and he'd keep going. Later from the wrap around entry he learned to do sets of multiple turns with his or left or right hand only and also with a hammer in each hand with his arms outstretched from his sides. Because the preliminary winds were withheld in the earliest stages of his development, he more quickly mastered the technique of turning with rhythm. The emphasis was always on relaxed, passive arms and stepping up and over the left ankle with a quick right foot into touchdown.

I wanted to minimize the involvement of his arms in his learning turning technique for as long as I could. We had a 24 foot slab where we did our training. Connor practiced for about two years working up to 15+ multiple turns with a release at the end. He just let it go. Let it flow through the release. I'd be watching what his body did while performing drills, and I'd make one little correction and see how he would handle it. I didn't want to confuse him by introducing too much at once and make him think too much. The hammer was in continual motion during these turns, and he was able to make and practice the correction while he and the hammer were already moving. His body was learning and adapting to verbal coaching cues while he was still moving. By 11½ years of age Connor was able to do 15 - 18 highly proficient consecutive multiple turns on the slab, both from his primary (right-handed) and his secondary (left-handed) sides.

When the beginning athlete is trying to make corrections while doing a one or two or three turn throw, the actual act of throwing dominates the athlete's thinking and makes the coach's technique correction not only more difficult for the thrower, but also doesn't allow for an immediate repetition of that correction that multiple turns do.

#### 4. When did you start teaching him to wind?

I didn't teach the preliminary winds until Conor could efficiently perform multiple heel-toe turns with rhythm, concentrating on his feet, legs, and relaxed straight arms, flowing into a concluding release. He was about 11 when I introduced preliminary winds, but it was within the practice of rhythmical turning drills. I introduced the winds into the multiple turns drills I had taught him. Later it was one wind transitioning into one turn, pause, and repeating the same movement multiple times. Next followed two winds transitioning into two turns and repeating the movement. There was no stopping the movement of the ball. I brought the winds in then to get the ball moving for a three turn throw. .

#### 5. When did Conor step into a regulation circle and make a three turn throw?

He was about 13 when he began first regulation throws but not many. By then he was tall enough to throw regulation length hammers. I had been very careful increasing the weight of his hammers to be sure what his light body weight and strength level could handle without impeding his acquisition of throwing speed. I would judge the weight of his hammers from that. But the emphasis was always on the light balls that he could turn very fast and catch the ball well behind him.

He fell into catching the ball back somewhat naturally, but his right foot wouldn't land at 270°. It would be more in the 260° range facing the ball. When you catch the ball, you don't try to turn your hips or right foot around at all. Just step in like you're walking down the road. What brings you around is the hammer rotating in the back, and it will turn you around. You just step in, just walk into it. If you do that, everything will be lined up. Get the natural movement first. If you rotate the right foot in it in an effort to turn it to a 360 before it lands, it creates excess tension between the hip girdle and the trunk. This will alter the orbit's optimum shape or circumference through which the ball should be traveling, thereby decreasing the balls speed. If the thrower and the hammer stay in a natural alignment the circumference of the orbit will remain stable and the speed of the ball will continue to increase

Because I did old and in a little and this is illegal used on a technique inn't have him doing winds the first two years, he didn't fall into a pattern of leading with his head or shoulders when entering into turns. He was concentrating more on body awareness and his connection with the hammer going round and round. During his practice of multiple turns, I coached him to leave the hammer a little in front of him and just stay with it. If he looked in advance of the ball, I told him to keep his line of vision a little behind the ball. I tried not to get too specific. I did stress the quickness of his right foot and to step to the tree or the bushes behind him to the side where I wanted his right foot to touch down from a natural stepping movement. I just wanted him to step in quickly to have the feeling of a slight separation between shoulders and hips and not worry about the degree in the circle where his foot touched down. I totally disagree with turning the right foot, as many throwers are coached, to try to get it around to 360°. **( let it land facing the ball and then turn it very fast while accelerating the left foot also).**

Every day before the turning drills and the 30 or 50 throws with his hammers, he'd run a couple of laps of whatever field we were on followed by some jumps, a few 10 a 15 yard sprints, 10 one-legged hops on the right, then 10 on the left, and his stretching routine - total time about 30 minutes. Usual time warming up for practice and most competitions before hammer is involved is 40 to 45 minutes.

**6. How have you developed Conor's overall physical strength?**

At about 13 1/2 to 14 he was lifting an Olympic bar and I kept him with just the bar for about a year and for a few exercises a 5 pound plate on both sides of the bar. The bar was still a little heavy for him to push overhead. So he'd use a longer dowel and do some movements overhead and practice snatches and squat snatches. Some repeat hang pulls where traps would kick in but the arms wouldn't pull. He might do sets of 10 of that exercise. Squat cleans with the bar in sets of 10. Also some back squats but not as much. When he was about 12 or 13, he'd take a 5 pound plate and do some twists, but I didn't have him do overhead twists at that point. The twists were straight across in front of his torso. He was doing very light weights but learning the rhythm of the movements. From 14 through 17 we gradually increased his weightlifting poundages but always with weights he could move quickly. This winter, his senior year, we will begin devoting more emphasis on increasing Conor's overall power in preparation to his introduction to throwing the regulation Olympic hammer.

