

ATHLETICS OMNIBUS - RACE WALKING

From the Athletics Omnibus of Richard Stander, South Africa

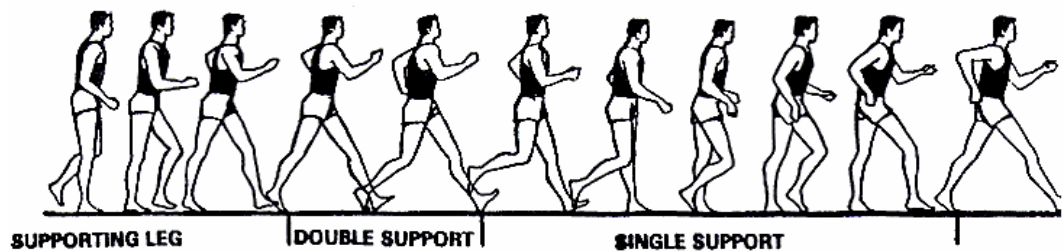
1. RACE WALKING – THE CORRECT WALKING TECHNIQUE

1.1. GENERAL

There is very little resemblance between having a walk in the park and Race Walking. Race Walking have to be done technically correct to avoid been disqualified for breaking the rules of the event.

Race Walking Distance vary from 1500m to 50km, depending on the age and gender of the athlete.

The objective in Race Walking is to walk as fast as possible for the duration of the race without losing the walking technique.



As the rear foot begins to come forward, the body weight is transferred onto the front foot until the single support phase is completed.

At this point the full weight of the body is supported by one leg, and the whole momentum of the walker comes from pushing strongly off the rear foot.

The leg should remain straight for as long as possible.

The rear foot should be brought forward as close to the ground as possible, landing with the foot at approximately 45° to the ground.

At this point the weight of the body is equally distributed between the two points of contact in the double support phase.

The Judges will watch carefully to check that the leading foot makes contact with the ground before the other foot has left it, and that the leg straightens at least momentarily.

A walker will be disqualified when 2 judges (one of them the chief judge) agree that the walk has not been correctly performed or when 3 different judges are of the same opinion.

A participant may be cautioned when his walking does not comply and he will not have the right to a second warning. The Technical Official will show to the athlete the relevant signal (see sketch) when the athlete is warned.

Double support



End of drive Beginning of traction

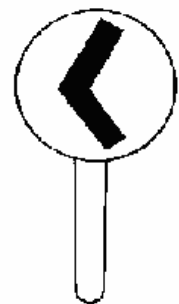
Relaxation



Leg 'locked'



Loss foot contact
Warning sign



Bent knee
Warning sign

1.2. RACE WALKERS SHOULD AVOID

- 1.2.1. Losing contact with the ground.
- 1.2.2. Excessive inclination forward or back.
- 1.2.3. Raising and lowering of the centre of gravity.
- 1.2.4. Propelling the centre of gravity along a zig-zag path.
- 1.2.5. Too short a stride.

1.3. RACE WALKER SHOULD AIM TO

- 1.3.1. Keep the knee straight in the supporting phase.
- 1.3.2. Strengthen the dorsal and abdominal muscles.
- 1.3.3. Prevent the shoulders and arms lifting too much.

- 1.3.4. Move the feet along a straight line.
- 1.3.5. Gain a complete drive, use flexible arm action, and a good movement of the hip.

1.4. THE FEET

- 1.4.1. The toes must point exactly forward, without any outward deviation.
- 1.4.2. If the foot does not land pointing forward, there will be a loss of stride length.
- 1.4.3. The push off the rear foot will not be in line with the body, which means corrections have to be made when the foot is brought forward.
- 1.4.4. Both feet must land on one single straight line.
- 1.4.5. The toes must point exactly forward, without any outward deviation.
- 1.4.6. If the foot does not land pointing forward, there will be a loss of stride length.
- 1.4.7. The push off the rear foot will not be in line with the body, which means corrections have to be made when the foot is brought forward.
- 1.4.8. Both feet must land on one single straight line.

