

# Rotational Throwing LINE 'EM UP

BY GLENN THOMPSON

One of the luxuries of publishing the periodical you are reading is editorial control. No matter how inane the subject matter, I can print, whatever I see fit to. Of course, that small power must be exercised judiciously on behalf of the reader. Each time *Long & Strong* goes to print I use my best judgement to put together text and images that both entertain and inform. Not just in my opinion, but what I project to be yours.

I've been thinking to myself for months, maybe even a few years, about putting together another technical article with my updated thoughts on the rotational throws. But what has stopped me repeatedly was imposing that same editorial control on myself, perhaps at a much more scrutinized level. That, and the fact that I am never satisfied with what I know or how I convey it.

Those thoughts required a bit more focus when I was asked to speak at the Illinois Track and Field Coaches Association clinic in January, 2012 by my good friend Jim Aikens. If I was going to put together an outline for a presentation, could there possibly be any better time to write that article?

## My Coaching Background

I am a volunteer coach (shot and disc) at my alma mater, Division II Shippensburg University in Pennsylvania. I love my school, but I don't stop back to visit my old econ and marketing professors or check out the new microscopes in the science labs. It's the track program that brought me back to the school and keeps me in touch. The track and field program that swept all the 2010-2011 cross country, indoor and outdoor Pennsylvania State Athletic Conference titles, men and women, a feat we are quite proud of.

I am also a private coach to high school athletes primarily from south central Pennsylvania. I do not coach at any particular high school because quite simply, I am an "all in" type of person. If I'm going to take the time to work with you, I better have your full attention. You have to want your success as much, or more, than I do. I have had the opportunity to work with many talented athletes over the last 10 years. But not all of them had the drive to match their talent. Given the choice, give me a mediocre talent with true passion any time. I want the ones who stay late and do extra reps and ask questions, even if they are counter to what I am selling. They might – just might – have a point.

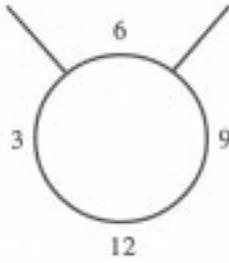
If it gives me any credibility with the reader, I will give you a (very) brief run-down of what my prep throwers have done. And I do that with extreme humility, thinking that if you see numbers and medals you might give what I am saying a little better listen. I've had six athletes win a combined thirteen Pennsylvania state championships. Those champions have set five state records, with three men over 65' in the shot with a best of 70'0 even and three men over 180', two over 200', with a best of 202'10".

I am hesitant to boast about such things as it really grates my last nerve to hear coaches brag about what their athletes accomplish. Sometimes superior talent trumps so-so coaching. Lost in the shadows are coaches who nurture lesser talents to their maximum heights. Next time you watch an elite thrower, take a closer look; not at the divot, but rather the concrete. You might be horrified by a genetically-gifted, but biomechanically unsound athlete. It might pay to watch some lesser-known athletes. You may learn something; I know I have on more than one occasion.

Allow me to preface what you are about to read with the following caveats:

- I don't claim to have solely created any of these concepts. More likely I have strung them together in my own frame of thought and lingo.
- In all phases of my life I strive to evolve. This includes coaching. One of my college throwers said to me last year, "That's not the way you explained that earlier." Exactly!
- I don't claim that my model is better than any other. It's solely my experience combined with the feedback I get from my athletes. You'll note that I use the term *we* a lot in this article. That is purposeful because my philosophy comes as much from my athletes as myself. I'm just the one with the microphone.
- I am big on video analysis. I try to bring a camcorder to almost all private coaching sessions and review them on the spot with my scholastic kids or post still pictures that I think identify opportunities for improvement. It is truly amazing what you miss with the naked eye that screams out at you frame-by-frame.

I won't discuss the throw from the perspective of the normal throws progression. That is not what I am setting out to do. What I endeavor is to cover the highlights and what I think are key to the methods I profess.



**Delivering the Implement**

I like to think of the shot as being in a vice where the clamps are the neck and the fingers of the throwing hand. Take away the neck the shot falls to the ground. Take away the fingers, same

result. That pressure is constant throughout the throw and is not released until the athlete begins to deliver the ball in the direction of the throw by literally pushing through their neck (axis) until the head gives way. The ball is on a pedestal and is never gripped during an attempt. If this is done correctly, the final result should hopefully be a backspin flick off the fingers, as it is in a jump shot.

