

ATHLETICS OMNIBUS - TRIPLE JUMP

From the Athletics Omnibus of Richard Stander, South Africa

The objective of triple jumping is to try and jump as far as possible by stepping on a take off board, take 2 more steps and land in a sand pit. To avoid injury, the landing area is filled silicone sand that remain loose and give way easily during landing. The athlete is allowed a limited run-up before the jump.

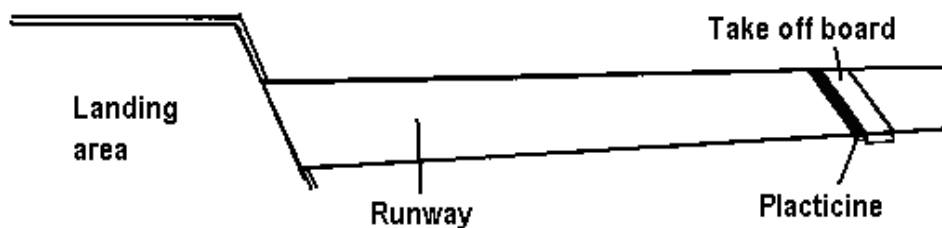
1. TEACHING THE TRIPLE JUMP TECHNIQUE

1.1. THE COMPETITION AREA

THE RUN-WAY: The run up may be of indefinite length but the minimum recommended is 40 metres.

TAKE-OFF BOARD: The measurements for this are the same as for the Long Jump. According to international rules the take-off board should be placed at least 13 metres from the landing area, but this distance may be modified according to the standard of the competition.

LANDING AREA: This is the same as in the Long Jump.



As in long jump the teaching of the triple jump technique must be kept simple. To begin with, athletes should be taught to think of speed during all the stages. The one fundamental aspect of triple jumping is the manner in which the foot is presented to and struck against the ground during landings and take-offs through each phase. It is a "reaching and pawing" action.

Although there is some similarity between the approach run of the long jump and triple jump, there is a dramatic difference between take-offs of the two events. They are:

1. Provision must be made for a further two jumps.
2. Adjustments in the last 3-4 strides of the approach require a different flight curve of the body's centre of gravity as in long jump.
3. The flight angle is smaller to lose as little as possible of the forward momentum.

1.2. A TRIPLE JUMPER SHOULD AVOID:

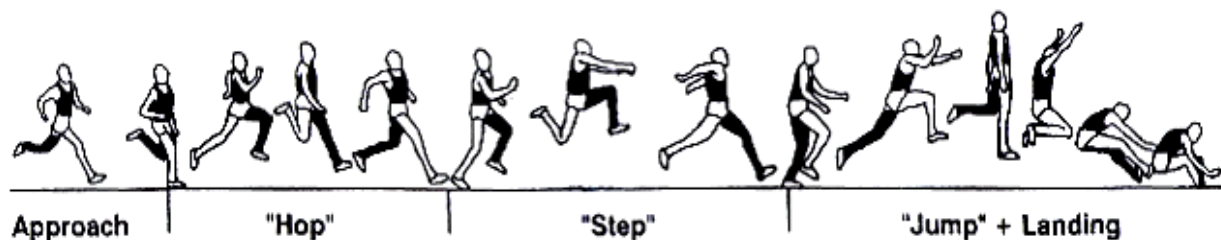
- Landing on the heels.
- The trunk leaning too far forward.
- Landing with too much tension.
- Short, abrupt and across the body movements.
- Lateral imbalance.
- Incomplete drive at take-off.
- A tense and rigid take-off leg during flight.
- An incomplete take-off drive for the second and third jump.

1.3. A TRIPLE JUMPER SHOULD AIM TO:

- Land on the flat of the foot.
- Keep the trunk upright.
- Make an active landing.
- Achieve a wide-ranging and well co-ordinated movement of the arms.
- Attain a balanced action in the jumps.
- Drive forwards and upwards.
- Make a complete circular action of the take-off leg in the first jump.
- Achieve a vigorous and very high lift of the free leg for the second and third jumps.

