

Some Things I Have Learned in 33 Years of Javelin Throwing

by Roald Bradstock

For a javelin thrower, I have always been too short (5-10, 1.80m) and too slow, yet I have competed in two Olympics and have been a World Record holder and world ranked since 1979.

In 1981, as a junior athlete, I threw 83.20m. Then in 1985, as an elite athlete, I threw 91.40m (old rule) and in 1987 I threw 83.84m (new rule). Last year, at age 42, I threw 74.28m, as a Master, and finished 10th in the USA Olympic Trials. I am still throwing.

Over the years, I discovered that to become one of the best in the world, I really had to learn the event.

Here are the 10 most important things I have learned:

1. Build a foundation of overall conditioning, strength, and fitness

An athlete throws a javelin with his entire body, literally from the toes to the fingertips. The farther one throws, the more force one exerts and the more strain one puts on the body.

All sports require a good base from which to grow, and spear chucking is no different. A good fitness foundation is essential to build one's performance. A thrower can reach a higher level of performance if he or she is truly fit, if harder workouts are engaged with shorter recovery and, as a result, he or she has fewer and less severe injuries.

What to do: Spend half an hour every day doing basic fitness exercises. Throughout the entire year have throwers run, bike and swim—half an hour a day, 6 days per week, in addition to anything else they are doing. During the conditioning phase, the half an hour can be increased in its intensity; have the athlete run more (3 run / 2 bike / 1 swim). In the heavy lifting phase, do more of the stationary bike and swim (1 run / 3 bike / 2 swim). During the season, really focus on the swimming (1 run / 1 bike / 4 swim). After the season, during the summer months, keep active and add other fun activities: hiking, rollerblading, rock climbing, surfing.

2. Warm up thoroughly before working out

Cool down and stretch afterwards. One cannot throw well or train well unless he/she is warmed up well.

Whether one is going to throw, lift weights or stretch, one must prepare the body for the workout.

What to do: Before every workout or competition, take an easy 10-minute jog or bike (stationary), followed by 10 minutes of flexibility exercises. Stretch the calf muscles, hamstrings, adductors, hip flexors, lower back, chest and shoulders. Hold each position for at least 30 seconds to the point where one feels a 'good stretch' — and never, never bounce! Afterward, cool down with a five-minute jog and stretches for the lower back, hamstring and calf muscles, and on days the thrower lifts weights, add tricep and lower abdominal stretches.

3. Work on flexibility to improve range of motion

Flexibility is the most overlooked component of a thrower's training. I have seen many very fit, very strong athletes with fast arms and explosive legs not fulfill their potential as they could have if they had been more flexible. Lack of flexibility leads to a smaller range of motion; in turn, the smaller range of motion leads to shorter throws that paradoxically put the athlete under greater physical strain, resulting in more severe injuries and with more frequency. The most common areas for injury are the throwing elbow and shoulder, the lower back, and the lower abdominals, adductors and left knee (for right-handed throwers).

What to do:

- a) Improve the thrower's flexibility. Get the throwers to work very hard. I believe this is where the coach can make all the difference, but it will not be easy. Unlike weights, running, throwing and jumping, which are all very easy to measure and to see and feel results, improvements in flexibility

are usually quite slow and hard to measure. When the athlete does improve — say hamstring flexibility improves 10 degrees — the reaction is often, “So what? How does that translate?” All I can say is, “It does - trust me”. Obviously, each athlete is different, but a more flexible athlete will have a far greater chance of reaching his or her full potential and have a longer athletic career with fewer injuries. Here are some guidelines:

Target areas: Shoulder, chest, triceps, lats, obliques, lower abdominals, lower back, adductors, hip flexors, hamstrings and quads.

Frequency: 2 to 3 days per week.

Intensity: Hard.

Warm up well. Put heat lotion/balm on specific target areas, especially lower back, hamstrings and shoulders, and keep enough clothing on to stay warm even in the summer time. Each stretch should be held for at least a minute to 90 seconds, if not more. Push the stretch to discomfort, not pain, hold and breathe, and try to relax into the stretch. As the muscle relaxes and the discomfort subsides, increase the stretch even more. The only time of the year not to really overdo the intense stretching is during the heavy lifting phase. The rest of the year, push throwers to become incredible, flexible throwing machines.