A second point. In my concept, the actual upper body application of force begins when the implement is opposite the direction (middle of sector) of the throw. This thought came from watching novice right-handed throwers consistently dump their throws down the right sector line or even right of it in foul territory. My first instinct was that they were not turning their right foot/knee/hip into the throw, but upon further observation, I realized that was not the case. It took a little while to pinpoint what I thought was the cause and solution. Hence the aforementioned video camera.

I watched an athlete wind back with the implement and apply force to it immediately (from about 4:30 on the clock face). The result was the implement underwent centrifugal force that directed the shot/disc down the right side (away from the neck early) rather than linear force that drove the shot/disc into the middle of the sector. The concept is to never let the shot or disc work around the axis. We work through it with the spine upright rather than at a tilt.

From that point forward I directed the athlete to adjust their efforts to block and push the shot/pull the disc when they were opposite mid-sector. Since our efforts from the back of the circle are focused on maximizing linear drive, we want the finish to be consistent with the same philosophy.

**Wheel Drill**

We treat the wheel drill, aka – half-circles, as the transitional drill they were intended to be. Our starting position is essentially a reversed stand throw position. The hips and shoulders are in different vertical planes, with the implement behind the right hip. The implement will stay behind the right hip, pre-torqued. Later, I will discuss how our entry from the back of the circle establishes this position.

We start with the right foot pre-turned to three o'clock and the left foot pointing to the middle of the sector. Why so? Because we want to simulate a full throw as closely as possible in all our drills and in this model, when the right foot lands in the middle of the circle in single support, it will be actively turning – hit the ground turning- and be at 3:00 at the least, and perhaps closer to 12:00 depending on the lower body activity exiting the rear of the circle. And the left foot will be pointing directly into the middle of the sector to mimic the point when it loses contact at the back of the circle. That 6:00 (mid-sector) direction is set up by our entry from the back. Anything more than that and you are in danger of over-rotation and missing the opportunity to maximize linear drive.

We initiate the movement without the assistance of a still and passive upper body. The shoulders and arms should be relaxed. There is absolutely no need for upper body activation until the implement is being released. We start by pushing off the back foot to establish linear movement



*Kyle Felpel demonstrating the wheel. Felpel is a 63-3/ 190' disc, 191' jav thrower. The 6-2/215 Felpel will attend Alabama in the fall.*

first, while actively turning on the ball of the right foot. Any delay in the right foot pivot will throw the athlete off balance (you will probably see them begin to stand up almost immediately) and cause the implement to lose its path and slow down. This is consistent with our approach of throwing from the ground up. Once again, the upper body is passive until the delivery of the implement. The

movement is not initiated with the left arm. Any resulting rotary movement is secondary. We never throw around our axis in any phase of throwing; we throw through it, be it the shot or discus. I am always looking for the athletes finishing/reversing over the rim/toeboard during every phase of the throw or drill.. We always chase our throws

and never finish falling away from the throw, be they stands, wheels, South Africans or fulls.

### **The Back Of The Circle**

Whether you watch a glider or a javelin thrower, the implement is moved along a straight line that targets the middle of the throwing sector. Generally speaking, efforts that land significantly to the left or right of that mid-line have lost energy. When the athlete completes the delivery they reverse in the direction of the throw.

My thought on most of the throwing movements for an intermediate to advanced thrower is that anything after the wind and initiation of the right leg sweep is auto-pilot. What we attempt to do is get the right side of the lower body ahead of the torso as soon as possible at the back of circle, lock in that position and accelerate the ball/disc - *via the lower body* - through the rest of the movement. We give away some of the wide right leg sweep that occurs past 12:00 in favor of an early knee pinch right out of the back of the circle. This is where we diverge from most popular thought; we create our power position in the back of the circle, not in the middle. Not by wrapping/slowing the left arm in the middle or utilizing a focal point, but rather by running the lower body ahead of the torso as early as possible - i.e. - creating the power position, and maintaining that torque position throughout the throw as the system accelerates. If a focal point is employed, it will be in back of the circle and come into play as the athlete is loading their left leg.

We employ the same wide and controlled first circle/tight and fast second circle approach that most coaches do. What we do a little differently from most coaches is we seek to line up the inside of the right thigh with the middle of the sector and drive it into the sector. We like to think of driving-queezing the right knee past the left knee on its path to the middle of the sector and then pulling the knees together as the athlete enters their non-support phase. Ultimately we want to create release velocity and we do throw from the ground up. We want to work the lower body as long as we can and keep our torso relaxed.