**7. When did Conor go into the circle and execute a specific number of throws with light weight hammers.**

When he was in the 10 to 12-year-old range, he was still practicing the turning drills with the same very light beginning hammer, but occasionally I'd introduce another one pound heavier hammer for maybe two sets of 10 turns. However, I rarely mixed the weights of the hammers in those early stages.

When he was 13, we set a goal of 30 throws a work of, carefully monitoring how he could work up to it. The repetition turning drills always preceded any session in which he would throw from the circle. The plan was not intensity or measured throws, but acquiring a controlled, well-balanced motor pattern from the turning drills, and practice throws, which with greater volumes of correctly executed drills and throws would be speeded up and transitioned into competition PR's.

**8. At 14 or 15 years of age when he started regularly throwing the 30 throws a workout with three turns from a circle, how did you work the variable weight hammers?**

In the eighth grade Conor competed in his first competition, Mike Sullivan's California State High School Hammer Throw Championships, and he had to use a 12 pound hammer. That decision was a mistake; it rushed him along too quickly. Up until then he hadn't thrown the 12 pound hammer. We'd been practicing drills and throwing three or four days a week with 2, 3, and 4 kg hammers, which were culminating in higher and higher speeds with longer distances up the middle of the field. So we also worked a little bit on the 12 pounds, though it was still too heavy for him. I could see he was not ready for 12 pounds, perhaps a year away. At 13 and 14 the only heavy implement he trained with was a 14 pound pud, with which I had him do four and five turns with a release to develop specific strength.

I realized that the high speed entry acceleration that young Conor had developed with lighter hammers when applied to the 12 lb hammer revealed that he wasn't strong enough to sit back and hold the position on entry. However, he had no problem with his high-speed entry with the lighter hammers.

I also introduced a 20 pound ball on a short chain with a hammer handle (total length 70 cm) to develop his strength to stay lower, sit back against the short, heavier hammer, and hold the

mechanics for five or six turns before releasing. He used the walk in or wrap around entry for this drill, not winds.

We proceeded also at that time to include in his auxiliary training six weeks of dead lifting and some hyper extensions. Rather than employ the traditional progression toward maximum dead lifts, Conor began with a moderately heavy weight to which we added 10 pounds per week. We also incorporated, what I call, static dead lifts to acquire static strength in the lower back by holding a moderately heavy barbell at three different positions for five seconds: an inch off the ground, halfway up the shins, and just above the knees with the bar away from the thighs and thrower with his shoulders forward and steadying himself on the balls of his feet. I was cautious about this exercise, fearing it might tighten up Conor.

I regularly checked for that possibility in Conor's throwing. I knew that the gradual increase in the weights of the dead lifts, the static dead lift, and the short heavy hammer drill were working when Conor demonstrated he could hold the proper speed/ entry position with the 12 lb and 6 kg hammers. I was not measuring the effectiveness of this dead lifting program by how many pounds Conor could dead lift or hold for five seconds in each static position. I calculated the effectiveness of the exercises by how Conor was coping with the strength challenge of his high-speed entry in throwing.

I believe that weight lifting training is not the main event; it's only a helper to the main event. It's an important part of the main event, but you can develop strength a lot quicker and easier than you can develop coordinated movement. In the early years up to the age of 14, I believe training emphasis should be focused on athleticism and developing the coordinated movement of the event. As the competitive implement gets heavier emphasis can be placed on gaining strength and power through heavier resistance training and hammer specific ballistic exercises.

#### **9. Did you train Conor to turn with his eyes closed?**

Yes I believe it sets off a different part of the nervous system and vestibular system. If he would lose interest a little bit, I'd have him do multiple turns or even sometimes throw with his eyes closed. If he seemed not to be concentrating, I'd say take a throw with your eyes closed and tell me what it feels like. It would compel him to have to concentrate to make it happen. Even when he first began I had him do turns with his eyes closed with no hammer in his hands. It's really a test of balance and to see where the kid's nervous system is at.

#### **10. How did you work Conor's freshman basketball team participation and his shot putting and discus throwing into his hammer throw training in high school?**

He did his shot putting at the high school; and sometimes after we finished his hammer throw training at the community college, he'd take 10 or 15 throws with the shot. As a freshman Conor's high school coach wanted the boys to throw the 12 pound shot in training, but I insisted Conor throw primarily the 4kg. shot. For me the emphasis always is speed development. Last year Conor put the shot 57'11" and threw the discus 176'.

In his freshman year we worked around the basketball training by practicing the hammer primarily on the weekends. During the weekdays if we had a half an hour after his basketball practice, we'd get in sets of turning drills with releases at the end of the drills rather than taking throws from the circle. It would be all multiple turns and releases. If we had an hour or longer we would still do the

turning drills and get in some throws if the drills went well. In any work out if the drills weren't going well, I'd change the weight of the hammer to jar him out of the faulty rhythm; or if I thought it was fatigue, I'd have him work with a lighter hammer. If the rhythm remained poor, we'd stop and he would not throw that day.

