

Javelin

To achieve maximum distance in the Javelin the athlete will have to balance three components - speed, technique and strength. The information on this page is for a right handed thrower.

Throwing the Javelin comprises of the following phases:

- Start
- Carry
- Withdrawal
- Transition
- Pre-delivery stride
- Delivery
- Recovery



Basic Technique



Working from right to left in the above standing throw picture sequence:

- The chin-knee-toe position should be adopted with the weight over the rear leg
- Hips are forward
- The feet should be in line with the throwing direction
- The throwing arm held parallel to the ground, long and relaxed with the palm uppermost
- The rear leg drives the hips to the front, transferring the weight from right to left leg
- The arm is brought in fast and last
- The elbow should be kept high and close to the head, with the javelin being thrown over the top of the head

The Grip



A strong, stable grip is acquired. The grip must remain firm behind the ledge made by the binding (cord), and the javelin must run down the length of the palm and not across it. The fingers, which are not secured behind the binding, must press firmly on the javelin in order to produce a natural spin at release. The 'V' grip (C) is probably the most efficient for the novice thrower as it emphasises the supporting role of the palm. Grip 'B' is the one used by most experienced throwers.

Start and Carry

The aim is to carry the javelin so as to allow the muscles of the right shoulder, arm and wrist to relax and also to allow an easy running action.

- Stand with right foot forward
- Carry the javelin above the shoulders or head
- Right elbow points forward
- Palm of the right hand points at the sky so as to provide a platform for the javelin to sit in
- Javelin points in the direction of the run up - point slightly down

Approach Run

Experienced throwers will use an approach run of 13 to 17 strides - inexperienced throwers will use fewer strides.

- Run on the balls of the feet with hips high
- Free arm to swing more across the body
- Carrying arm to flex to maintain carry position of the javelin
- Speed to match athlete's physical and technical abilities

Withdrawal

The aim is to ensure the withdrawal movement does not effect the athlete's momentum. A checkmark can be used to indicate start of the withdrawal phase which commences with the right foot and lasts for two strides.

- At the checkmark the athlete accelerates ahead of the javelin rather than physically pushing the shoulders and javelin back

- Head remains facing in the direction of throw
- Maintain hips at right angles to the direction of running
- Drive the right leg forwards and upwards to help maintain the correct position of the hips

Transition

The aim of the transition phase, also known as the cross-over, is to place the right foot ahead of the athlete's centre of gravity so as to produce the characteristic lean back. This must be achieved by advancing the right foot forward and not by leaning back.

- Right foot remains close to the ground to maintain forward momentum
- Right heel makes contact with the ground
- As the right foot is advanced forward the left foot is advanced ahead of the vertical axis so as to be in place ready for a quick plant after the right foot has landed - the trunk is inclined backward at an angle of about 115° to the forward horizontal direction
- The cross over phase ends when the right foot makes contact with the ground and the left leg is forward in the air

Pre delivery stride

- The left leg reaches forward
- Shoulders & hips now in line with the direction of throw
- The athlete waits for the ground to come up and meet the left foot
- Trunk is upright
- Head facing direction of throw
- Shoulders and javelin parallel
- Throwing hand above the level of the shoulder

Delivery

- Following contact of the left foot with the ground the left side must brace against a thrusting right leg action
- Right leg drives upwards and forwards bringing the hips at 90° to the direction of throw
- Hip thrust is followed with the shoulders and chest turning square to the front and lining up with the hips and bringing the elbow of the throwing arm forward
- The throwing shoulder is brought over the left leg
- The left leg should lift as the athlete rides over it and the throwing arm now comes into play
- Arm strikes fast with the elbow high and close to the mid line
- The release angle (angle between the horizontal and the javelin) for the javelin has to take into consideration aerodynamic lift and drag. The optimum angle for the Javelin is about 33 degrees (Bartonietz, 2000).

Recovery

The left foot remains grounded and the right leg is brought past it to halt the athlete. The amount of space needed to stop before the scratch line depends on the amount of horizontal momentum. This is typically 1.5 to 2 metres. Adjustment of the checkmark is required to achieve optimum distance on the runway.

Skill Drills

Running activities without the Javelin

- At a steady speed
- With acceleration
- Sideways
- With repeated cross overs
- Cross overs mixed with normal running
- Over low obstacles between each stride

Running activities with the Javelin

- At a steady speed
- With acceleration
- With repeated cross overs
- Cross overs mixed with normal running
- Over low obstacles between each stride
- With repeated withdrawals

Throwing drills can also be performed using a [medicine ball](#), Javelin or sling ball

Javelin Photosequence

Photosequence of Steve Backley in 1992 - comments by Max Jones.



Photo 1

Photos 1 & 2:

These are taken after the withdrawal of the javelin and have been preceded by a ten stride approach run.

Steve uses 5-6 strides between withdrawal and the cross over phase.



Photo 2

Note the effort to keep tall and the javelin steady and aligned.



Photo 3

Photos 3 & 4

Steve commences the cross-over with excellent left leg drive.

Note the high throwing hand with the hand turn slightly in.



Photo 4

The left shoulder is high with the left palm turned out which assists in keeping the left side to the direction of the javelin.

The eyes focussing on a mid-field point are looking over the left shoulder.



Photo 5

Photo 5:

Steve maintains his sideways on position with the whole of the left side still in direction of the throw. Hips and chest are kept high and the head is up and steady.

Photos 6-9:

On the completion of the cross-over it is natural for all throwers to sink to absorb the shock of landing, but Steve fights this tendency, endeavouring to stay tall.

It is a negative point to sink at the right



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

hip for it will lose its strike capacity.

Still sideways on which has produced 'torque' and he has kept the throwing arm relaxed and delayed.

It is essential to control the point of the javelin at this moment - many throwers drop the throwing hand and subsequently raise the point with disastrous results.

The hip strike begins as the right foot lands.

Photo 10:

Steve benefits from his left side discipline since premature opening of the left side will mean that the right arm will strike early e.g.: the classical bent arm throwing position. Steve attempts to stay as tall as possible and keep the javelin aligned. Note how the right foot continues to turn and drive the hips forward.



Photo 11

Photo 11:

Classical Backley - strong hip drive leaving the javelin far back on a high right hand. The left leg is firm, absorbing the power of the right side and acting as a brace.



Photo 12

Photo 12:

The 'bow' that javelin coaches talk about - note how the arm has yet to strike. How many world class throwers can emulate this position? Note how Steve continues to keep both his head and chin up.



Photo 13

Photo 13:

Perhaps, in my opinion, the key to Steve's superiority - the drive of the right foot continues even at this point (and beyond) - the rest of the world (mere mortals!) would have ceased driving and left the ground well before. Note the left leg is not collapsing but beginning to strike upwards and forwards to contribute to the throw.



Photo 14

Photo 14:

The right foot is still down and therefore the throw is too long - lose contact and the throw will be short.



Photo 15



Photo 16

Photos 15 & 16:

Steve finishes the throw and follows through - throwing through the point of the javelin.