In accordance with that, we try to *manufacture speed* rather than rush through the throw, through biomechanical means. To us this means pinching the knees - i.e. - running the right knee past the left knee as close as reasonably possible and simultaneously pinching or pulling the left knee into the right knee, as referenced in the prior paragraph. The objective is to mechanically speed up the lower body while staying relaxed above. We like to see as small a gap as possible between the knees as

the left foot leaves the pad in the back. The end result is what we call the *sound of far*. That is, the sound of their right foot and then left foot landing in quick succession. The faster the two sounds....TAP...TAP, rather than TAP.....TAP, the better the torque at left foot touchdown the faster the release velocity will be.

We believe this is a direct byproduct of how early we get the left foot off the pad (9:00 drop) in the back and how tight the knees are as they advance through the circle. When executed at its very best, the athlete wants to position their right foot to sweep as soon as it comes off the pad and BEFORE 90 degrees.

Sometimes we forget all the technical points and just listen to the feet. I call it clean feet where you don't hear a lot of scraping and grinding. If we can get those feet to land in quick succession and lined up in a linear fashion, it's almost always gold. The earlier the departure from the back, the faster the feet land at the front. One video check point we look for is where the left foot is when the right foot touches down in single support in the middle of the circle. From a side view I like to see those feet side-by-side, which will lead to a faster left foot touchdown.

Another choice is we do not straddle the mid-line of the circle at the back. Our stance is offset to the right with the



*Examples of athletes with left-side dominant starts.*

left foot on the mid-line. We are trying to create a linear path that runs down that mid-line and prefer to line ourselves up that way. We do not utilize the backward seven path, but if we chose to, we would probably throw down a path that parallels the left sector line.

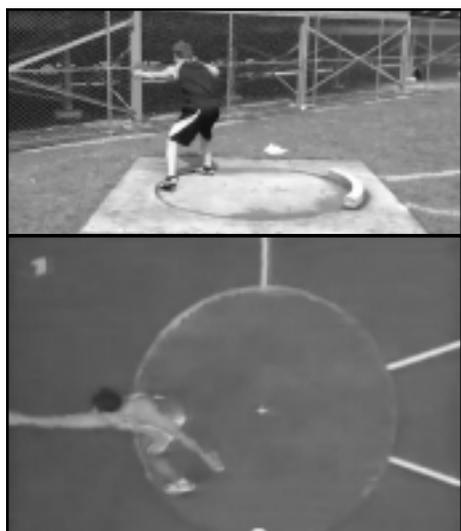
### **Visually neutral**

I encourage my athletes to keep their chins to the middle of their chests. It is a common fault for throwers to come out of their wind with their left arm draped across their chin because the eyes remain affixed to some object at the back of the circle. From that point the throw is compromised. The chin, and eyes, will remain fixed over the left arm and the result is that the athlete becomes left-side dominant upon entry, like a dog chasing its tail. This technique is based on always, always, getting the right side (right leg) ahead of the left and thereby maximizing

lower body speed and release velocity. Anything counter to this diminishes that velocity.

### **The Wind**

The athlete winds back with their arm/shoulder axis to the mid-line, or just past it in a relaxed manner. The straight left arm is opposite the right, acting as a counterbalance. We are trying to generate just enough rotational energy to carry us into our entry position and not one iota more. When I teach new athletes I tell them it only takes 3.4 calories to get from the wind to approximately 90 degrees. Of course they know (most of the time), there is no scientific basis for that random number, but they get the point. I remind them from time to time, that the most relaxed place in the world is where they are standing – the back of the circle. It's a place for deep breaths, not huffing



*Felpel (top) and Lars Reidel demonstrate mid-line winds.*

intense pressure when it means the most.

We do not rebound out of the wind, but rather we load our right leg and push off with our right foot. Here we are setting tempo. In order to get our right side ahead of the left, we certainly do not want to have the right leg trailing behind the left at the very start of the movement. I compare this position to a field goal kicker prior to driving his kicking leg while planting his left.

We strive to keep the hips, shoulders and knees facing the same direction until we can get the right leg in position to make its entry into the circle. We lock in the torso at this point and let it be until we hit the stand throw position. The head remains still, chin to chest.

Herein lies the value of 360 degree drills. We emphasize them as a lower body drill where we wind back and push off the right leg and try to have the right side push the body around and through the full turn. The upper body plays almost no role in this drill other than for balance.

