

POWER TRAINING FOR THE JAVELIN

by Jeff Gorski

In all the throwing events the speed of release is the factor that has the most influence on performance, so the main focus of training should be geared towards its improvement. The two main areas that this can be achieved in are technical improvement and physical ability improvement. There has been much discussion of various technical aspects and how they relate to throwing; for our purpose we will look at how technique is improved by power development. Good throwing mechanics, regardless of which event, is a summation of forces from the ground up- if done correctly, the action of the legs is transferred into the hips and torso. They, in turn, manipulate the chest and shoulders, which finally transfer the force into the arm and thrown implement. This force progression also gives a good basis for where the most important areas of power development should be focused. The main areas of the body that will give improved results in throws if they can produce more power are the legs and hips; stomach, back and sides are next in importance, with the chest, shoulders and arms the last. It's interesting to note that in our country, with the focus on upper body throwing sports, most weight training programs have worked the upper body as the main area for improvement for throwing, and that has led to most throwers working on big bench press numbers until they learn the "ground up" progression.

There is also something of a natural break between the shot and the other three throws by what I call "perceived weight"; the shot is the heaviest and is thrown with the least opportunity to "lighten" it with momentum from movements prior to release. While the hammer weighs the same, the energy gained in 3 or 4 rotations prior to release make it "lighter" and it can be thrown nearly 4 times as far as the shot. The discus is lighter than either and gains greatly from the 1 1/2 to 1 3/4 rotations before release while the javelin is lightest of all and has the most opportunity to benefit from approach momentum. the variance from standing throw to competitive distance thrown is another measure of how much raw power is needed in each event: while a good shot technical can gain 10% over their stand vs. a full glide or spin throw, variance between standing and full efforts in the other 3 throws range for 25% to almost 50% gained with good throwing technique. This should tell you something about where you should spend your training time in developing power. For the javelin thrower the need for "fast strength" or explosive power is at a premium- most of the benefits for them will come from non-traditional forms of weight and power training. The nature of the event- to apply force over a long path in very little time- dictates that you train to improve this ability and there is little room for slow, heavy lifts in this type of training. Please be aware that many excellent javelin throwers are capable of weight room numbers in squat, clean and snatch that may rival those of the other throwers, but that is often a result of their training for explosiveness and jumping ability- they can apply great force in a small amount of time. But in the javelin big lifting numbers don't equal long throws. In college, with a 140 kg bench and a 240 kg squat I had thrown a best of 73m once; 5 years later I didn't bench, I jump squatted with 100 kg and threw between 75 and 78m consistently. Part of this was improved throwing technique, but it also came from power training that directly aided my ability to put energy into the spear.

There are a couple different areas of power for the javelinist that need to be looked at and they are used at different times in the training cycle. First is general athletic power that allows improving the all round ability of the athlete to move their body or and implement. These are often used as early season conditioning exercises and consist of a variety of running, lifting, jumping and throwing over-weight implements like shots, med balls, javelin balls and other items. While the traditional long distance runs have a place in general conditioning, more can be gained from repeated 400-800m runs as well as fartlek runs, where faster strides are included into a distance run. In fact, 200, 400 and 800m sprints/runs develop much of the type of basic leg power that is needed to build the higher intensity training upon. In fact, much of the training in the early season is lower intensity, longer duration versions of the training used in pre-competition and competitive times of the year- cross over drills on flat ground and uphill, long sprints, throwing exercises and jumping/bounding. This is a good rule of thumb in deciding what exercises to do during the base training. The key in the running/jumping/cross-overs is lower intensity over longer distances; 50 - 100m are good. The medicine ball/javelin ball throws are generally the heaviest weight used all year and done from a standing or only 1-3 steps. The idea is to work against the heavy resistance to learn how to use the body to transfer power from the legs up; minimal movement is used to prevent injury to the upper body from fast movement against heavy weight. This also teaches specific flexibility for the event that is needed when throwing at higher speed/intensity. Single arm throws with a 1 kg ball and two hand throws with a 3-5 kg medicine ball are good at this time. As technique becomes more natural/relaxed the weight of the balls drops and more speed/momentum is used (more steps) to learn how to transfer the speed into the body, which is then used in the whole body delivery learned from the standing throw. Lifting is lower weights and lots of reps and based on the lifts that have the highest relationship to helping you throw farther- squats, snatches, cleans, trunk rotations, pullovers and dumbbell flies. This training is usually done from early fall thru early to mid-December.