2. TRIPLE JUMP SEQUENCE

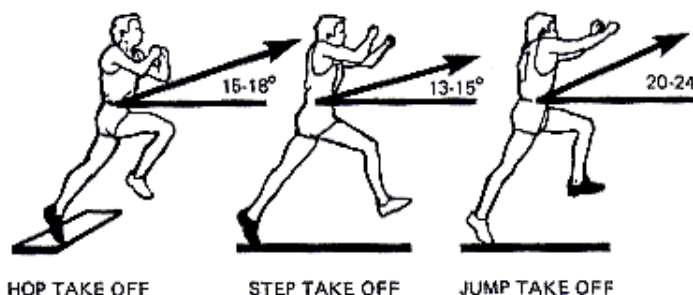
The triple jump is divided into the following phases: approach, hop, step, jump + landing.



3. BIOMECHANICAL PRINCIPALS

The distance jumped depends upon a number of factors. The following are the most important:

- The speed gained during the approach run must be used effectively. Speed is lost principally because of the ground contact during the landings and take-offs. The loss of speed can be minimised through the proper application of technique.
- The jumper must through good landing and take off technique at each phase, reduce the shock of landing.
- During landings and take-offs, the legs must be sufficiently strong to support the body. During the two phases where foot contact with the ground take place the downward pressure on the legs is on average 4 times the body weight
- Height must be gained to ensure that sufficient distance can be covered in each phase.
- The ratio of one phase to another is very important. It should be 37% - 30% - 33%. The huge hop, tiny step and big jump should be avoided.
- The landing and take-off angles of each phase are important. The jumper needs a low angled take-off. The take-off and landing angles should be equal.



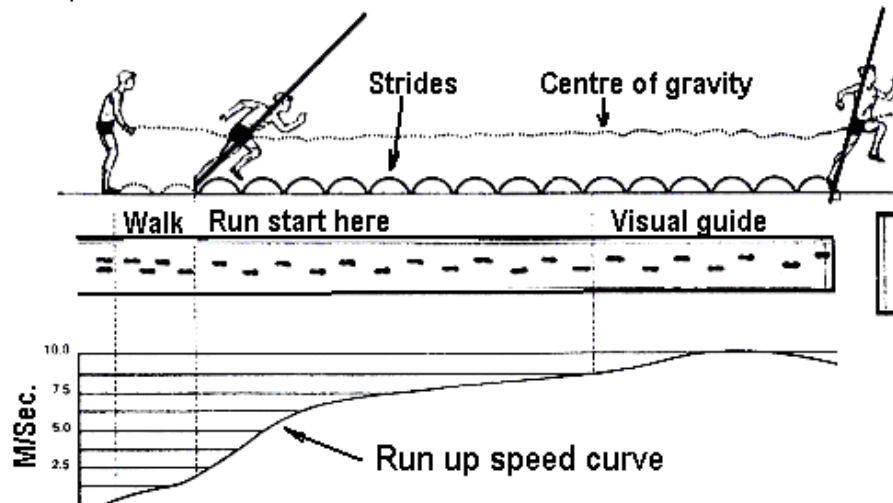
4. TRIPLE JUMP TECHNIQUE

4.1. THE APPROACH

Depending on the level of performance, approach varies between:

1. primary school jumpers: 11-15 strides
 2. high school jumpers: 15-19 strides
 3. senior athletes: 19-23 strides (35-45 m)
- The approach run for woman is generally 3-4 m shorter than the men's due to the lack of muscular strength are.
 - In order to attain maximum horizontal velocity, it is wise to develop a rhythm on the approach run which contains a speed pattern designed to achieve maximum horizontal velocity at the right time and place in the approach run, as shown below.
 - The run-up is smoothly and progressively accelerated and, during the last few strides, there is a slight lowering of the hips in preparation for the take-off as seen below.
 - The triple jumper prepares for take-off by sinking the hips and then raising the hips into the take-off phase.
 - The hips should not sink artificially. In fact, the athlete should concentrate on high hips through this phase.
 - The sinking usually results in the next to last stride being longer than normal and the final stride being up to 25 cm shorter than a normal running stride.
 - The hip sinks and stride adjustment all happens in response to the athlete's postural adjustments in preparation for the take-off.
 - The arm movement must remain constant and at the same rhythm right up to the take-off.