Rule number one is not throwing the left arm back and around to initiate the movement. Our aim is to complete the 360 degree turn as *slowly* as possible. In this instance, slow equates to *controlled*, and control equates to hitting a consistent entry point during a full throw under intense pressure. We then do 90 degree drills where the athlete hangs their right leg and does not touch the concrete with it until they come to a complete stop. If the athlete has to put their foot down to stop themselves, they are moving too fast and are missing the point: *chill!*

Although I prefer to start the right leg sweep as early as possible, I do have athletes who prefer a slightly wider, more 'traditional,' entry. In my world, whatever works for you works for me as long as you can prove it. But the one principle I try to steadfastly hold onto is shutting the left side down early. I believe the longer the left foot stays on the ground, the longer it will take to ground at the front of the circle, lowering release velocity. I strongly encourage those athletes to get off their left foot as soon as possible, probably somewhere in the vicinity of 7:30.

I like to think of driving the implement down the mid-line. That is load the left leg as soon as possible after the wind, shutting down the rotational energy and converting it into linear. Whether it is the shot on the neck or discus behind the hip, a focus should always be driving the implement down that mid-line and into the middle of the sector.

### **Over-Rotation**

Years ago when I was being introduced to the hammer in Ashland, Ohio by former Canadian champion Derek Woodske, he told our group if you screw up an early turn, you had two or three more to get it right. Similarly with the discus and shot, over-rotation is not fatal. While we prefer to line up with the middle of the sector and drive the implement in that direction, missing your entry point can be dealt with by just adjusting the mid-line toward the left sector line. The principles remain the same, but the margin of error for sector fouls is greatly reduced. Conversely, very rarely have I seen significant under-rotation lead to very positive results because there is not enough time to generate sufficient right-leg drive.

### **Summary**

As I mentioned previously, I am not a one-approach fits all kind of coach. Buy-in from my athletes is vital. If they don't feel vested in their own technique, I could never ask them to buy what I am selling. In that vein, I hope you can find some elements in this article that will be beneficial to you.

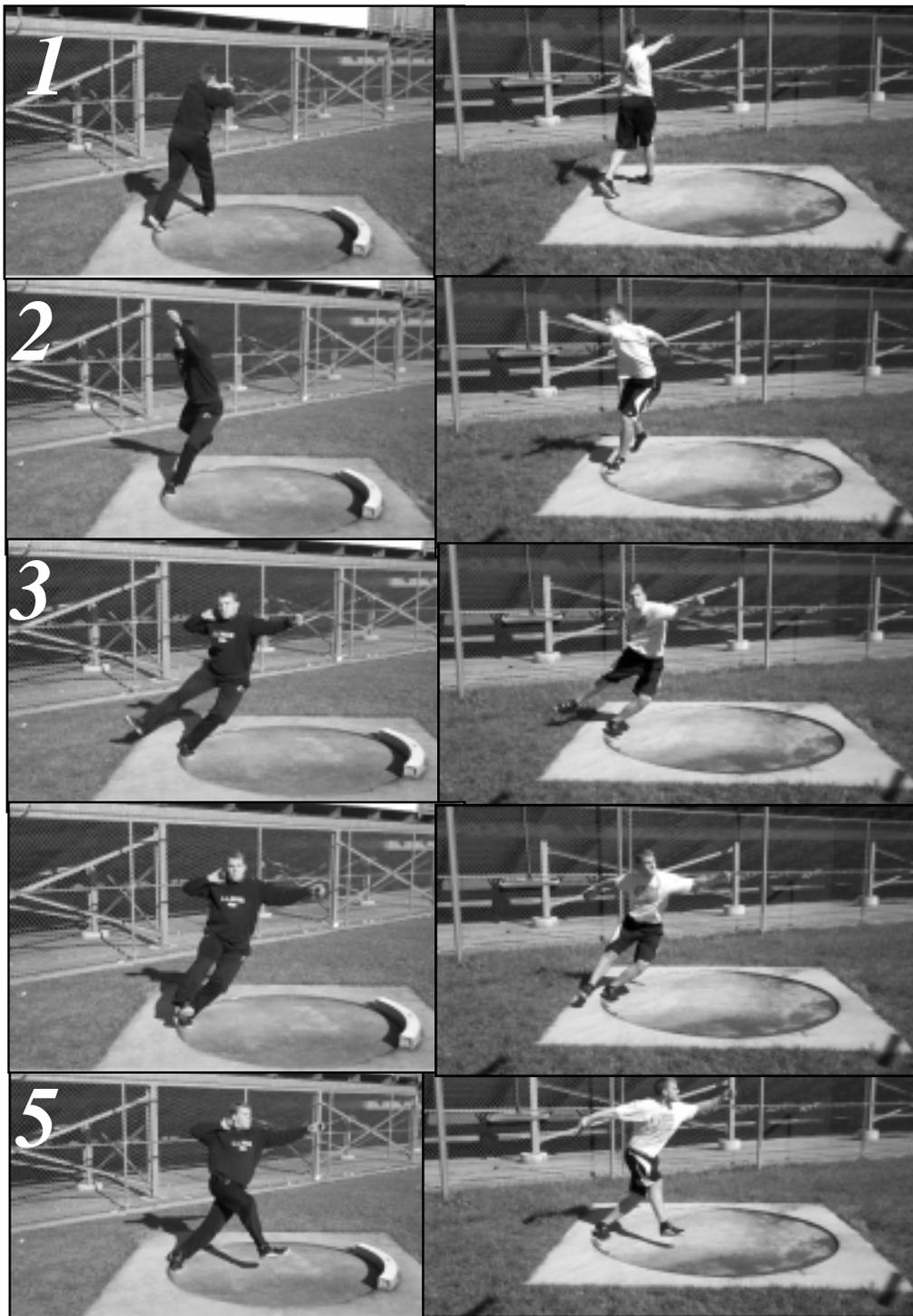
You can view video of my high school and college athletes on my YouTube channel at <https://www.youtube.com/user/Thrower60175/videos>. \*L&S\*