**11. After you complete Conor's preseason work on conditioning, throwing drills, and increasing his strength are you going to incorporate your idea of throwing hammers in training that are 1 pound different in weight from 4 kg through 7.65 kg?**

Yes, we use them all the time. They provide a great deal more latitude in maintaining a high volume of consistent rhythm throws throughout the workout. By using variable hammers 1 pound different in weight, they address the thrower's fatigue, by tricking the thrower's nervous system into maintaining the same throwing rhythm and speed pattern up and down the scale of 1 pound increments. Since they all have the same size balls, length of wires, and handles, the thrower visually, kinesthetically, and psychologically feels as if he's throwing the same hammer. In a workout I can use as many as 5 to 7 different weight hammers and the thrower's rhythm is not disrupted and throws are not lost by breaking down and having to adjust to a 2 kg jump in the weight of the hammers.

**12. In preparing Conor for his major competitions, nationals and world championships, how did you change his training cycles?**

I prefer that a month out from the target competition there will be no further competitions. Two or three weeks out from the target competition, depending on my assessment of his training performances, the volume and intensity of our usual throwing five days a week (50 throws a workout, 250 -- 300 weekly throws) and his auxiliary exercises are gradually reduced. I may also drop one training day, making it another active rest day. In the month out from the target competition, I also alter somewhat the construct of the throwing sessions to prepare him psychologically for the difference between the preliminaries and final of the championships. In a workout at the championship facility he'll take no more than 20 throws maybe as few as 12. If I see his rhythm going nicely, just 10 throws. If I have to correct a little something, maybe he'll take 14 or 15 throws with a lighter hammer.

Before he picks up the hammer in the championship competition, the warm up routine is reduced to about 20 minutes and static stretching is omitted.

# Walter Henning's High School Hammer Throw/Weight- Throw Training

Marty Engel

## **1. When did you begin coaching Walter Henning?**

On a Tuesday in August, 2002, a lanky 13-year-old boy, Walter Henning, appeared at my door to talk about learning to throw the hammer. We agreed to meet the following Thursday on my front driveway three or four times per week. Thus began his introduction to the hammer throw. I knew it would take at least that many weekly training sessions to accelerate his learning hammer throw technique.

## **2. What first steps did you take to teach Walter how to throw the hammer?**

From day one we used a 12 pound hammer, but he did not throw the hammer for three months. I initially introduced him to the footwork by coaching him to drag the ball with straight, passive arms along the ground and walk in rotations until that momentum raised at the ball from the ground. Then I taught him to use his right side to go around his single support left side by pushing the ball around in front and ahead of him so that he could step to 180° with his right foot and knee in close to his left leg. As he stepped down in the area of 180°, I coached him to instantly rotate his right foot. Although I was coaching him in the preliminary winds from day one, I wanted no up and down motion of the hammer with his arms as we took the initial steps to learn the footwork and turns. Walter had practiced and competed in the discus so I proceeded slowly and carefully in coaching him with proper right knee position as he learned to step around into turns. There was no discus/hammer turning conflict. Subsequently from walk around, wrap around, and preliminary winds entries into the turns, he quickly learned heel toe turns by practicing turning drills. That winter we attended a Yuri Sedykh clinic and adopted greater numbers of sets and turns into Walter's multiple turns drills.

## **3. When did you start teaching him to wind?**

From the very beginning of his introduction to the hammer I wanted him to understand and internalize correct preliminary winds, but I withheld incorporating them into the more important initial mastery of correct multiple turns.

## **4. When did Walter step into a regulation circle and make a three turn throw?**

After three months of practicing turns on my driveway, he stepped into a circle and began throwing the 12 pound hammer with two winds and three turns. It landed just under 20 m.

## **5. When did you begin using multiple weight hammers in Walter's training and what were the proportions of throws made with the weight as contrasted with the throws made with the hammer?**

We began incorporating multiple weight hammers during his junior year. Before then the goal was acquiring technique with the 12lb and 5k hammers.



After Walter competed in the 2005 World Youth Championships, we made the decision at the start of Walter's junior year that the 6k. and not the 12lb would become his primary competition hammer. With this switch, the training hammer weights were adjusted and the heavier balls came into play.

The three different weight hammers for a specific cycle were thrown 30 times per workout four times a week - 10 throws with each weight in that cycle. Beginning in the middle of December we introduced the 25-pound weight on Thursdays after the hammer throwing for 5-8 throws. Every few weeks we added some fun to the end of the hammer workouts by having a simulated competition with a 20, 25, and 35 pound weights, especially when Jacob Freeman and Jimmy Heizman were at the workouts.

The hammers Walter used through cycles typically started with a regulation 16lb, and 14lb). We then moved through the following cycles: (16lb,14lb,12lb) - (14lb, 12lb, 5k) - (6k, 12lb, 5k) - (12lb, 5k) – (12lb, 6k) – (6k). These cycles often did not have a definite date in which we switched but rather they were changed when we noticed a plateau or a spike in distance.

**6. During H.S. did you ever train with shortened heavier hammers?**

During high school, until perhaps the senior year when a 16 hammer competition may come up, I don't advocate the athlete training and competing with hammers heavier than 14 lbs. Rather than practicing with heavier shorter hammers to slow the thrower down for technical or rhythm adjustments, I prefer, once in a while, the novelty of turning drills with a longer, up to 5 feet, 12 pound or 6 kg hammer gripped in the normal manner. For hammer specific strength gains, heavier puds and a limited number of throws with the indoor weight, using hammer throw technique, did the job.

**7. During H.S. what was the lightest weight hammers you used in training?**

5k. and occasionally a 4 kg but just throw for distance. Now I use the 4 kg hammer in training on a regular basis.

