

KEY ELEMENTS OF JAVELIN THROWING

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Each element is fundamental to all good technical models

	<p>Side on position - after withdrawal</p> <ul style="list-style-type: none"> ✚ Point control- close to head/eye ✚ Focus on sight line – chin close to lead shoulder ✚ Grip maintained- palm upwards with little finger uppermost NOT thumb ✚ Relaxed arm- long and in line with shoulder alignment ✚ Throwing hand at or around shoulder height. Don't drop rear shoulder or hand(A slight bend in the arm is okay and may help) ✚ Legs assist maintain forward velocity with active foot contacts with tall hips ✚ Feet now moved around to 45-80 degrees to throw direction(This will vary from thrower to thrower) ✚ Leading arm/shoulder 'shuts off/closes" to direction of throw ✚ Body weight will be over the rear leg and not leaning forward or too far back 	<p>Competencies</p> <ul style="list-style-type: none"> ✓ Co-ordination /balance/rhythm ✓ Good posture control ✓ Hip/adductor mobility ✓ Powerful legs ✓ Shoulder /forearm strength and relaxation <p>Training suggestions</p> <ul style="list-style-type: none"> ✓ Javelin alignment/control drills ✓ Eye line targeting ✓ Foot drills and running drills for rhythm and speed ✓ Cross over drills ✓ Core stability exercises ✓ Shoulder/ trunk flexibility exercises (Rotational)
	<p>Active 'Run off' with lead leg</p> <ul style="list-style-type: none"> ✚ Controlled movement of lead arm to prevent early use of left side ✚ Maintain throwing hand / arm / shoulder height – hand as close to shoulder height as possible ✚ Maintain sightline and point position ✚ Ensure forward velocity is at optimal speed (fastest possible for individual) ✚ Create pre-delivery stride with effective 'IMPULSE' of lead leg forcibly driving backwards to enable the rear leg to actively maintain forward delivery AND give time for lead leg to come from the rear position to create the final plant. ✚ The toes of the rear leg should be kept level with the ankle to ensure a stable landing ✚ The toe of the rear leg in 'run off' should be moving to 45 degrees at most and in most cases closer to straight on at landing. ✚ As the rear leg goes past the lead leg the leading arm will move back in a 'curved' position for balance. 'Look at your watch!' 	<p>Competencies</p> <ul style="list-style-type: none"> ✓ Powerful legs ✓ Co-ordination/balance/rhythm ✓ Good posture control ✓ Hip/adductor mobility ✓ Shoulder /forearm strength and relaxation <p>Training suggestions</p> <ul style="list-style-type: none"> ✓ Foot speed drills ✓ Hurdles drills ✓ Bounding drills ✓ Bench run offs ✓ Low barrier crossovers ✓ Exaggerated run offs ✓ Javelin alignment/control drills ✓ Eyeline targeting



Final rear foot landing

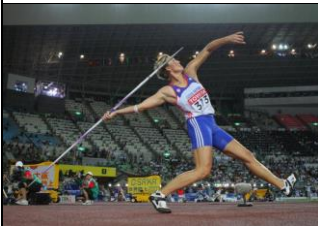
- ✚ Maintain upper body position throughout this phase (Do not lean too far back)
- ✚ Look over left shoulder and fix sightline
- ✚ The landing should not be firmly fixed in flat foot position as IT MUST be active to maintain the forward velocity and enable the lead leg plant to occur as soon as possible after the rear foot contact.
- ✚ In the landing of the rear foot ("Support contact") there may be variation from heel first (Lusis) and front of the foot (Zelesney) but most will land over the foot nearer the heel BUT I do not recommend not behind the foot with the toes up (Lusis).
- ✚ On landing, the knee should be slightly bent which will allow for an easier rotation of the rear heel outwards and a rotation of the rear hip into a forward position.
- ✚ This will assist the front leg to extend and make early contact with the ground. The toes of the front foot will be up

Competencies

- ✓ Out of range strength (specific strength)
- ✓ Co-ordination/Timing
- ✓ Shoulder /forearm strength and relaxation
- ✓ Range of movements
- ✓ Power in glutes

Training suggestions

- ✓ Flexibility/mobility exercises for ankle, hip and trunk
- ✓ Sequencing exercise to prime the movement patterns
- ✓ Out of range strength exercises
- ✓ Shoulder and arm strength exercises
- ✓ Wrist strength exercises
- ✓ Core stability exercises
- ✓ Explosive hip and glute exercises