Photo Sequence

# THIS IS HOW WE DO IT

BY KYLE LONG

*EDITOR'S NOTE: I asked Kyle Long, a 59-6/204-0 performer and Pennsylvania discus state record holder as a junior in 2011 to narrate a dual shot/discus sequence which is the basis for the prior article, Line 'Em Up. The 6-2/230-pound Long is an Arizona State recruit.*



(1) I place one foot down the center of the circle/sector. Then, I shift back over the right, but I keep my left knee under my left arm pit. I don't take any *high school (multiple) winds* so I don't have time to overthink the throw.

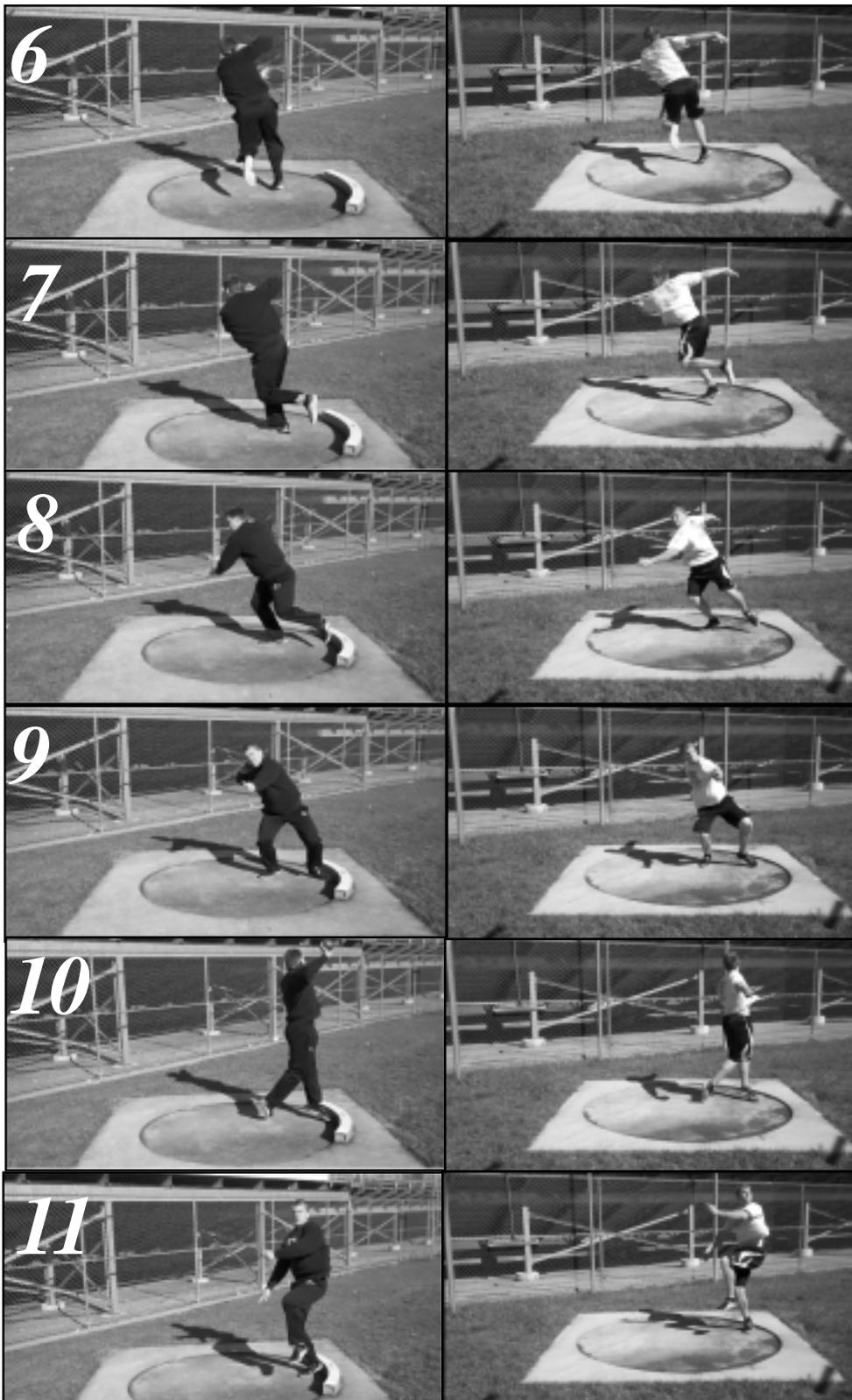
(2) I shift my weight from my right leg to my left. I'm going to reach my right foot as far out of the circle as I can while retaining balance. I have to remember to keep my arms and head up.