- b) At the same time the flexibility is being improved, an increase in the throwing range of motion must occur. Working on technique when throwing a javelin, weighted balls and medicine balls aid in this goal. Focus on trying to have as long a pull as possible: reach back as far as one can, forward—as one throws—as far as one can, and chase after the implement as one releases. Improving flexibility and increasing the throwing range of motion will greatly improve the athletes’ ability to exert greater force on the implement, especially as their strength improves.

4. Use the appropriate lifts to build strength

Many javelin throwers focus their training in the wrong areas, such as slow-moving strength exercises, which, coupled with little or no stretching and minimal plyometric work, result in frustrating distances and injuries. Olympic lifts (power cleans, power snatch, split jerks), lat pulls and pullovers should predominate in a javelin thrower’s lifting routine, but avoid dead lifts, heavy lunges and bicep curls. Upper-body pressing exercises are fine if not overdone and balanced with plenty of stretching and medicine ball throwing.

What to do: (The repetitions and sets for the exercises do not include warm-up or cool-down sets).

Weight Exercises:

- Pullovers (straight and bent arm) 6 to 15 reps / 3 to 5 sets / 2 x per week
- Lat pull-downs or pull-ups* (wide grip) 10 to 20/25 reps / 3 sets / 2 x per week
- Incline bench press 3 to 12 reps / 3 to 5 sets / 1 x per week
- Flat bench press 3 to 12 reps / 3 to 5 sets / 1 x per week
- Power cleans* (from the floor) 3 to 8 reps / 5 to 6 sets / 2 x per week
- Power snatch* (from the floor) 3 to 8 reps / 5 to 6 sets / 2 x per week
- Split jerk (take off the rack) / 3 to 5 reps / 3 sets / 2 x per week
- Squats (back and front) 3 to 10 reps / 3 to 5 sets / 2 x per week (1 back, 1 front)

** Always use lifting straps. It will allow the athlete to do more weight and complete more repetitions. Also, it will help keep the forearms from becoming overdeveloped (from gripping). The forearm is one body part a javelin thrower does not want to build up, as it will tighten up the throwing arm up, which will lead to elbow problems.*

Plyometrics: (Bounding 2 times per week, ball throwing 2 to 4 times per week)

Stadium: Running, hopping and two-footed bounding

Track: Jumping into sand pit: standing long jumps, standing triple jumps, 3 to 5 single-leg hops, 3 to 5 two-footed bounds.

Hurdles: 6 to 10 hurdles: single leg hops, two-legged bounds

Sandpit: One- and two-legged bounding in the sand

Gym: Box jumping. Jumping and hopping on, off and over boxes of different heights

Shot (4kg/7.25kg): Overhead and underarm throwing of shot puts.

Medicine ball (1kg to 3 kg - no heavier): Two-handed overhead throws forward, backward and sideways.

5. Work on improvement through specific drills. The run-up and throw can be broken down into a number of elements, and one can improve on each element by repetitive drills, which allow mastery of each element. When put together, one's overall throwing will improve. Javelin throwing requires doing a lot of drills.

The plain fact is that javelin throwing by itself is too destructive to the body to allow an endless amount of throws. The solution is...drills. They will allow the athlete and the coach to focus on all the different elements of the throw from the run-up, to the withdrawal, to the throw without the full strain of hundreds of throws.

What to do: (the drills are done over 40 to 60 meters):

Running (accelerating run) with javelin held horizontal; focus on speed, staying relaxed and keeping javelin absolutely still.

Approach and withdrawal (repeat 3 to 5 times per run); focus on rhythm, control and acceleration; keep looking forward.

Crossover, repeats; focus on driving up off the left leg, pushing and reaching forward with the right leg; keep the chest closed and shoulders turned sideways, with eyes looking forward over the left shoulder.