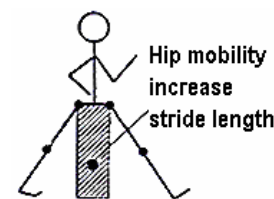


1.5. THE KNEES

- 1.5.1. The knees must be straight (locked) on landings.
- 1.5.2. It must remain straight as long as possible while the rear foot pushes off.
- 1.5.3. If the leg is not locked on landing, the athlete will start running when he increases speed.
- 1.5.4. A bend leg will also cause the athlete to walk flat-footed rather than the heel- foot -toe rolling action.

1.6. THE HIPS

- 1.6.1. When the foot in front has made contact, the hip of that leg has also thrust forward leaving the opposite hip behind.
- 1.6.2. As the rear leg is withdrawn from the ground and is in the process of being brought under the body that hip is allowed to drop and it reaches its lowest point as the foot of the swinging leg passes the stationary foot.
- 1.6.3. There must be no side to side hip movement as this would destroy balance and shorten the stride.
- 1.6.4. It is important that the hip mobility must be developed, because hip movement increases the stride length considerably.
- 1.6.5. A good hip movement will force the toes to stay down longer, and thus gives the heel that extra moment needed to make contact.
- 1.6.6. One heel must always be in touch with the ground to avoid disqualification.

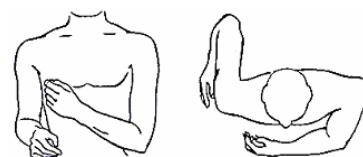


1.7. THE TRUNK

- 1.7.1. The trunk must be upright or slightly forward, not more than 5°.
- 1.7.2. A forward lean will affect the hip movement and will cause the walker to land on a bent leg.
- 1.7.3. A backward lean will impose unnecessary strain on the muscles supporting the spine.

1.8. THE ARMS AND SHOULDERS

- 1.8.1. The arms must be used to balance the body.
- 1.8.2. The arms are moved across the body and then forward, rather than just forward as in the case of running.
- 1.8.3. The elbows must be bent at 90°.
- 1.8.4. The elbows must be tucked in closely to the side of the body.
- 1.8.5. The shoulders must be kept low, relaxed but upright.
- 1.8.6. The shoulders must remain at a right angle to the direction of movement.
- 1.8.7. If the shoulders dip sideways, the hips are moving wrongly sideways, in the opposite direction.
- 1.8.8. If the shoulders lift, the movement of the arms is to exaggerate.



1.9. THE HEAD

- 1.9.1. The head must be kept upright and the athlete must look in front of him at all times, even when tired.
- 1.9.2. The head must move in a straight line parallel to the ground. If the hips are not used, the head will move up and down while walking.

2. TRAINING FOR RACE WALKERS

With the term training we understand the gradual increase of the physical and physiological demand on the body to achieve an optimal functional capacity from the body. In the process, muscles, heart, lungs and nervous system are developed by various training methods to;

- increase the body's resistance against the tiring factor,
- to improve the capacity of the body to recover and
- ensure adaptation to the continuous physical demands on the body.

By participating in the middle and long distances, the athlete's performance are limited by the following physiological factors:

- The maximum amount of oxygen that can be utilised by the athlete in a given period.
- The maximum oxygen debt an athlete can undergo also referred to as lactate tolerance.

3. TRAINING METHODS FOR RACE WALKERS

In Race Walking there are 4 components of physical fitness, which should be considered in planning a training program namely, endurance, strength, speed and suppleness/technique.

3.1. MUSCLE ENDURANCE (STAMINA)

The goals of these training methods are:

- The increase and development of the lung capacity to get oxygen faster in the blood.
- The increase of the stroke volume of the heart to carry oxygen more quickly to the muscles.
- The increase and development of the veins to carry oxygen faster to the muscle fibres.

The athlete must develop stamina base during the off season and pre-season. Optimum development occurs at a pulse rate of between 120-180 beats per minute.

The following training methods develop muscle endurance:

3.1.1. LONG DISTANCE TRAINING (4KM - 50KM DEPENDING ON THE RACE, WHICH YOU PREPARE FOR).

Pay attention to:

1. Varying distances
2. Varying surroundings
3. An increase in distance as the season progresses, variation between longer, slower runs and shorter faster runs.

To avoid boredom, distances, surroundings, tempo, etc. must be varied continuously.