- Moving into the arm movement for the “hop” before take-off will result into a dramatic drop in take-off speed.



- The technique during take-off is very much the same as in long jump except for the slightly lower take-off angle.
- To avoid a too steep take-off angle the foot must be placed flat on the board, rather than the rolling action of long jump.
- Accurate measurement of the approach and good judgement during the last few strides is essential.



4.2. TAKE-OFF BOARD TO LANDING AREA

The distance from the take-off board to the landing area can be 9, 11 or 13 m, depending on the age group or gender of the athlete.

- Junior men and woman take off from the 11 m and 9 m take-offs respectively.
- Senior men and woman take off from the 13 m and 11 m take-offs respectively.

4.3. HOW TO MEASURE THE APPROACH

- If an athlete uses 19 strides in the approach run, the take-off foot strikes the ground 10 times before take-off.
- The athlete stands on the take-off board and start running away from the landing area while counting the steps each time the take-off foot touches the ground.
- On the count of 10, for a 19-stride approach, he will take off.
- The coach will pinpoint the tenth touchdown and measure the distance from the take-off board.
- This is done 6 times and the farthest marker is used to measure the distance to the take-off board during competition.
- This distance will be used as the initial run-up distance.

Note: The run-up distance will lengthen if the wind is blowing from behind, and shortened when blowing from the front. The various track surfaces will also cause the run-up to vary.

4.4. THE “HOP”

- Before take-off the take-off foot should land actively and ready for attack.
- Take-off forwards and upwards.
- Swing the thigh of the free leg to the horizontal position.

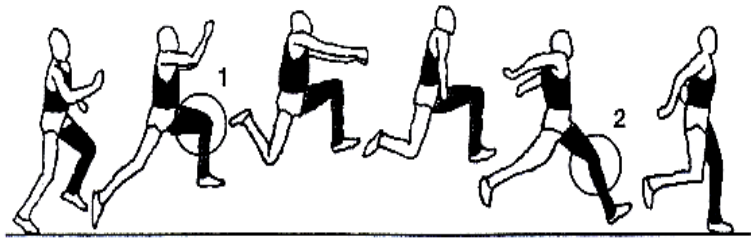


- The leg is then brought down almost fully stretched with a 'reaching and pawing' action.
- The toes are pointing upwards, to avoid touching the ground.
- The take-off leg is brought up until the heel touches the buttock, and then brought forward and down. It touches the ground about 30 cm before the centre of gravity of the body

- Keep the trunk upright and the head still, looking forward.
- The arms are used to balance the body while vigorously driving backwards. It must remain in a line close to the body.

4.5. THE "STEP"

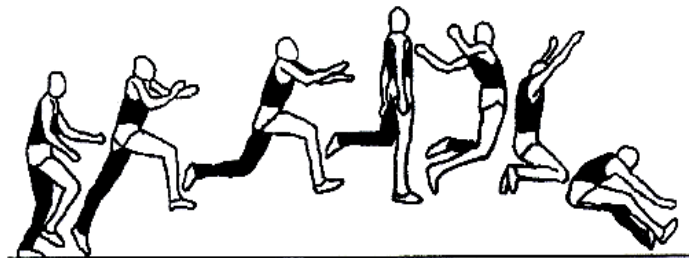
- The take-off must be quick, with the ankle, knee and hip fully extended.
- During the step the take-off position is maintained to prepare for the jump.



