

## **GET ACTIVE. STAY ACTIVE**

How can I improve my speed for sprinting?

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Human speed is the ability to move the body or parts of the body through a required range of motion in the least amount of time, or to solve specific movement tasks in the shortest possible time. With regard to running, speed is most accurately defined as stride length times stride frequency. Even though speed potential is limited by genetic capabilities, it is a quality that we all possess to some degree. Most people do not use even a small percentage of their speed potential. Speed is a learnable and teachable skill. Coupling sound motor learning principles with a systematic approach, speed can be significantly improved through proper directed practice.

The sprint can be divided into three distinct phases: Start, Acceleration, and Top Speed. Improving speed for sprinting can be successful with focus on these three phases. Training considerations include stride length, stride frequency, and the technique of the sprinter. Other key contributors to speed potential include strength and flexibility.

### **Start Phase**

Key characteristics of the start phase technique for the proper four point start position for a sprint include: forward weight distribution over the start line, hips elevated above the shoulders, and looking down with a straight neck.

Stride length is important as the sprinter drives out of the start position. The first stride should be placed as far out from the start position as possible without over striding (striding too far forward and losing momentum and control of the leg). The goal is to begin to grasp the surface for distance. The first stride cannot be efficient if the hip, knee, and ankle angles (knee 130 rear leg, 90 front leg, ankle 90 degrees) in the start position are not optimal. If the angles and/or muscle flexibility are not correct then the muscle can struggle to react or shorten/lengthen to its full potential.

Drill: "Falling Start" Stand with feet between shoulder and hip width apart. Lean forward while keeping a straight line between the shoulders, hips, and ankles. Fall forward until you begin to lose balance. Explode forward into the sprint off the left leg, driving the right knee to the chest. Repeat for the opposite leg. Coaching Point: The point just before you feel like you're going to fall on your face is when you have to explode forward into the sprint. The emphasis of this drill is maintaining a straight line between your shoulders, hips, and ankles.

### **Acceleration**

Acceleration is the rate of change of velocity that allows the athlete to reach maximum speed in a minimal amount of time. This phase occurs during approximately the first 10 yards of the sprint. Key characteristics of acceleration phase technique are the remaining forward trunk lean and forceful arm swing as a direct relationship to leg drive. In addition, focusing on driving the knee forward and extending the legs as far backward as possible after they strike the ground is unique to this phase.

Stride length is again crucial in this phase. The sprinter should fight for every inch in an attempt to approach top speed without over striding (striding too far forward and losing gripping control of the

leg). Maintaining a positive shin angle, which is when the knee is forward of the ankle, can assist the sprinter in gaining horizontal distance and speed. The sprinter should fight for every inch while attempting to approach top speed.

Drill: “Downhill Start” Use a gradual downhill slope to overcome inertia and increase stride frequency. The downhill slope will force the sprinter to get their feet down quickly, helping to eliminate excessively long strides. The decline facilitates a positive shin angle. Coaching Point: Encourage forward body lean into the downhill.

### **Top Speed**

This phase is easy to identify because the sprinter should now have an upright trunk posture. Stride frequency is a key component here, as the sprinter focuses on limiting the amount of time the feet actually contact the ground. Using momentum gained from the first two phases, the sprinter exaggerates the “heel to butt” stride attempting to rip the surface back. A difference between this phase and the acceleration phase is that now the leg first lands under the body versus forward of the body as in the acceleration phase. The arms should still remain in the sagittal plane, front to back, to ensure forward momentum is not lost or stressed by the arms crossing the trunk’s midline.

Drill: “A-March” Stand tall with the back flat and the abdomen pulled into place, hips upward facing. Pull the heel of one leg up into the buttocks keeping the toes pulled up and allowing the knee to rise until parallel with the thigh. March down the field repeating this movement. Coaching Point: Focus on maintaining posture with this drill, speed is not important. The sprinter should keep their steps short with foot placement directly under the hips, not in front of the body.

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