3.1.2. FARTLEK

The 'play with speed' training method is a very important method to develop muscle endurance and to a lesser extend speed endurance. A few examples are:

- 10x (1 min. @ 75% / 1 min jog)
- 2x (3 min @ 70%-jog 1 min / 2 min @ 80%-jog. 1 min / 1 min @ 90%-jog 1 min) rest 2 min

between sets

- 5 min @ 75% / 4 min @ 75% / 3 min @ 75% - jog rest between reps.

3.1.3. INTERVAL WALKING

- Walk over distances between 100m - 400m
- Walk tempo is slower than 80%
- Many repetitions must be done
- Quantity rather than quality
- Rest phase is relatively short
- Rest is never in the form of slow walking
- The effect of the training is in the rest
- Pulse rate vary between 120 – 180 beats per min. during reps.
- The pulse rate must never drop to normal during the rest phase. Start again when the pulse rate is 120 beats / min.

Examples for interval running

3.1.3.1. Break down interval walking e.g.:

2 x (500m, 400m, 300m, 200m) @ 75% - jog back – rest 5 min. between sets – for 1500m Race Walkers

3.1.3.2. Pyramid interval walk e.g.:

3 x (300m, 400m, 500m, 400m, 300m) @ 75% - jog back – rest 5 min. between sets – for 3000m Race Walkers

3.1.3.3. Build up interval walk e.g.:

2 x (500m, 1000m, 1500m, 3000m) @ 75% - jog back – rest 5 min. between sets – for 10km Race Walkers

3.1.4. BACK TO BACK WALKING

Walk 5 min. @ 70% - rest 2 min. - Walk back on the same route and finish where you started within 5 min.

An example for an athlete capable of walking 3000m

3 x (3 min. back to back - rest 2 min.) rest 5 min. between sets.

3.1.5. TERRACE WALKING

Uneven grass surfaces, e.g. golf courts, are used where the tempo is determined by the 'waves' of the surface. 500m - 1000m courses are measured out and must be run uphill and downhill at a pace that varies between 50% - 75%.

An example is 3 x (2km terrace @ 70% - take time - the athlete must try to walk each repetition in the same time) rest 2 min. between reps.

3.1.6. PAARLAUF

- Athlete 'A' starts to walk around the track. Athlete 'A' passes the baton to athlete 'B' who waits at the 200m.
- 'A' walk short cut across the track to the start line, to receive the baton from 'B' again.
- 'B' again walk to the 200m to receive the baton from 'A', etc.
- The coach determine how many repetitions, and speed.
- The tempo determines the amount of repetitions. The tempo also determines the rest period (short cut) of the receiver.

Example: 4 x (3 x 200m) - rest 3min. between sets

3.2. SPEED ENDURANCE

- Speed endurance training must only be done after proper basis of muscle endurance is developed. The more stamina training is done, the more effective the speed endurance training will be.
- The emphasis in this training moves from basic fitness to specific (competition) fitness.

- More quality work is done with fewer repetitions, at a faster pace (80% - 100%) with relative longer rest periods between repetitions.
- The energy for these exercises are not supplied by normal oxygen intake, but by the energy stored in the muscles itself. For this reason the body takes much longer to recover after a strenuous training session. Normally 48 hours (2 days). The days in between training of lower intensities (50%-75%) must be done.
- Rest must now be build into the training program much more frequently, to prevent over-training.
- Through this training method the following are achieved:
 - Reaction time of the muscles are sharper
 - Local muscle endurance and speed endurance are improved
 - Metabolism in the muscle is improved.
 - To teach the body to develop an oxygen debt faster.
 - General speed is improved

TRAINING METHODS TO DEVELOP SPEED ENDURANCE:

All the training methods discussed under muscle endurance can also be used for speed endurance, except intervals. The tempo changes from 50% - 75% to 80% - 95%. However, the rules above must be applied to avoid overtraining.

