



Appendix: Skill Development Tips

Basic Mechanics of Running

Running differs from walking in that, when running, the athlete only has one foot in contact with the ground at all times. However, in both running and walking events, the athlete must maintain a balanced and upright posture. The form for running sprints or distance events follows the same basic principles. However, in distance events the knee drive and arm carriage are a little lower. This section gives general guidelines for running mechanics. More specific, technical details are included in the sprints, middle and long distance sections.

Sprinter



Distance Runner



1. The athlete controls his/her speed by how much force is applied with each foot strike.
2. The quicker the foot strikes the ground, the faster the athlete runs.
3. When running fast, the heel must be lifted high under buttock.
4. Leg turnover and stride length determine the speed at which an athlete runs.

Getting Into Proper Running Form

1. Take a Hips Tall position with your trunk and head directly above the hips.
2. Let arms hang loosely at the sides of your body.
3. Close hands loosely with the thumbs up.
4. Lean forward slightly; bend ankles until body weight is centered on balls of feet.
5. Bend arms; bring hands to top of hips forming a 90-degree angle between lower and upper arms.
6. Keep head in a neutral position, looking forward, with facial muscles relaxed.

Lifting Knees/Driving Arms

1. Lift heel and push off with ball of foot.
2. Bend leg at knee and drive it forward.
3. Bring foot forward under knee.
4. Strike ground with ball of foot while bringing the foot back under the body.
5. Swing the arms forward and back with no help from the shoulder muscles.
6. Stop hands at midline of torso at the top, and at the back of the hips at the bottom, shortening the angle slightly on the upswing and lengthening the angle slightly on the downswing.

Faults & Fixes – Running Basics

Error	Correction	Drill/Test Reference
Athlete not running in upright position.	Need to make sure drive leg is being fully extended (push off).	Bounding and strides.



Starts

A good start can make all the difference in any track event, regardless of the distance. At the start of a race, athletes want to get out strong and fast. There are two primary types of starts – the stand-up and the block start. In sprint events, athletes use stand-up or block starts. In distance events, athletes use the stand-up start.

Power Foot

In this start, the athlete puts his/her “power foot” forward for a strong launch. Determining the power foot can be easily accomplished by having the athlete pretend to kick a ball. The foot that is used to kick the ball is the back foot. The foot that is used to support the body is the front foot, the power foot.

Stand-up Start

Teaching Points

The fundamentals of the start involve three commands: “on your mark,” “set” and “go.” Note that “go” can be a starter’s pistol or whistle.

“On Your Mark” Command

The “on your mark” command is used when the athlete comes to the starting line to begin the race.

1. Stand behind start line, relaxed, power foot in front.
2. Place toe of back foot behind the heel of front foot, about 20-30cm.
3. Look up slightly, focusing 2 meters ahead.

“Set” Command (Note: Not used in races longer than 400m)

On the “set” command the athlete must become as still as possible.

1. Bend front knee slightly - about 120 degrees, placing weight on ball of front (power) foot.
2. Hold arm opposite from front foot flexed in front of body.
3. Hold other arm back, hand closed slightly past the hip.
4. Stand as still as possible.

“Go” Command – Sound of the Starter’s Pistol or Whistle

The “go” command is for the athlete to start moving. The “go” command is usually created by the sound of a starter’s pistol or other device, such as a whistle.

1. Drive back leg forward, leading with knee, swinging front arm back.
2. Push strongly off ball of front (power) foot, swinging back arm forward forcefully.
3. Stay low, using arms to drive body forward.





Block Start

Each athlete needs the blocks set in a way that is comfortable to him/her. Whether to learn, train on and use blocks is an individual decision that should be discussed between the athlete and coach. Note: These are general guidelines and may not apply to every athlete depending on physical ability or range of motion.

Teaching Points

Setting the Blocks

1. Align blocks in direction of start.
2. Place starting blocks one foot-length from the starting line.
3. Place front pedal two foot-lengths from the starting line.
4. Place rear pedal two and one-half to three foot-lengths from starting line or approximately one foot-length from the front block.
5. Note: The front and back pedals will have to be adjusted depending on the athlete's preference. When you travel to compete, starting blocks are different. However, your athlete will become able to make minimal adjustments, and you will become consistent at setting of the blocks.

"On Your Mark" Command

1. Kneel.
2. Place feet firmly against pedals so toes barely touch ground, with the power foot in the front pedal.
3. Heels are off the pedals and the toes are curled under and touching the track.
4. Rear-leg knee is resting on the ground.
5. Place hands shoulder-width apart behind start line.
6. Place fingertips down, thumbs pointing in toward each other, creating an arch between the index fingers and thumb, parallel to the start line.
7. Roll body forward slightly, keeping arms straight and rigid but not locked.
8. Distribute weight evenly over hands and back knee.
9. Hold head up in line with spine.
10. Focus on a spot a few meters in front of start line.