**8. Did you train Walter to do turning drills and throws left handed and/or with his eyes closed?**

During his junior year we played around a little doing some left-handed drills and throws and some with his eyes close, but it was more an occasional novelty, which he was able to do reasonably well. It was not a regular part of Walters training development.

**9. In preparing Walter for his major competitions, nationals and world championships, how did you change his training cycles?**

In the five or six weeks before the world's championships, I reduced Walter's number off hammer throws per session from 30 to 20, and Walter reduced his weightlifting sessions, sets, and poundages.

# Walter Henning's High School Hammer Throw/Weight Throw Training

Walter Henning

**1. In what sports did you participate before you began hammer throwing?**

In elementary school, I played soccer, baseball, and basketball, participated in gymnastics, lacrosse and track and field. In middle school I ran cross-country, played volleyball and basketball as well as track where I ran the 55m hurdles and 200m and threw the shot put and discus. My best performances in middle school were 8.1 for the 55m hurdles, 24.7 in the 200m on an asphalt track, 52'10" in the 8lb shot put and 168'0" with the 1k discus. In high school I played spring football my freshman year and sprinted on the varsity 4x200 and 4x100 before concentrating on the throws.

**2. How did you work your shot putting and discus throwing training and competitions into your hammer throw training?**

During my freshman year I was a hammer/javelin thrower. Then I became a hammer/weight thrower. When this transition happened, because of a shoulder injury, I put all my time into the hammer. Shot put would be thrown at 6:30 in the gym during the months of November through March then we would move practice outdoors because the weather was becoming bearable and I would begin throwing discus. However, I did not put significant effort into the shot-put until my senior year when I improved my personal best by 9 feet to 68'11.75", won the National Scholastic Indoor Championship and set a New York State Record. I never put time into the discus outside of throwing it to keep a minimal feel for team points at championship meets.

**3. In your freshman year in high school how many turns did you use in the weight throw?**

I used three turns in the weight during my freshman year.

**4. In frosh year in the weight throw did you use a sling entry or a 1 wind entry?**

I used the sling entry during my freshman year.

**5. When did you start using 1 wind and a 3 turns in weight throw competitions?**

My sophomore year I tried 1 wind but did not compete using the wind and 3 turns until my junior year.

**6. When did you make the transition to 4 turns in the weight throw?**

We experimented with the 4-turn throw at the beginning of my junior year. When we determined that it was not the approach we wanted to take, we scraped the idea and decided to stick with the 3-turn approach. Later on, in my senior year, we decided to stick with the 4-turn throw after

accomplishing all that we wanted in the weight during my junior year. This gave us the opportunity to limit our weight throwing during practice even further and make the weight a hammer training tool.

**7. When you transitioned to 4 turns in the weight throw did you use 1 wind or 2 winds for your entry?**

When I originally made the transition to the 4-turn throw, I used one wind.

**8. When did you transition to 2 winds and 4 turns in the weight throw?**

I made the move to 2 winds and 4 turns halfway through my senior year to use the weight more as a training implement for the hammer indoors. Since I entered college and began throwing the 35lb weight, I have moved back to one wind.

**9. When training with Marty in the weight throw and hammer throw how did you integrate your weightlifting training with your throwing training?**

Marty and I usually met four days a week for hammer and weight throw training. During high school my dad and I created all my weight training workouts. We used the same weight lifting program that his high school's strength and conditioning department used on their football players, with adjustments to that program and the creation of others. Marty asked that my weight training sessions follow the same days as my throwing sessions so that I could fully recover the following day/s for my next throwing session. We created a solid strength program that we thought would be the most effective in producing big throws in June-July.

Beginning in late August, we started a conditioning cycle, usually involving jogging, which consisted of going 'around the gym' on the machines once a week to get our bodies active after our month hibernation. We then concentrated on our 'football circuit' which was heavy static lifting along with agility and plyo-metrics. This involved three days of lifting along with one day of agility or plyo-metrics, depending on which cycle we were in. This typically went to the end of December or beginning of January when we took a one-week break.

Then in January we'd drop the extra day and lift three days a week. One day of heavy legs, another of heavy uppers, and another of overall. Each day also had core exercises as a warm-up. Then as indoor nationals approached, we would start our Olympic lifts and return the extra day back into the cycle.

The Indoor Championship cycle typically involved four throwing days, and 3-low rep, light weight, explosive lifting days along with one day of flexibility.

After another break week, we would complete another month of 3-throw, 3-lift football circuits without the extra lifting day. Halfway through this cycle, in April, the fourth throwing day would again be introduced with three lifting days, one heavy legs, one heavy upper, and one overall.

In May we eliminated one throwing day to taper off towards our peak. In June when we wanted to force a small spike of power output, we dropped one lifting day and adjusted my strength program

to include one specific hammer strength training session, comprised of twists and Olympic lifts, and a specific shot-put strength training session of upper-body exercises and raises. This was to focus our peak with the 12 pound hammer and shot-put. Then to peak with the 6k-hammer in July, we would throw 3 days and on the same three days lift light but explosive to keep the body consistently powerful and rested.

**10. During H.S. how many days per week and approximately how long were the weightlifting training sessions?**

Lifting varied from cycle to cycle. The time it took to complete also varied per cycle but lasted no shorter than 20 minutes and no longer than 1.5 hours with an average of 45-50 minutes not including warm-up or cool down.