3.2.1. TEMPO WALKS

Tempo walks are done in the place of intervals when the intensity of training is stepped up. Tempo walks differ from Intervals training as follows:

- Walk over distances between 50m - 3000m
- Running tempo is faster than 80%
- Less repetitions as in the case of Intervals must be done
- Emphasis on quality rather than quantity
- Rest phase is relatively longer than in intervals
- Rest is in the form of slow walk. With intervals, rest is in the form of jogging.
- The effect of the training is in the actual walking. During interval training it is during rest.
- Pulse rate during repetitions is 180 beats per minute and faster
- The pulse rate must drop to 120 beats per minute during the rest phase. Start again when the pulse rate is 120 beats per min.

Examples of tempo walks are:

- 3.2.1.1. **BREAK DOWN TEMPO WALK** e.g.:
(1200m, 800m, 400m, 300m, 200m) @ 90% - rest 3 min. between reps - for 3000m athlete
- 3.2.1.2. **BUILD UP TEMPO WALK** e.g.:
(150m, 200m, 300m, 400m, 500m) @ 90% - slow walk back - for 1500m athletes
- 3.2.1.3. **PYRAMID TEMPO WALK** e.g.:
400m, 600m, 800m, 1000m, 800m, 600m, 400m) @ 90% - rest 4 min. between reps - for 5000m athlete
- 3.2.1.4. **COMBINATION TEMPO WALK**
e.g. for a 30 min. 00 sec. 5000m walker: 4000m in 24 min. rest 3 min. and race walk 1000m in 6 min
- 3.2.1.5. **STEP DOWN 200'S**
Each successive 400m is one second faster. Walk or jog between
 - 1st 400m in 1m 10
 - 2nd 400m in 1m 09
 - 3rd 400m in 1m 08, etc.

3.2.2. PACE DEVELOPMENT

Pace development must be done during the pre season and more often during the season. Examples of pace walking are:

3.2.2.1. 5000m in 15 min. 00 sec.

7 x 1000m in 2 min. 50 - 2 min. 55 - rest 4 min. between reps

Marathon in 3 hours

2 x 10 km in 40 - 41 min - rest 10 min between reps

3.2.3. TIME TRAILS

Time trails must be done on a regular basis to monitor the progress of the training program. The existing program must be adapted according to the result of the time trail. Examples of time trails are:

1 x 1200m for a 1500m race

1 x 3000m for a 5000m race

1 x 7000m for 10km, etc.

3.3. SPEED TRAINING

Only the shorter distance race walkers (1500mW to 3000mW) have a need to develop pure speed. The longer races must concentrate on speed endurance. A few examples of speed work are given below:

3.3.1. 50M DOWN HILL FAST WALKING X 5

The slope must not be more than 6°.

3.3.2. FLYING 50'S

The athlete takes a flying start, and the time is taken between two beacons when the athlete is full speed.

30m execution - 50m sprint x 5

3.4. STRENGTH TRAINING

Unlike popular belief, strength training form an important part of the race walker's training programme. For specific training methods for race walkers, refer to the chapter on Strength Training.

3.5. TECHNIQUE AND SUPPLENESS TRAINING

3.5.1. WALKING UPHILL

3.5.1.1. When walking uphill the stride must be shortened, and the arms must be swung higher in order to keep in motion with the feet, and to assist the feet.

3.5.1.2. The body should lean only slightly forward to compensate for the hill.

3.5.2. WALKING DOWNHILL

3.5.2.1. The walker must lengthen the stride to meet the road that is falling away from him.

3.5.2.2. The arms should drop considerably.

3.5.3. CHANGING FROM UPHILL TO DOWNHILL

3.5.3.1. The walker must change technique immediately with both feet and arms, to avoid losing contact with the ground.

3.5.4. DRILLS TO DEVELOP TECHNIQUE OF RACE WALKERS

- The best time to practice these drills will be during warm-ups before track sessions.
- One or two laps could be devoted to each drill.
- Concentration is required to perform a drill correctly; therefore, each one should not be carried out for too long.
- It is also best to do them near the start of a session when the walker is not too tired.

3.5.4.1. ROLL WALKING

Walk at a moderate to fast pace and emphasise the correct rolling action of the feet.

This means pushing strongly off the rear foot right up until the toes leave the ground.

Secondly, making sure that the toes of the leading foot are high on landing so that the landing itself takes place right on the corner of the heel.