- Swing the thigh of the free leg to horizontal position (1), and then push the foot forward until almost fully stretched (+/- 140°) from the hip (2).
- The free leg is forced down and remains almost straight but not fully stretched.
- The foot touches the ground about 20 cm in front of the centre of gravity.
- Both arms are swung back, close to the body, during the second half of flight.
- The upper body remains upright with the head looking forward.

4.6. THE "JUMP"

- The take-off leg is swung up quickly to the horizontal position.
- As in the long jump, come into the flight stage, which could be the sail or hang technique.
- The body must be fully stretched with the arms above the shoulders.
- Bring the arms forward and down, and the legs forward and up to prepare for landing.



5. TRAINING

During the period of training, the conditioning philosophy will be as follows:

- 5.1. Use an over distance approach.
- 5.2. First quantity, then quality.
- 5.3. Build a foundation of endurance and then develop speed gradually. This will prevent injury.
- 5.4. For the first month of training you will do no speed work and you will not time anything.
- 5.5. You will develop speed by doing a great deal of short, fast work and by improving your sprinting form.
- 5.6. The test distance for endurance will be 300m, and test distance for speed will be 30-50 m. A jumper will only be successful when both tests are done well.
- 5.7. As the season progresses, you will do less work but faster work.
- 5.8. Workouts will generally be a hard day followed by an easy day, with a lightening up of work two days before competition or time trail.
- 5.9. Your schedule is flexible. You may change the daily routine because of weather, body condition, or emotional outlook.
- 5.10. You should completely recover from one workout to the next. If you are not completely recovered, do less work, or rest.
- 5.11. You should never train when you are ill nor have an injury.
- 5.12. If your training schedule is limited, you may telescope this schedule into two-week periods instead of month periods.
- 5.13. Your workouts must be fun or rewarding, preferably both.

5.14. TRAINING SESSIONS

- 5.14.1. All training sessions should always start of with warm-up session and stretching exercises.

- 5.14.2. After all training sessions a cool down and stretching session should follow.
- 5.14.3. Refer to the chapter on mobility for event specific warm –up and stretching exercises.

6. TYPES OF TRAINING

6.1. MUSCLE ENDURANCE TRAINING

INTERVAL RUNS E.G.:

- 12 x 150 m @ 75% - rest 1 minute between reps.
- 8 x 200 m @ 75% - rest 1 minute between reps.
- 6 x 300 m @ 75 % - rest 2 minutes between reps.

BREAK DOWN INTERVAL RUNS E.G.:

- (400 m, 300 m, 200 m, 150 m, 100 m) @ 75% - jog back

BUILD UP INTERVAL RUNS E.G.:

- (150 m, 200 m, 300 m, 400 m) @ 75% - jog back.

PYRAMID INTERVAL RUNS E.G.:

- (150 m, 200 m, 300 m, 200 m, 150 m) @ 75% - jog back

6.2. SPEED ENDURANCE TRAINING

NORMAL TEMPO RUNS E.G.:

- 6 x 110 m @ 90% - rest 1 minute between reps.
- 4 x 150 m @ 90% - rest 2 minutes between reps.
- 3 x 300 m @ 90% - rest 3 minutes between reps.

BREAK DOWN TEMPO RUNS E.G.:

- (300 m, 200 m, 150 m, 100 m, 50 m) @ 90% - walk back.

BUILD UP TEMPO RUNS E.G.:

- (50 m, 100 m, 200 m, 300 m) @ 90% - walk back.

PYRAMID TEMPO RUNS E.G.:

- (50 m, 100 m, 150 m, 100 m, 50 m) @ 90% - walk back

COMBINATION TEMPO RUNS e.g. for a 60 sec. 400 m sprinter:

- 300 m in 45 sec., rest 30 sec. and sprint 100 m.

HOLLOW SPRINTS E.G.:

- 40 m sprint, 30 m cruise, 30 m sprint, and walk back.

STEP DOWN 200'S

- Each successive 200 m is one second faster. Walk or jog between. When you can do 25-24-23, you can run a 47 sec. 400 m.