"Set" Command

1. From "on your mark" position, lift hips from ground slightly higher than shoulders, front knee bent approximately 90 degrees, back knee bent 110 degrees to 120 degrees.
2. Keep arms straight, but not locked.
3. Distribute weight evenly over hands.
4. Focus 2 meters down track.
5. Back and head form a straight line.
6. Concentrate on reacting to sound of gun or start command - driving out of blocks.



“Go” Command - Sound of the Starter’s Pistol or Whistle

1. From “set” position, at the sound of the starter’s pistol or start command, thrust back knee and opposite arm forward strongly.
2. Drive off footpads of both blocks.
3. Keep the body low, pushing off the power foot hard, fully extending leg.
4. Continue driving legs and arms forward, accelerating into full sprinting stride.
5. Concentrate on moving the hands quickly to initiate movement out of the blocks.

Acceleration to Top Speed

1. Use short, quick steps out of blocks, allowing stride to increase in length as velocity increases, gradually standing up. Should be inclined forward for first 5-6m, fully upright at 25-40m.
2. Make sure feet strike ground directly under the center of gravity.
3. Use the arms vigorously, bringing loosely-closed hands to chest line during upswing and stopping them at back side of hips on downswing.

Sprints (100m-400m)

Sprinting is the art of running as fast as possible. Power and coordination are the essential ingredients in the production of speed. Coordination can be improved through practicing good running mechanics. Speed is mostly an inherent factor; however, both coordination and speed can be improved through proper training. Mechanics of running is explained in the “Running Basics” section. Sprinting can be broken down into four phases: the start, acceleration, maintaining momentum and the finish.

The two main components that increase speed are how long steps are (stride length) and how quickly they are made (stride frequency).

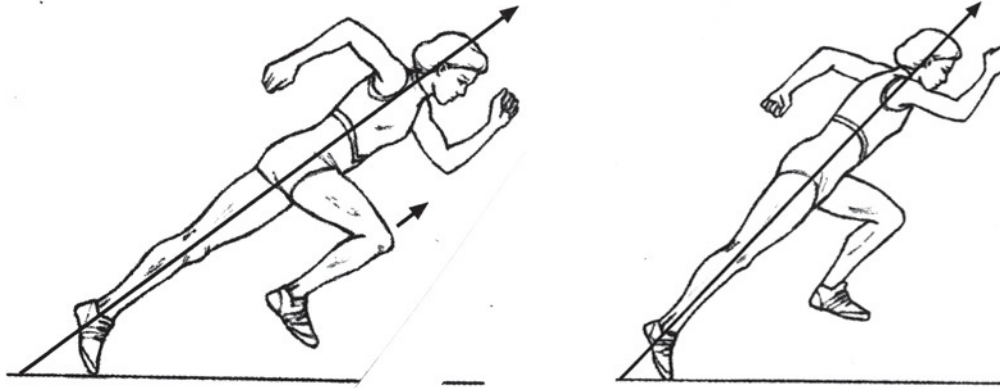
Start Phase

Starts are explained in the section titled “Starts.”

Accelerating Phase

The accelerating phase is achieved by driving or pushing with the drive leg. This requires a forward lean, which is directly proportional to amount of acceleration. Remember that acceleration does not mean speed, or fast; it means the rate of increasing speed.

1. As drive leg is driving or pushing, free leg is also driving low and fast to place the foot under the body’s center of gravity.
2. Heel recovery of drive leg is low coming out of the blocks.
3. With each step, speed increases until top speed is reached
4. Each leg is driven powerfully until it is fully extended.
5. Vigorous arm action is maintaining balance, rhythm and relaxation.



Maintaining Momentum Phase

The maintaining momentum phase is achieved by combining basic mechanics with the speed attained in the accelerating phase.

1. Drive knees up so thigh is parallel (horizontal) to track.
2. High heel recovery is maintained as drive foot leaves ground.
3. Maintain tall posture, with slight forward body lean from ground, not from waist.
4. Swing arms forward and back vigorously, without rotating shoulders.
5. Keep feet flexed, toes up.

Sprinting on a Curve

1. Lean inward around the curve.
2. Keep feet parallel to the curve (the same direction as the lines).

Finish Phase

1. While sprinting down the track, the athlete maintains good posture with normal stride action through finish line.
2. Taking the last stride, the athlete lunges forward and leans through finish line. Athlete should pretend that the finish is beyond where it really is to continue momentum.