(3) Here I'm loading the left, making sure I keep my shoulders square. I am dropping at nine o'clock, 90 degrees from where I started, about in line with the center of the circle/sector.

(4) I drive the inside of my right leg across the circle, kind of like a kicking motion. I work my right foot from low to high. I act like there is a rubber band holding my knees together as it crosses, ensuring that I get off my left foot quickly. It is important to keep your chin lined up with the center of your chest. I am driving off my established left axis to my new right axis. It is essential to be aggressive with the legs but passive with the torso. Keeping my left arm up helps prevent me from leaning.

(5) After being aggressive with my legs, I do my best to keep my hips ahead of my shoulders. I keep my arms parallel to the ground and straight across my shoulders. I keep my head up so I don't lean or

fall forward or backward. This is the middle phase of transitioning from the left axis to the right axis. I try setting up the power position I would ideally land in. I've worked my right foot up to a comfortable height for me. I keep my left arm up because my right arm will follow its path and I would fall.



(6) I keep my knees pinched to increase my speed through the throw. I do my best to stay in the orbit I've just established, and keep my arms out so the implement also stays in orbit. I want to put my left foot down so it doesn't drift, and I don't fall away from the throw. I keep my right foot turning so it also helps me speed this part of the throw up, increasing acceleration on the implement. Again, I keep my arm up so I don't lose my balance or throw from my hip.

(7) I have to keep the right turning so I don't slow down at all. My arms should be parallel with each other. I am peeking over my shoulder, probably suggesting that I am trying to throw it and losing a little bit of the elastic reflex. I have to keep the right axis orbit I have established. Finally, keep up the left arm again.

(8) I have to get my left foot down so I don't drift or lose that plant foot. For discus, I wait until it's in the correct "slot" so I don't hit it too early and get a poor flight. My right stopped turning from the last slide so I've lost a little acceleration I've generated.

(9) I have to lift and shift with my legs simultaneously, not over then up. Still have active legs and a passive chest, to keep that elastic reflex. Keep arms on the trajectory of the orbit you set up. Jump into the throw and throw your right hip out where you want to throw.

(10) The throw should line up with where you planted your feet, no matter where that is, to utilize all the energy. I keep my chest up because height is also important. Really explode and slap/punch the throw. I need some work on my block, but it should shut down and transition the rotational energy into linear energy. The finish should be easy or effortless.

(11) To save the throw more easily, don't watch the implement. First, drop while looking at the ground in the center of the circle. The entire throw should feel almost effortless if done correctly. \*L&S\*