3.5.4.2. STRAIGHT LEG WALK

Walking at a slow to moderate pace and emphasise leg straightening.

This means swinging the leg relaxed until the heel touches the ground and then tensing the leg, keeping it braced as it drives the body forwards.



3.5.4.3. STRAIGHT LINE WALKING

Walking at a moderate to fast pace, along a marked straight line making sure that the inner borders of the feet fall on, but not over the line.

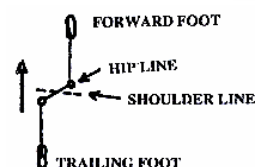
The lane markings on a track could be used to good effect here.

At first the walker will need to look down at the line, but he should progress to being able to complete the task looking straight ahead.



3.5.4.4. HIP EXERCISE

Walking at a slow speed with long strides to emphasise forward motion of the hips.



3.5.4.5. ARM ACTION WALKING

Walking at various speeds with special concentration on the correct arm action.

The arm should be pulled virtually straight back with the elbow high whilst in front of the body, the hand should not cross the mid-line of the trunk.



3.5.4.6. SNAKE WALKING

Walking at a moderate speed in a snaking path e.g. rapidly and continuously swinging several meters to the left and then to the right of a straight line.

This should help to improve the mobility of the walker's hip joints and his sense of balance.

3.5.4.7. FIGURE 8 WALKING

Walking at a moderate speed in a figure eight path.

This serves the same purpose as above but requires better control.

3.5.4.8. ZIG-ZAG WALKING

Walking slowly with shorter than normal strides but placing the left foot to the right side and the right foot to the left side of a straight line.

This deliberate crossover of the feet will develop the mobility of the hip joints.



3.5.4.9. TECHNIQUE WALKING

Walking at a moderate speed with correct technique but trying to achieve a feeling of relaxation and flow. This is perhaps the most difficult skill to master. Firstly, the walker has to learn to recognise just when he is tense.



3.5.4.10. WALKING ON THE SPOT

Walking on the spot with correct leg, hip and arm actions, preferably in front of a long mirror.

This is a useful drill for improving a walker's co-ordination and for teaching beginners in particular the feeling of the straight supporting leg in the vertical position.

4. TRAINING PROGRAMMES

The conditioning philosophy for race walkers is as follows:

- For all the approaches above the following is applicable:
- Use an over distance approach.
- First quantity, then quality.
- Build a foundation of endurance and then develop speed gradually. This will prevent injury.
- For the first month of training you will do no speed work and you will not time anything.
- The volume of work must be gradually increased over weeks.
- As the season progresses, you will do less work but faster work.
- 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.
- Your schedule is flexible. You may change the daily routine because of weather, body condition, or emotional outlook.
- You should completely recover from one workout to the next. If you are not completely recovered, do less work, or rest.
- You should never run when you are ill or have an injury.
- If your training schedule is limited, you may telescope this schedule into two-week periods instead of month periods.
- Your workouts must be fun or rewarding, preferably both.

5. TRAINING SESSIONS

- 5.1. All training sessions should always start of with warm-up session and stretching exercises.
- 5.2. After all training sessions a cool down and stretching session should follow.
- 5.3. Refer to the chapter on mobility for event specific warm –up and stretching exercises.

RACE WALKING LONG TERM TRAINING PLAN - 10 KM

SEPTEMBER - APRIL TRAINING METHODS	PHASE					
	CONDITIONING		PREPARATION		COMPETITION	
	1	2	1	2	1	2
MUSCLE ENDURANCE (STAMINA)	50%	60%	45%	40%	35%	30%
SPEED ENDURANCE	0%	10%	10%	25%	30%	30%
TECHNIQUE + RHYTHM	25%	20%	15%	10%	10%	10%
STRENGTH	20%	20%	20%	15%	10%	10%
SPEED	0%	0%	0%	0%	0%	0%
ACTIVE REST	5%	10%	10%	10%	15%	20%

EXAMPLE OF A RACE WALK TRAINING PROGRAMME

CONDITIONING PHASE 1		MONTH													
CONDITIONING	EXERCISE	M	T	W	T	F	S	S	M	T	W	T	F	S	S
M. ENDURANCE	8km casual pace walking		✓			✓				✓			✓		
	6km casual pace walking				✓							✓			
	4 x (3 min. @ 75% / 2 min. walk)		✓							✓					
	400m, 600m, 800m, 600m, 400m @ 75% 2 min. walk rest	✓							✓						