The next step in the training progression, from December to early March, is to bump up the intensity of all exercises and shorten the duration of each exercise used. If October saw you doing crossovers of 6 X 100m, 4 sets of 12 throws with a 2 kg ball, 6 X 100m bounding, 5 sets of 10 4 kg med balls and 5 sets of 15 reps in the weight room January is 8 X 70m Xovers, 4 X 15 1.5 kg ball throws, 8 X 70m bounding, 5 X 10 3 kg med ball and 5 sets of 8-10 with the weights. Additionally, more specific event exercises come into play- resisted crossovers (either with a bungee cord or a weight vest) , deliveries with a heavy javelin or jav ball (about 1 kg) off a few steps, and the beginning of run up work to make the development of the full throw a "second nature" skill. This cannot be overlooked in training- the ability to flow smoothly from the run up into the delivery action without a break in momentum is a weakness in almost every American javelin thrower and usually it is because this exercise is overlooked. To continue with specific throwing power development a few exercises with weights that simulate javelin actions are included in this part of the season: these are quite specific and should only be used with athletes with a good feel of their throwing technique and the physical ability to execute them correctly. These exercises are not done slowly- they imitate the throwing action in both movements and in developing the stretch reflex that is so vital for good throwing. They also incorporate the whole body into the exercise- as should good throwing technique- and help improve balance, rhythm and dynamic action, all components of good throwing. These include plate swings in a throwing action (Fig 1), trunk twists with a plate (Fig 2) and a "skin the cat" snatch (Fig 3).

I would recommend that both single and double arm throws from a stand use this "windmill" start to the throw- it helps develop rhythm like that of a running throw. You can also include chopping wood with an axe or maul at this time, as well as jumping over hurdles and some plyometric box jumping. The focus on all of the hopping/jumping must be on a "quiet" landing and an active, explosive takeoff which simulates the action in the final steps of the throw. Hard, loud strides in the actual throw are a series of little stops that kill the flow of the throw- jumping with heavy ,hard landings teach you how make this error a part of your throw- another aspect of most US throwers. The actual work done in the weight room is higher intensity than in the fall- reps of 6-8 and an effort to move the bar smoothly and fairly quickly. The main exercises should be squats, snatches, pullovers, flies and seated rows. These included with the exercises already listed give you a great power development potential. Power training should be done in 3-5 sessions a week, depending on the athletes ability to recover and their experience; other training (throwing, general running and heavy strength training) make up the rest of the weekly cycle.

In the final part of the training cycle, when you are actually into the competitive season, the exercises discussed in the previous phase are continued at a higher level of intensity. This is when you want to hone the power base you've built to the finest level possible. Intense training sessions along with adequate rest, often overlooked as an important part in training, are what bring the athlete to the peak of their physical and technical ability. The weight of implements thrown drops again- competitive weight or just slightly over for single arm throws and 2-3 kg for double arm (1- 1 1/2 kg for women)- and more speed is used in performing the exercises. A lot of how the weekly training routine is programmed is based on the competition schedule; big meets that require long throws are designed and trained for with more rest from hard power or throwing training prior to the meet to allow complete recovery. In general, you want to have 2 high level power sessions a week and allow a day or two before a competition to heal up. If meets are on Saturdays, then a Sunday session in the weight room after a jumping workout and a Wednesday routine of power throws, sprinting and simulation exercises is a good base to work from. Technique throwing and general training take place on Mon., Tues. and Thurs. with a light session, like a pre-meet warm-up, on Fri.

The ideas put forth here have been used in some form by a number of good throwers for many years. There are, of course, a number of variations that can be included to meet the needs of the particular athlete. The purpose of this article is to give you some ideas of where the priorities in training should be and that power is developed by many other ways besides weight lifting. Increased levels of power are to make your throwing technique easier and give more consistent results in competition and training. There are no absolutes in athletics- things are various shades of grey and you must figure out what works best for you or your athlete in your particular situation. What I've set out is a basic outline with some good specific exercises that will help you find the best combination of training to get long throws.



Fig. 1 Plate swings into "C" position - "windmill" up to the hip snap/shoulder stretch then drop down and repeat



Fig. 2 Trunk twists with plate - drop hips and twist shoulders with plate at arms length; thrust hips/belly up while dragging the plate, then swing plate to opposite side





Fig. 3 "Skin the Cat" Snatch- Light weight and wide grip, bring bar overhead and continue behind and drop hips as you lower bar toward ground; lift hips and pull bar back overhead to starting position