10 X 110M SPRINT @ 90% EFFORT.

- Concentrate on correct form the last 30 m.

SPEED ENDURANCE TIME TRAILS

- 300 m sprint - take time
- 100 m sprint - take only time of last 30m

6.3. SPEED TRAINING

50 M DOWN HILL SPRINTING X 5

- The slope must not be more than 6°.

FLYING 30'S

- The athlete takes a flying start, and the time is taken between two beacons when the athlete is full speed.
- 30 m acceleration - 30 m sprint x 5

SPEED TIME TRAILS

- 50 m sprint - take time
- bend sprint over 70 m - take time
- 30 m sprint from start.

RUNNING DOWN HILL - slope 6° - 5 x 50 m

ELASTIC BAND - exercise 5 x 10 m

MOTOR CYCLE PULL - 5 x 30 m with 30 m acceleration

6.4. TRIPLE JUMP EXERCISES TO IMPROVE THE TECHNIQUE

Technique exercises for long jump can also be used for triple jump. The following drills can also be used to develop triple jump skills:

HOP AND STEP

To co-ordinate the first and second jump and to acquire a balanced arm action, take 3-5 strides approach, perform two hops and one step on a soft surface such as grass.

STEP AND JUMP

To join up the second and third jumps, take 5-7 strides approach; carry out a "step" and a long jump.

CHECK MARKS

To acquire a good ratio and rhythm for the three jumps, take a half to 2/3-length run-up; join up the three jumps, trying to keep to the check marks placed on the ground.

TRIPLE JUMP TAKE OFF

To improve range of movement and acquire perception of the requisite technique, take a 5-9 stride approach, hop over a low obstacle, "step" to land on a box top, and make a third jump over a bar to land on a raised landing raft.

TECHNIQUE DRILLS AT CONTROLLABLE SPEED

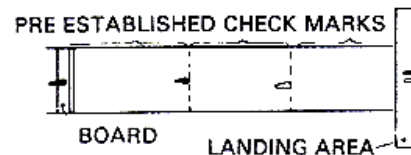
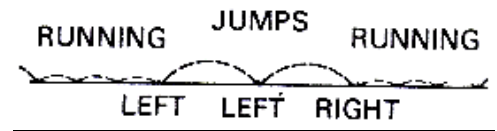
- 5x 50 m high knee action - walk back
- 5x 50 m reach exercise - walk back
- 5x 50 m run high on toes - walk back
- 5x 50 m arm reach exercise - walk back
- 5x 50 m bounding - walk back
- 5x 50 m bounce - walk back
- 5x 50 m forward lean exercise - walk back
- 5x 30 sec. run tall exercise - rest 30 sec. - walk back
- 5x 50 m relaxation exercise - walk back
- 5x 50 m flick up heels exercise - walk back

6.5. CO-ORDINATION DRILLS

PIPE DRILLS

- Place 20 pieces of hose pipe 500 mm apart and run over the pipes as fast as you can, without toughing.

5X 50 M HEIDI HOPS



- Run with a double step in each stride.
5X 50 M STRAIGHT LEG DRILLS
- Lift straight leg hip high, and down, followed by the other leg. Keep upper body upright.
5X 50 M LONG/SHORT LEG DRILLS
- Lift bend leg hip high, and down. Touch the ground. Then lift the same leg up straight, hip high. Repeat with the other leg. Keep upper body upright.
5X 50 M FRONT/SIDE DRILLS
- Lift straight leg hip high, and down touching the ground and immediately kick sideways. Repeat with the other leg. Keep upper body upright.

7. TRAINING PROGRAMMES

Muscle endurance, speed endurance, rhythm drills and pure speed training forms a vital part of the jumper's training program and is covered in detail in the manual for sprinting.