**11. During H.S. was your total body strength monitored by periodically recording 1 rep or 3 rep maximum weightlifting movements?**

No. I do not believe in maximal output days. When you max you take away a recovery day from which you could gain strength. Also, when you max, you may get a lift PR but not necessarily your highest explosive output, which more directly correlates to the throwing events. The only near max lifts I ever attempted in high school were a (285x3) bench and a (660lbs 3x3) quarter squats.

**12. During H.S. did you do specific total body flexibility exercises and how much time did you spend on flexibility?**

No. I have never done a cycle that concentrated heavily on flexibility. During the championship season I will have one day that is flexibility based. Stretching, before and after practice, is the most consistent flexibility work that I did and still do.

**13. What factors influenced you to forgo playing team sports in high school?**

After finishing spring football my freshman year, I made the trip to Raleigh, North Carolina to compete in the Adidas Outdoor National Championships hammer throw and placed third. On the walk back to our car my Dad, a football and track coach, said "Would you rather get hurt playing football or win a national championship in the hammer?" Fourteen National Championships in the weight, hammer and shot-put and one World Hammer Throw Championship later, you can probably guess my answer.

# Family of Youth Hammer Throwers

(Katie, Casey, Trent and Trevor Kraychir)

Hank Kraychir

## 1. Did your children have any organized sports experience before they began hammer throwing?

Before my children went to high school, they were home schooled, and I provided their physical education activities. They had no other organized sports experience before they began throwing. I would, however, bring the four of them with me when I was out at the track coaching college throwers, but my children never lifted weights or picked up an implement. I gave them various physical challenges and exercise activities that were not intentionally related to throwing.

## 2. Did your children have any experience with the discus and shot put before they began training for the hammer throw?

The answer is no for Katie and Casey, but my boys, Trevor and Trent had previously thrown the discus and shot. I coached them in all four of the throwing events in their first year of training. Trevor had early success with the discus, throwing it over 150 feet as a freshman in high school. Trent was leaning more toward the shot put, perhaps because he was stouter, but it was only his eighth grade. The biggest change came when Trevor and I attended the 2004 USATF Junior Training Camp in July and received a week's coaching in the hammer throw. From that experience I took away two substantiated observations that significantly modified my coaching:

- The serious hammer throw technical error of the wide sweeping right leg, though technically correct for the discus turn, can become a struggling, technical conflict for the discus thrower attempting to learn correct hammer throwing turns.
- Compelling evidence of significant advantages in quicker, easier skills acquisition and greater ultimate performance when pre-pubescent children (ideally by 12-14 years of age) receive age appropriate regular coaching in technical skills events (certainly the hammer throw).

Until that camp I believed you waited with children until about the eighth or ninth grade with planned coaching and training. I did not know that starting younger had such a positive impact. I immediately applied that approach with my youngsters. After the camp that fall in his high school freshman year Trevor's hammer distances were going up, but it was all strength. From the discus technique I had previously been teaching him, he had the right leg flair in the hammer

After that I realized we needed a year-round training program for all of them, particularly Trevor because time was of the essence. Our goal for all of them was the hope of college athletic scholarships, and Trevor only had three years left in high school. Unfortunately, in the winter of his sophomore year, he was involved in an accident resulting in a fractured tibia. That cost him the outdoor hammer throwing season. By the time his junior season came around, I was just breaking him of the right leg flair in the hammer. Trevor is a typical example of a young man with athletic talent, who started hammer throwing late as opposed to starting training in the fifth, or sixth grade. By making it fun, throwing for 15 minutes then get an ice cream, whatever, my kids bought into it. Fortunately, in his senior year Trevor performed among the nation's top weight and hammer throwers and earned athletic financial aid to Boise State University.

**3. How old were Katie and Casey when you first introduced them to formalized training for the hammer?**

Katie was 12 in the fifth grade and Casey 13 in the sixth. Trent was 14 in the eighth grade and Trevor 15 in the ninth. Because our training facilities had inadequate space, nine out of 10 throwing days consisted of practicing turns and throwing only the weight. We started with the weight first. In my opinion what's really neat about the weight is its close proximity to the body; and from the first year almost every time they picked it up for practice, they threw it a little bit farther, which I recorded in a book. It was really fun stuff like that. A workout consisted literally of a 15 -- 20 minutes, PE class warm-up followed by practicing turning and six to eight weight throws. I had them throw ambidextrous, providing an opportunity to PR on both sides. That became the main thing, and they were excited.

I'm being honest with you; because of my lack of hammer throw training knowledge, we used only the regulation 20 and 25 pound weights. I now believe it would have been more effective to initially use a lighter weight. Nevertheless that first year was very exciting, because they bought into the activity and practically every time they went out they PR'd.

**4. What basic movements did they start with using the weight?**

I coached them to try to do continuous turns. It might be three or four turns without a preliminary wind or winds. They use the sling entry into the turns. But because we didn't have anything but a discus circle, they couldn't do the multiple turns we saw practiced at the Olympic Training Center. By the third year of their training we had a more versatile training facility and we did start employing multiple turns drills.

**5. How long did you have them do these three or four turns before they attempted to wind the weight around their head?**

During the first few months I didn't have them do winds because it created an artificial high a low orbit, and it didn't allow the ball to rise on its own and get a natural flowing rhythm, so I really stayed away from doing winds.

