

WORKING THE EARTH

A linear approach for rotational style shot putting

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Gliders have thrown 75+ and Spinners have thrown 75+. There has been more 22 meter efforts in the last ten years with the rotational technique but the glide technique has produced more World and Olympic Medals in the history of the event. The glide seems to be a technique that holds up better under pressure situations simply because there are less technical movements that can go wrong. The rotational technique on the other hand, seems to produce more 70+ throws and better standing throw to full technique differential. The glide seems to require bigger weight room numbers to produce a 70+ throw, but is more stable under adverse situations.

Coming from a background as a rotational thrower that glided at one time who thought the glide was an uncomfortable way to throw the shot. I ended up coaching a female athlete (Connie Price-Smith) for 15 years that went from 42 feet to 60 feet in two years and 4.25 feet in the next 13 years while using the glide technique. Connie on average would put 113-115% on standing throws with shots ranging from 4k-12lb and up to 116%-117% on shots that ranged from an 8lb-7lb. The technique performed well under many national and world situations.

From this experience I started thinking about taking some of the rotation out of the rotational technique and take a page out of European methods of developing discus throwers. American throwers fly around the ring and are very airborne with an airborne reverse. European discus throwers have short single support phases and work to grind the earth with non-reverse leg action. Being connected to the ground seems to hold up very well in high pressure world class situations because the many moveable parts of the discus technique has been reduced down to a more efficient technical model with less technical points to work on, think about and make mistakes on. The technique is easier to teach, perfect and can run on autopilot once many years of repetitions are put in.

The two things that I have learned from teaching the glide, is running the ball in a straight line (Ball Alignment) and strong leg action against the earth that creates a good strike and finish (Non reverse throwing). With this linear *philosophy in mind*, I started rethinking the rotational technique. Rotational throwing presents many problems when developing an athlete from the beginning, so a training procedure had to be developed to insure that 80-90% of all throws were taken in a correct fashion to develop a technical model that could hold together in high pressure situations, but yet produce more than the 115% of standing throw at all times to justify making that athlete a Rotational thrower over a Glide style thrower.

I will try to outline a daily training procedure that I used with Dan Taylor to go from 62'8 with the 12lb shot to 69'113/4 with the 16lb shot from Sept 25th of 2000 to March of 2003 (2.5 years). Dan is a 6.6 330lb Northeast Ohio boy with good talent and with almost zero weight-training background. Even though the strength work involved had about 1/2 to do with his increases, I will try to stick to the Weekly throwing and drill work it took to develop this in such a short time.

Throwing Progression and Drill work:

- **Non-reverse Standing Throws-** (18lb, 16lb, 14.5lb for 6-8 throws Men) (12lb, 5kg, 10lb, 4k, 3.5k, 3k 6-8 throws Women). Stands are taken in the order as written. Attention is paid to proper leg action and working the feet to drive the hip forward. I am also looking for a good left side block and a long straight-line strike on the shot over the board. Striking and finishing a strike is very important. Right hip is taught to **Lift then turn**.
- **Non-reverse 1/2 turns- (Learning to work the earth)**, You use the same balls and throws as the Non-reverse standing throws. You start by placing the right foot in the middle of the ring with the right toe pointing to the 10 o'clock position if the front of the ring is 12 and the back of the ring is