	6x 400m/ 75%/ 2 min walk rest					✓							✓				
	1000m, 800m, 400m @ 75% - walk rest				✓												
STRENGTH	hills 10x 100m/75%/ 2 min	✓								✓							
	tyres 12x 100m/75%/2 min				✓								✓				
TECHNIQUE	straight line walking 5x 50m	✓			✓					✓			✓				
	straight leg walking 5 x 50m	✓			✓					✓			✓				
	hip exercise 5 x 50m	✓			✓					✓			✓				
	arm action 5 x 50m		✓			✓						✓		✓			
	snake walking 5 x 50m		✓			✓						✓		✓			
	zigzag walking 5 x 50m		✓			✓						✓		✓			
REST								✓	✓	✓					✓	✓	✓

COMPETITION PHASE 2:		MONTH													
CONDITIONING	EXERCISE	M	T	W	T	F	S	S	M	T	W	T	F	S	
M. ENDURANCE	8km casual pace walking		✓				✓			✓					
	6km casual pace walking				✓										
	4 x (3 min. @ 75% / 2 min. walk)				✓										
	400m, 600m, 800m, 600m, 400m @ 75% 2 min. walk rest										✓				
	6x400m/ 75%/ 2 min walk rest												✓		
	1000m, 800m, 400m @ 75% - walk rest		✓												
S. ENDURANCE	10min @ 80% / 8min @ 80% / 6min @ 80% - rest 5 min.	✓													
	10 min. back to back @ 80% / rest 5 min				✓					✓					
	800m, 600m, 400m, 600m, 800m @ 95% - rest 3 min.					✓						✓			
STRENGTH	hills 10x 100m/75%/ 2 min	✓								✓					
	tyres 12x 100m/75%/2 min				✓										
TECHNIQUE	roll walking 5x 50m	✓			✓		✓			✓			✓		
	straight leg walking 5 x 50m	✓			✓		✓			✓			✓		
	hip exercise 5 x 50m	✓			✓		✓			✓			✓		
	arm action 5 x 50m		✓			✓						✓			
	figure '8' walking 5 x 50m		✓			✓						✓			
	zigzag walking 5 x 50m		✓			✓						✓			
RACE														✓	
REST						✓	✓	✓				✓	✓	✓	

6. RULES

6.1. GENERAL RULES FOR DISTANCE RACES

- 6.1.1. In all events, competitors must wear clothing, which is clean, designed and worn so as not to be objectionable. It must not be transparent even when wet.
- 6.1.2. The direction of walking and running on a track is left hand inside.
- 6.1.3. The start line is curved so that all athletes start the same distance from the finish.
- 6.1.4. At the start, the athlete must remain motionless from the command 'on your marks' until you're the starter fires the gun. Otherwise, a false start will be made.
- 6.1.5. The athlete will be warned after one false start and disqualified after two.
- 6.1.6. Interference of any sort, with other athletes also constitutes a false start.
- 6.1.7. At the finish the athletes are placed in the order in which any part of their trunks, reaches the finishing line. (Not the head, neck, arms or feet)
- 6.1.8. Hand timing is acceptable, provided 3 official timekeepers timed the winner.
- 6.1.9. For track events, 5000m and longer, the refreshment table will be open for 5 minutes at 20-minute intervals.
- 6.1.10. In events of more than 20km, refreshments will be provided every 5km. For all events longer than 10km sponging/drinking water stations may also be provided at suitable intervals.
- 6.1.11. In events longer than 20km, a competitor may leave the road or track with the permission, and under supervision of a judge.

6.2. SPECIFIC RULES FOR WALKING

- 6.2.1. At least one foot must be on the ground at all times during the race.
- 6.2.2. The supporting leg must be straightened for at least one moment when in the vertical position.
- 6.2.3. The leading foot must make contact with the ground before the other foot leave the ground.
- 6.2.4. A walker will be disqualified when 3 judges agree that his walking does not comply with the IAAF definition of race walking.

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