**6. How long was it before you introduced the winds into the girls weight throwing?**

In the sixth month of the first year we began to incorporate the winds into the turns. They actually didn't like winding the weight, and I never really emphasized it. I emphasized turns. I taught the boys the winds earlier than the girls and immediately realized what a mistake that was. What a less informed coach will do, and I'm also guilty of this with my boys, is he'll say, okay we're going to do winds and one turn, okay you got the one turn down, now let's do two turns. By the end of their third year they may have three turns down and might be experimenting with four turns, but many are happy with doing a two- turn power throws. And if they're big enough and strong enough they can go 210 feet. Too many coaches go for the points rather than coaching the technical aspects of the event.

My deal with my children was stick with one preliminary wind in the weight throw?

If Katie had her preference she would not do any winds in the weight throw. However, by the eighth grade she realized using one wind, when hit correctly, gave her another 2 feet of distance and a 57 foot PR throw. However, Casey evolved quite quickly into a double winder in the weight throw and

into three winds in her hammer throw. Katie uses only one preliminary wind in the hammer. This year I'm trying to get her to use two winds in her hammer throwing. While they both have only been using three turns in the weight and hammer throw, they both are now becoming more comfortable using four turns in their weight throwing. The reason for that is to make the transition easier when they go to the hammer in the spring.

We're hoping Casey will use four turns a little bit this year and have it perfected by her senior year. Neither of them has yet competed with four turns. Perhaps both will be able to transition to four turns this year. We're now using a standard length 18 pound weight with which they throw with three and four turns in practice. We are getting there.

**7. When did you initiate weight lifting in your children's training?**

Trevor began lifting weights in his freshman year in high school using light weights and Trent began in the eighth grade. The girls began also when they were in the eighth grade.

**8. What kind of weight training exercises do they do?**

Since my days as a thrower, I always disliked cleans because of wrist injuries. My children do not do cleans. When they began weight training, we started with the bar only, progressing very slowly with any increases in poundage and keeping the reps at about four or five. They learned snatches as a primary lift. And I have always been more concerned about proper technique and muscle development than how much they could lift. I really pretty much stayed with three lifts: the snatch, a machine leg press or hack squat. Other than the snatch they never touch free weights. I am a big advocate of machines only, like the NFL. We don't use free bars because I don't want them to get hurt. None of my kids have ever been injured doing resistance training, because they trained with machines. The machines are set up for them and they can work with moderate weights. We never go hundred percent maximum effort. We also have a machine for incline presses.

**9. How many throws with your youngsters take and they typical hammer throw training session?**

This is where we get a little different. I am also an advocate of under training. We never go 100% except in competition. In terms of practice, particularly in the beginning, we will throw seven days a week, six throws from their primary side and six throws from their secondary side and they are done. Because of the difficulty of getting to hammer a throwing facility, we throw only the weight in practice approximately 8 months during the year.

**10. How do you peak your youngsters for major competitions?**

For a big competition I will give them a three-day rest cycle. That doesn't mean they don't do anything, they just don't do anything strenuous. They'll do warm up, stretching and some easy throws. Everything is based on fine tuning for competition and backing up what you do in training with your best performances in competition. We generally don't measure practice throws in the hammer unless at the end of practice they take a couple of higher intensity throws and have an exceptional distance. Because they already have completed an extensive warm up and their practice throws before they take a couple of harder efforts, they then are really sure of what they capable of in competition.

## **Six Weeks before the 2008 World Junior Championships**

Derek Yush

### **How long did you work with Walter to prepare him for peak performance at the World Junior Championships?**

It was really just a six-week cycle from the first day I began working with Walter until his competition in the World Junior Championships. He was coming off a great deal of training with the 16 pound hammer, and he wanted to sharpen up with the 6 kg for the World Championships. I was trying to take him from where he was and refine his attack rhythm for the 6 kg hammer as much as I could at that point.

We had five days of serious training each week and two were down days. One was an active rest and recovery day, when he did a warm up and stretching, the other was a weekend rest day.

On a week when we did not have a competition, Walter had four days of throwing. If there was a competition, he practiced throwing three days. The majority of the throws were with the 6 kg, and occasionally we incorporated a 16-inch long 20 pound hammer to work on some critical things, and sometimes after doing repeated throws with the 6 kg, we'd drop down to a 12 lbs. or a 5 kg hammer depending on what day.

### **Was he doing strength training or speed lifting or anything like that?**

Two days a week, we were doing quite a bit of Olympic lifting and trying to put at least 48 hours between Olympic lifting sessions. One day it was more of a cleans/pulls day and either two or three days later snatches. On the mornings of his competitions he'd do a few sets of single rep hang cleans and a few more sets of single reps of something else ballistic to fire up his system.

### **How many days did he rest before the actual competition?**

The day before the competition we would go out and take six to eight throws with the 6 kg and then the next day three or four hours before his competition we'd go out for a brief lifting session, speed hang cleans that sort of thing.