6. Left foot is placed where the left will be at the start of a full throw. Head up, belly ahead, shoulders square to the field, then the ball of the right foot grinds the earth (the ring) to move the left leg to the front of the ring. It's important that the left leg does not take a circular path but rather a straight line path to the power position similar to someone trying to kick you with the back of your heel. If you keep the thighs squeezed tight this will also control the left leg in a straight-line path. This is a quicker way to get the left down and also promotes the ball being driven in a straight line. While this leg action is going on, the upper body stays back in a locked position while the shot stays almost in the same position while the whole system is turning. This is how the ball is kept in straight-line alignment during the rotational technique. The ball becomes part of the pivot point of the body and puts the thrower in a position to immediately strike on the ball when the left leg makes contact. This movement will end up being very similar to the same strike that a good glider has with better leg action and upper body action. This Drill is deadly important because it can produce 87-90% of the full throw and for this reason a thrower must become very good at this move and make it a high priority. The better the athlete $\frac{1}{2}$ turns, the greater the potential of the full rotational throw. (**A triple $\frac{1}{2}$ turn, turn to the front- turn to the back-turn to the front and throw**) can be used to teach the $\frac{1}{2}$ turn if the athlete is having problems staying back and pivoting correctly on the right leg while the left finds the straight line power position. Any miscue will show up and make the athlete feel what is going wrong.
- **Non-reverse Giant Steps-** (linking the move out of the back to the $\frac{1}{2}$ turn position) You use the same implements and throws as the last two drills. Once a descent $\frac{1}{2}$ turn throw is created, then the problem exists on how to get out of the back to arrive into the $\frac{1}{2}$ turn position. A giant step is simply starting in the normal full throw position (straddling middle) . The first move is left (pushing of the left leg, hip and arm) to the left so that 90% of the weight is on the left side as the right foot pushes off and causes the body and the right leg to turn to the top (5 o'clock position) as the left side and arm are pointing directly towards the center of the field (12 o'clock) as the left toe of the left foot is pointing towards the 2-3 o'clock position. This is very similar to a soccer style kick. Then you slowly drive the inside of the right knee towards the middle of the ring. When contact is made with the ring, the thrower comes to a stop. At this point the thrower should be in a $\frac{1}{2}$ turn position exactly like the $\frac{1}{2}$ turn the thrower practices everyday. The thrower then does a $\frac{1}{2}$ turn and makes a non-reverse throw.
 - **Non-reverse Walking throw-** (Slow motion full throw) Use the same implements and throws as the last 3 drills. This drill is a giant step without the stopping in the middle. This teaches the right leg to make ground contact then "Work the Earth" rather than turning in mid air then landing. Many rotational throwers that turn in mid air, and wait for the right foot to land, do little with their legs and the throw usually slides out to the right sector line. Even though the right rarely points towards 10 o'clock on a full throw, it should be practice this way to over exaggerate the right leg action and drive in the single support section of the throw. This drill really starts to teach the athlete ball alignment and the sequence of biomechanical events that has to happen using the easier to learn slower speed. Sometimes it's surprising how far you can throw off this drill. 90-94% of full throw can be accomplished with this drill. (**Saying Turn-Step-Turn-Throw**) during the movement is a great way to get the athlete to time up this drill and learn the movements.

Blending Drills:

- **Non-reverse walking throw, followed by a non-reverse full throw-** These throws are taken with normal weight shots, 16lb for men and 4k for women with the walking throw followed by a full throw with a 14.5 or 15lb for men and a 3.5k or 8lb for women for 6-8 throws. This drill is simply training the body into a full speed movement, using the walking throw as its guide. Blending drills are sometimes amazing, even making the athlete feel like the throw is happening with little effort. In essence what you have done is patterned or programmed the nervous system to react a certain way by setting up the system with the drill progression.

- **Non-reverse full throws, followed by reversed full throws.** -Same shots and pattern as the preceding drill but you can take as many throws, as you want, until the technique starts to break down.

Chasing Speed:

- **Using a lighter implement to make a heavier implement to go further-** With the men at the end of practice I like taking 6-10 throws with a 14lb shot being followed by a 16lb or 15lb shot. For the Women I like using a 3k followed by an 8lb or a 8lb followed by a 4k. This works because you are simply fooling the nervous system into firing faster on the heavy implement. After a few throws it can be amazing sometimes how close the heavy ball distances can get to the lighter ball distances.

Practice Tricks:

- Throw up a hill or over something. I have a ring sent up to throw up a hill at Ohio State. It makes the athlete work the ball up and the leg up then out without worrying about how far they are going. Dan Taylor spent two summers and falls throwing up the hill.
- Having a hard time with an athlete over-turning. Place a bench in the ring and give them just enough room to run a straight line. If they over-turn they hit the bench. They only do this once and the coach doesn't have to say you over-turn a million times.
- Having problems staying in the ring. Place a bench or a 55-gallon garbage can in front of the ring. Athletes start to learn to stay in. Throwing into a net also works well.
- Having problems blocking at the front. Sent up a table and two garbage cans on each end and give the athlete a tunnel to throw through. Can't fall away and throw right and can't rotate by the left side and throw to the left.