The exercises above, together with the jump technique exercises and strength training are combined in a long term training program that would look more or less as follows:

TRIPLE JUMP LONG TERM PLAN SEPTEMBER TO APRIL TRAINING METHODS	PHASE					
	CONDITIONING		PREPARATION		COMPETITION	
	1	2	1	2	1	2
MUSCLE ENDURANCE (STAMINA)	30%	25%	20%	15%	10%	5%
SPEED ENDURANCE	5%	10%	15%	20%	15%	15%
STRENGTH	10%	15%	20%	20%	20%	20%
SPEED	5%	10%	15%	20%	20%	25%
TECHNIQUE + RHYTHM	45%	35%	25%	20%	20%	15%
ACTIVE REST	5%	5%	5%	5%	15%	20%

A TRAINING PROGRAMME FOR THE JUMPER

- If your training schedule is limited, you may telescope this one month cycles into two week cycles.
- Phase 1 of each sub-section of the program is used as a conditioning period for the new exercises.
- During phase 2 the intensity of the training is gradually increased.
- Two examples of a 14-day training program in all the jump disciplines are given. One in the pre-season and one in the peak season.

CONDITIONING PHASE		MONTH: SEPTEMBER													
CONDITIONING	EXERCISE	M	T	W	T	F	S	S	M	T	W	T	F	S	S
M. ENDURANCE	5x 100 m / 75%/ rest 1 min	#		#					#		#				
	4x 150 m / 75%/ rest 1½ min		#		#					#		#			
	3x 200 m / 75%/ rest 3 min														
S. ENDURANCE	3x 100m step-down / 1 min. rest														
	100m/150m/200m/90%/rest 1 min.														
	5x 100m hollow sprints / 1 min. rest														
SPEED 100%	5x 50m / recover														
	5x flying 30's / recover														
	5x 30m sprint from start / recover														
STRENGTH	5x Hurdle running	#		#					#		#				
	5x triple jump strength	#		#					#		#				
	20x ankle reinforcing		#		#					#		#			
	20x wall bar		#		#					#		#			
TECHNIQUE	5x bounding / take-off		#		#					#		#			
	5x hop and step		#		#					#		#			
	5X step and jump		#		#					#		#			
RHYTHM	5x 50m straight leg drills	#		#					#		#				
	5x 50m long / short leg drills	#		#					#		#				
	5x 50m front / side drills	#		#					#		#				
REST					#	#	#					#	#	#	

CONDITIONING	EXERCISE	M	T	W	T	F	S	S	M	T	W	T	F	S	S
M. ENDURANCE	5x 100 m / 75%/ rest 1 min														
	4x 150 m / 75%/ rest 1½ min		#		#					#		#			
	3x 200 m / 75%/ rest 3 min														
S. ENDURANCE	3x 100m step-down / 1 min. rest	#		#					#		#				
	100m/150m/200m/90%/rest 1 min.														
	5x 100m hollow sprints / 1 min. rest														
SPEED 100%	5x 50m / recover	#							#						
	5x flying 30's / recover			#							#				
	5x 30m sprint from start / recover														
STRENGTH	5x hurdle running	#		#					#		#				
	15x triple jump strength	#		#					#		#				
	15x back		#							#					
	15x wall bar		#							#					
	15x hamstring exercise		#							#					
TECHNIQUE	3x full run up				#							#			
	5x hop and step		#							#					
	5x step and jump		#							#					
	5x checkmarks		#		#					#		#			
RHYTHM	5x 50m straight leg drills	#		#					#		#				
	5x 50m long / short leg drills	#		#					#		#				
	5x 50m front / side drills	#		#					#		#				
REST				#	#		#				#	#		#	
COMPETITION						#							#		

8. RULES FOR TRIPLE JUMP

8.1. GENERAL

- The rules are same as for long jump.
- In the first jump (hop) the competitor must take off and land on the same foot.
- In the second jump (step) he must land on the other foot
- The third phase is a normal long jump.

8.2. SPECIFIC

- The rules are same as for long jump.
- The distance from the board to the far end of the landing area is 21 m.
- The distance from the near end of the landing area, for international competitions, should not be less than 13 m for men and 11 m for woman. Other appropriate distances may be used for other competitions.

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