### **In Poland did you do anything differently for the preliminaries and the day's rest before the finals?**

We planned the same preparation routine before the qualifying round as we had planned before the finals, but there was one deviation of something we had not planned and Walter had not done for a couple of months before we started working together. In Poland at the competition they had excellent resources and Walter felt a full body massage would loosen him up before the prelims. In retrospect it may have been an inadvisable decision on my part. It may have altered his nervous system a little and negatively affected his feeling with the hammer. The bottom line is, if we can incorporate regular massages into his training at LSU, which I think we can, then I can evaluate over an extended time how it affects his throwing. Experience in high-level international competitions prepares the coach and young athlete for more prudent strategic decisions in subsequent World Championships and Olympic Games.



# Walter Henning - 2008 Pre-World Jrs. Training

Coach – Derek Yush

## Monday

Tech - 6 kg

10 times 10m build ups

Cool down

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## Tuesday

Tech 6 kg

Overhead squat 4 x 5

Russian twists 3 x 5

Plate Front Raises

Hypers 4 x 6

Cool down hurdle mobility 3 x 5

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## Wednesday

Throw 6, 6, 12

5 x 5 hurdle hops

8 x standing long jump

Cool down T-1 x 6 w/light ball

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## Thursday

Lifting

Hang Clean Pulls 4, 3, 2

Dumbbell Jumps 6 x 4

Dumbbell Snatches 6 x 3

Cool down Your 1 x 8

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## Friday

Throw Short/heavy x 6

Throw 6 kg

Cool down T-2 x 5

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## Saturday

All 4 x 30m A- Skip  
Skip for height  
Skip for distance

Drills Multiple Turn

Static Stretching

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## Sunday

Rest/recovery day with active stretching

HIGH SCHOOL BOYS' 12# HAMMER THROW  
RECORDS AT THE END OF RESPECTIVE SEASONS/YEARS

	FR	SO	JR	SR	NATIONAL
1976-1997	182'04"	208'10"	219'09"	<b>231'11"</b>	<b>231'11"</b>
1998	182'04"	208'10"	<b>226'08"</b>	231'11"	231'11"
1999	182'04"	208'10"	226'08"	<b>253'03"</b>	<b>253'03"</b>
2000	182'04"	208'10"	226'08"	253'03"	253'03"
2001	182'04"	208'10"	<b>231'02"</b>	253'03"	253'03"
2002	182'04"	208'10"	231'02"	253'03"	253'03"
2003	182'04"	208'10"	231'02"	253'03"	253'03"
2004	<b>193'02"</b>	208'10"	231'02"	253'03"	253'03"
2005	193'02	<b>226'06"</b>	231'02"	253'03"	253'03"
2006	<b>213'00"</b>	226'06"	<b>252'06"</b>	253'03"	253'03"
2007	213'00"	<b>243'11"</b>	252'06"	<b>255'11"</b>	<b>255'11"</b>
2008	213'00"	243'11"	<b>260'00"</b>	255'11"	<b>260'00"</b>

Note: There was no change in class/national 12# hammer throw records between 1976 and 1997.

1970	182'04"				
1970		208'10"			
1971			219'09"		
1976				231'11"	231'11"

Information from Jack Shepard's "High School Track" annuals included in these statistics.





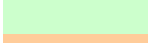

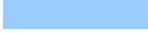
Jacob Freeman  
Walter Henning  
Conor McCullough  
Adam Midles  
Manny Silverio



HIGH SCHOOL BOYS' 5k AND 6k HAMMER THROW  
RECORDS AT THE END OF RESPECTIVE SEASONS/YEARS

BOYS' 5K					
8TH	FR	SO	JR	SR	NATIONAL
2005		<b>232'07"</b>			<b>232'07"</b>
2006		232'07"	<b>259'08"</b>		<b>259'08"</b>
2007		<b>244'07"</b>	259'08"		259'08"

BOYS' 6K						
2002		<b>151'04"</b>		<b>206'05"</b>	<b>212'08"</b>	<b>212'08"</b>
2003		151'04"	<b>173'00"</b>	206'05"	<b>224'00"</b>	<b>224'00"</b>
2004	<b>147'03"</b>	151'04"	173'00"	206'05"	224'00"	224'00"
2005	147'03"	<b>171'04"</b>	173'00"	206'05"	224'00"	224'00"
2006	147'03"	<b>203'11"</b>	<b>195'02"</b>	<b>238'02"</b>	224'00"	<b>238'02"</b>
2007	147'03"	203'11"	195'02"	238'02"	<b>241'05"</b>	<b>241'05"</b>
2008	147'03"	203'11"	195'02"	<b>248'11"</b>	241'05"	<b>248'11"</b>

John Freeman	
Walter Henning	
Conor McCullough	
Adam Midles	
Zack Midles	
Nick Owens	
Wes Wright	

Information from Jack Shepard's "High School Track" annuals included in these statistics.