Transfer from rear foot to front foot 'block'

- ✚ Maintain sightline, head/shoulder javelin positions long as possible.
- ✚ Throwing arm still held in relaxed but stable position. Point control essential for angle of attack.
- ✚ The rotation of the rear hip to the front along with a rotation of rear shoulder as the rear knee 'drops' retains the javelin's position behind the shoulder and creates the 'bow position' or 'reversed C'. The rear leg MUST NOT extend as it will push the hip up and the top half of the body over the hips early.
- ✚ **The consequence of the internal rotation of the hip is forceful rotation of the trunk, which produces momentum, which can be transferred to the upper body and used. For these reasons internal rotation of the hip joint is a major factor in the successful completion of a javelin throw.**
- ✚ The use of the left arm at this point will differ but I favour it extending to full length with the thumb down and the elbow higher than the wrist before the shoulder and elbow are moved backwards with the elbow holding against the left side of the body.
- ✚ **The timing of the rear foot to front foot plant is vital to the end result. The front foot must not be delayed as the torque required to produce the 'whiplash' of the throw will be lost or reduced**

Competencies

- ✓ Core strength of trunk and lower back
- ✓ Strength and stability of front leg/ left side of upper body to hold firm as 'block'
- ✓ Mobility and flexibility of rear shoulder/ upper back/hip girdle
- ✓ Elasticity for stretch reflex
- ✓ Mobility of ankle
- ✓ Power in right glutes and hip

Training suggestions

- ✓ Priming action with balls/resistant bands
- ✓ Sequencing drills with medballs/ weights bars/javelin
- ✓ Out of range strength drills including event specific ones
- ✓ Hurdles drills
- ✓ Strength and power training for shoulders/ chest/ forearm/ upper arm/ quads/glutes hamstrings/ calves



Strike/pull along the javelin

- ✚ As the shoulder rotates upwards the elbow should turn upwards with the wrist turned towards the thumb
- ✚ The throwing hand will remain approximately above the heel of the rear leg until the strike occurs
- ✚ With the head still behind the chest and the chest extending forward and upward the bow is maintained.
- ✚ The lead shoulder is now square with that of the throwing arm and the front arm held to maintain a stretched position (This will vary greatly)
- ✚ The 'solid' left side is acting as a brace for the throw to act against to create the maximum flailing effect.
- ✚ The length of the throwing arm and optimal throwing base of the feet will create the longest pulling position possible and pulling effect.
- ✚ The line of attack should be maintained so that the angle of release is between 28-37 degrees. The throwing elbow will pass over or slightly outside the throwing shoulder for maximal effect.

Competencies

- ✓ Core strength of torso
- ✓ Whole shoulder/chest/arm requires strength, power, speed and mobility. (Explosive)
- ✓ Back of shoulder needs to be strong to withstand effect of forces being applied.
- ✓ Thoracic part of the back needs to be flexible and strong
- ✓ Lumbar part of back needs to be stable
- ✓ Legs (including adductors) need to be strong to be able to apply the massive breaking effect of the left side block.

Training suggestions

- ✓ Ball, band, pulley and weight priming actions
- ✓ Medball exercises
- ✓ Bodyweight/gymnastic exercises
- ✓ Weight training for strength, power and speed
- ✓ Overweight/underweight ball/shot and javelin exercises
- ✓ Blocking drills
- ✓ Mobility and flexibility exercises
- ✓ Plyometric exercise



Flail to final release

- ✚ The main element of this phase is maximal speed which is pure arm speed whilst holding the left side 'blocked' as long as possible.
- ✚ THROW THROUGH THE POINT for maximal effect
- ✚ The elbow will follow an upward line as close as possible over the throwing shoulder as possible.
- ✚ The hand will follow, continuing along the same line to its maximal height and forward range.
- ✚ Final release takes place above the fixed front foot with a final extension of the fingers with the thumb turning down to impart final force on the grip that will cause 'spin' on the javelin.
- ✚ The blocking effect of the front leg will give the feeling of driving over with the strike.

Competencies

- ✓ Shoulder/arm strength and speed
- ✓ Core strength of torso
- ✓ Strength of legs to maintain bracing front leg and maintain two foot contact with the floor and prevent collapsing
- ✓ Shoulder prehab band work (e.g. Rotator cuff)

Training suggestions

- ✓ Medball, ball and weight drills to prime final actions and for speed.
- ✓ Overweight and underweight javelin throws