Fall Training (Dan Taylor):

- **Shot Practice 3 times a week-** throwing a 20,18, 16, 14.5lb. I move an athlete up once they have hit 60 with the heaviest ball. One practice will become a non-reverse full/ reverse full practice to make the full move more precise. Everything else will stay the same.
- **Discus Practice 3 times a week-** Throwing 4k, 3.5k, 3k, 6lb balls and 2.5k, 2.25k and 2k discs. Discus practices are very similar to shot practices. Heavy ball throwing has been added to develop specific strength. Dan creates torque that he is not strong enough to bring through. He has a unique ability to throw a 1k 280 feet.
- **Hammer practice 2 times a week-** One heavy ball practice, one light ball practice 15-20 throws each. He really does not like to practice hammer. But when you have a 451 hang clean the ball will go.
- **Lift twice per week-** We do nothing but lift on lifting days and throw on throwing days. One day is a pulling / upper body day and the second day is a squatting / upper body day.
- **One or Two days off per week-** The second day after squatting is always a off day and any other day I see fit if the athletes look like they need a break.
- **Shot Pr's -** 69.11 $\frac{3}{4}$ competition, 73.2 with a 14.5lb in practice from a full, 60 feet $\frac{1}{2}$ turn with the 18lb, 63 foot $\frac{1}{2}$ turn with the 16lb, 66.5 $\frac{1}{2}$ turn with the 14.5lb. Standing throws, 52 with the 18lb, 56 with the 16 (meet time) 60 with the 14.5lb. Best meet time standing throw to full throw differential 56- 69.11 $\frac{3}{4}$ (14 feet) The worse has been 10 feet. Dan's average is 12 feet.
- **Lifting Pr's-** 451LB hang clean with little drop and done with straps, 480lb bounce bench, 303 hang snatch, 440lb box clean, 650X3 Box squat (Parallel position), Safety Squat 800x3 below parallel position pulling out of the bottom with the handles. Dan does not back squat do to positioning problems.

- Athletic ability- 4.8-4.9 40-yard dash and can tomahawk dunk from a standstill. Dan is very quick for a big man.
- An all-around thrower- 193.4 in the discus, 217 hammer, 73.4 in the 35lb weight. Important to be an all-around thrower when you are young. The best throwers in history have a good all-around throwing background.
- Competition Warm-up- Two standing throws, one ½ turn, one full throw, then compete. Then he opens with an 80% effort unless he feels the urge to go after the first throw.

In Season Training (Indoors):

- Monday- heavy lifting, heavy pull, squat and bench with aux. Exercises. Main pulls are Hang Cleans and Box cleans with ½ rack deads or Heavy hi pulls. Main Squats are Safety Squats every 2nd week with the in between week being either a heavy Box, Front, Back squat. Heavy Aux for the squat area are ½ squats in the rack, leg press, one leg squat and step ups. Main benching is a heavy band bench followed by a camber bar bench or a regular bench followed by heavy 3-4 board bench. Inclines, Seated overhead, Dumbell bench work, dips, ½ rack benches ect are some of the heavy aux. work for the bench area. Workouts are always finished with ab work. This workout takes about 2.5 hours.
- Tuesday-
Shot- 40-45 throws in the normal training sequence.
Weight- 20-25 throws with the 45lb, 40lb, 35lb, 30lb weights.
- Wednesday-
Weight- 15-20 throws with the 40lb, 35lb, 30lb weights.
Discus- 40-50 throws into the net with 8lb,3k, 6lb, balls and 2.5k, 2.25k and 2k discus.
- Thursday-(Indicator ball day)
Shot- 30-35 throws recording best ½ turn with 18,16,15,14, and fulls with the 15lb and 14lb.
Weight- 10-15 throws with the 35lb and the 32.5lb weight. Record the 32.5lb distance.
- Friday- (Light and fast lifting)
Men Only, 5 sets of hang or box snatch for 2 reps, 60-70% close grip speed bench for 5 sets of 2, and 5 sets of swiss ball squats, high box squats or ½ rack squats.
- Saturday- (compete)
- Sunday- (rest)

The Future

Even though the rotational technique in the past has been a great equalizer for a smaller man to compete with the bigger men in the event, I believe that the evolution of the event is going to favor the bigger men. The 7 foot ring is going to be the biggest obstacle for a big man, but if they can develop a move with good ground contact and leg action and learn to stay back and contained, I can see the same throwing that we saw during the late 80's and early 90's. The long throws will happen, there is no doubt in my mind, but the technique has to be simple and solid enough to survive high-pressure situations. This is what I am trying to create with "Working the Earth", a simple solid move that can put 12-14 feet on a standing throw. Then all that has to be developed is a 20 meter + 1/2 turn and a 60 + standing throw. Those qualities can be created with weight room strength and specific strength on the throwing field. The gliders of the late 80's had 70 foot stands in their arsenal to throw over 22 meters. A good rotational thrower only needs 18-19 meter stand to accomplish the same distance. A big man is needed to produce that kind of horsepower without the aid of drugs. We have many shot putters that are world class because of the distance they are pulling off the standing throw. The Europeans have been stubborn to change and seem to be sticking with the glide. I wonder how long it will take them to see what the Americans have seen for the last 20 years.