HIGH SCHOOL BOYS' 16# HAMMER THROW  
RECORDS AT THE END OF RESPECTIVE SEASONS/YEARS

	FR	SO	JR	SR	NATIONAL
1976-1992		180'00"	186'02"	<b>202'09"</b>	<b>202'09"</b>
1993		180'00"	<b>188'07"</b>	202'09"	202'09"
1994		180'00"	188'07"	202'09"	202'09"
1995		180'00"	188'07"	202'09"	202'09"
1996		180'00"	188'07"	202'09"	202'09"
1997		180'00"	188'07"	202'09"	202'09"
1998		180'00"	<b>193'09"</b>	202'09"	202'09"
1999		180'00"	193'09"	<b>216'02"</b>	<b>216'02"</b>
2000		180'00"	193'09"	216'02"	216'02"
2001		180'00"	193'09"	216'02"	216'02"
2002		180'00"	193'09"	216'02"	216'02"
2003		180'00"	193'09"	216'02"	216'02"
2004		180'00"	193'09"	216'02"	216'02"
2005		180'09"	193'09"	216'02"	216'02"
2006	<b>149'09"</b>	<b>186'03"</b>	<b>210'11"</b>	216'02"	216'02"
2007	149'09"	186'03"	210'11"	216'02"	216'02"
2008	149'09"	186'03"	210'11"	216'02"	216'02"

Note: There was no change in class/national 16# hammer throw records between 1976 and 1992.

1970		180'00"			
1971			186'02"		
1976				202'09"	202'09"

Adam Connolly
Jacob Freeman
Walter Henning
Wes Wright
Zach Richards
Manny Silverio

Information from Jack Shepard's "High School Track" annuals included in these statistics.

HIGH SCHOOL GIRLS' 4k HAMMER THROW  
RECORDS AT THE END OF RESPECTIVE SEASONS/YEARS

	7TH	8TH	FR	SO	JR	SR	NATIONAL
1994				100'01" ?	103'10" ?	<b>133'03"</b>	<b>133'03"</b>
1995			<b>130'07"</b>	100'01" ?	103'10" ?	133'03"	133'03"
1996			130'07"	<b>160'10"</b>	103'10" ?	133'03"	<b>160'10"</b>
1997			130'07"	160'10"	<b>190'00"</b>	133'03"	<b>190'00"</b>
1998			<b>141'03"</b>	160'10"	190'00"	<b>201'07"</b>	<b>201'07"</b>
1999			141'03"	<b>176'00"</b>	190'00"	201'07"	201'07"
2000			141'03"	176'00"	190'00"	201'07"	201'07"
2001			141'03"	176'00"	190'00"	201'07"	201'07"
2002			141'03"	176'00"	190'00"	201'07"	201'07"
2003			141'03"	176'00"	190'00"	201'07"	201'07"
2004		<b>140'06"</b>	141'03"	176'00"	190'00"	201'07"	201'07"
2005	<b>147'06</b>	140'06"	<b>159'09"</b>	176'00"	190'00"	201'07"	201'07"
2006	147'06	<b>160'01"</b>	159'09"	176'00"	190'00"	201'07"	201'07"
2007	147'06	160'01"	<b>173'04"</b>	176'00"	190'00"	201'07"	201'07"
2008	147'06	160'01"	173'04"	<b>180'04"</b>	190'00"	201'07"	201'07"

Information from Jack Shepard's "High School Track" annuals included in these statistics.

- Patrice Gates
- Maureen Griffin
- Allison Horner
- Kate Johnston
- Casey Kraychir
- Arianna Lugo
- Patricia Mellodge



# Setting Competition And Training Goals

Training Standards For High Level to Elite Throwers. (From research, correspondence and direct experience)

	Men				Women			
	youth	junior	U23/collegiate	Senior	youth	junior	U23/collegiate	Senior
<b>Hammer throws:</b>								
2kg	60-80+m				55-65m			
3kg	60-75+m	65-80+m			50-60m	53-63+m	57-68+m	60-70+m
3.5kg					47-57m	50-62+m	57-66+m	59-68+m
4kg	60-75+m	65-80+m	80+m	85+m	45-57m	49-60+m	57-63+m	59-68+m
4.5kg					42-54m	45-52m	54-60m	56-63+m
5kg	60-75+m	65-80+m	70-80+m	82+m			52-57m	55-62+m
12#		60-75+m						
6kg		60-75+m	65-80+m	75-80+m			47-52m	49-55m
7.26kg		55-65+m	60-70+m	68-78+m				
8kg			55-65m	55-70m				
9kg			50-60m	52-62m				
short 10-12kg			40-50m	42-52m				
short 14-16kg				35-45m				
<b>Related Exercises:</b>								
Standing long jump	2.40-3m	2.8-3.10+m	2.9-3.25+m	3-3.3+m	2-2.3+m	2.1-2.5+m	2.2-2.6+m	2.4-2.8+m
Standing 3 jumps	6.8-7.2m	7-8.10+m	7.9-9.45+m	8-10+m	6-6.3+m	6.2-6.5+m	6.3-6.7+m	6.4+6.9+m
Overhead shot:								
3kg	18-22.5+m				14-16m	15.30-16+m		
4kg	17-22+m	18-21+m			13.9-16m	15.10-16+m	15.50-17+m	16-18+m
5kg	16.5-22m	17.75-20+m	20-21.5+m				14-15+m	14.5-16+m
12#	16-21.50m	17.50-20+m						
6kg		17-19+m	19.5-20.80+m	21+m				14-16+m
7.26kg			17-18.75+m	20+m				
Clean	n/a	100+kg	120-160+kg	140-180+kg	n/a	-60kg	80-110+kg	90-110+kg
Snatch	n/a	70+kg	100-125kg	120-140+kg	n/a	-45kg	60-75+kg	70-90+kg
Squats	100kg	150-200kg	200kg-280+kg	220-300+kg	60-80kg	80-100kg	100-150kg	120-200+kg

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