6. Throw year-round

To be consistent, it is essential to throw year-round; taking even a month off is a big mistake. An athlete does not have to throw hard year-round, but one should be throwing all the time. Vary the intensity of the throwing workouts, depending on where in the training cycle the athlete is and what the weather conditions are, but throw continuously and consistently.

What to do: Never take more than two weeks off from throwing. In the off-season, throw lighter javelins, throw at targets, work on drills at varying intensities, et cetera. Make it fun, but keep throwing. Never stop.

7. Accelerate into the throw

Many American throwers do not really seem to understand the javelin throw. Instead of accelerating into the throw, some throwers actually do the exact opposite: they slow down or even stop and then throw. Accelerate, accelerate, accelerate!

The javelin throw is an elastic, dynamic, explosive throw at the end of an accelerating, horizontal approach. An athlete cannot think of—or execute—the run-up and the throw separately. The entire process should be one continuous build-up. The speed of the run-up will affect the speed the athlete can move through the throwing position, which, in turn, will affect the release speed of the javelin which is ultimately what determines distance.

It is one thing to hit great throwing positions at slow speeds, but it is entirely another to hit those same positions at greater speed. There are very few throwers (Nemeth, Petranoff, Zelezney, Backley) that I have seen over the last 30 years that get better positions the more they accelerate. To me, all of them start the throw at the beginning of the approach, not just at the end. Breaux Greer is the latest athlete I would add to this elite list up until he tore his ACL. The positions he had been hitting last summer have quite frankly been awful, which makes his achievements all the more remarkable. With his leg fixed and his skill for really accelerating into the throw combined with being able to get into and hold the power position throughout the throw, he will be unstoppable.

8. Manage the wind

The javelin is an aerodynamic implement, and its flight is governed by aerodynamics. The strength and direction of the wind can greatly affect the distance of the throw. Here are some considerations to help master the wind, no matter its direction.

- The approach run: A strong headwind or tailwind will change the normal approach by as much as 3 or 4 feet—a meter or more. Use the practice sessions to learn to adjust the length of the run with

different strengths of headwind and tailwind. Then, when competing, the athlete can make his/her adjustment easily and throw with confidence.

If a tailwind or headwind is coming at an angle, one may be able to improve the throw by changing the direction of the approach by 10-15 degrees by running toward the right or left sector line to get a more favorable angle for the wind. For example, if the wind is coming from behind and from the left, one should start at the left edge of the runway and run toward the right end of the arc. It may not seem like much, but every inch counts.

Side winds are tricky. When experiencing a side wind during the workout, experiment and watch what the wind does to the throw. Again, if one is familiar with the wind in all its variations, one will be more confident than one's opponents.

- The release angle (angle of attack): For a strong headwind, one should throw flat or even have a negative angle of attack. For a strong tailwind, throw with a steeper-than-usual angle of attack.
- Release height. The stronger the headwind, the lower one should throw the spear. The stronger the tailwind coming from behind, the higher the spear needs to be thrown.
- Javelin selection. Javelins with thick points are designed to be thrown with tail winds. Javelins with a sharper, narrower point fly better into a head wind.

Always be conscious of the wind when practicing. Make the wind a friend, and it will help one throw farther than the throwers who do not know how to handle it.

9. Sequence the throw

To maximize the power one places on a spear, it is crucial to sequence the body through the throw in the correct order—from the ground up. The stronger but slower muscles come into play early before the faster, but relatively weaker, upper body muscles are activated. Unfortunately, many throwers bring the upper body in far too soon, which limits the force produced and increases the stress on the shoulder and elbow. To be a javelin thrower, one needs a good throwing arm; to become a great javelin thrower, one needs to use the entire body. To throw really far, athletes need to become fitter, more flexible and increase their event-specific strength through the entire throwing range of motion. As athletes develop and get stronger, they will be able to get into and out of more advanced technical positions with greater ease and with greater speed, bringing each body part into action at the optimum time.

10. Visualize

Visualization is so important, and it is not just for the elite athlete. It works for athletes of all levels. Do not underestimate its power. Get the athlete to imagine launching a huge throw, picture the javelin sailing to other end of the track, and imagine the excitement with which other people react. That kind of visualization with lots of hard and smart training will take athletes a long, long way.