

## ***Multi-Directional Speed Training*** by Adam Smotherman, SCCC, CSCS, USAW-L1

We all know about the pro shuttle, L-drill, 60-yard shuttle, T-test, and other assessments of short area quickness and change of direction. These have become the norm within countless camps and combines. What is the common denominator amongst these? They each require multi-directional speed, and hours of training to perfect. Most competitive sports require multi-directional speed, which is a reason these tests are so popular, because of their applicability to the field of play. Because of this characteristic of athletics, we must ensure that our training programs do not involve only linear modalities. Change of direction (COD) at high rates of speed requires great involvement from the proprioceptors, muscles, tendons, bones, and components of the nervous system. An athlete must possess strength and body control, spatial awareness, and explosive power to put his/her foot in the ground, fighting the resistive forces of gravity and linear momentum to successfully change direction while maintaining accelerative forces.

How should we train for multi-directional speed, then? Any time you can practice moving full speed or close-to-full-speed in one direction into planting your foot/feet in the ground and changing your path, you will get better. Classic cone boxes involving 90° cuts (or any angle you desire); bag drills requiring powerful hip, ankle, and knee drive; hoop drills requiring change of direction in a circular format rather than a traditional linear angle; quickfoot ladders involving various forms of ankle, knee, and hip flexion/extension; and line drills entailing body control in a multi-directional format along a linear path are all tremendous modalities for improving performance in short-area quickness and change of direction.

From a technique standpoint, there are some points to remember when training COD. First, body positions, body control, and spatial awareness are paramount. An athlete must have excellent body position, including torso angle, joint angles, and hip flexion in order to be actively in control of his/her direction. Body control is required for good COD performance, and this starts with core and lower body strength. Spatial awareness is a characteristic of change of direction that is essential. You must be aware of where you are in space to begin your approach to the cut at the right time, to come out of the cut at the correct angle, and to finish with great effort at the precise spot.

Second, proper technique is a key component of success in COD. Within the realm of technical soundness, one common mistake made by athletes when they change direction is inefficient arm movement. Some people begin to flail the arms or to get out wide with the elbows when they travel a different path. Remember, the upper body and lower body must stay in sync for efficient movement to occur, so when the arms cross the body or flair out, the lower body must adjust to stay on course, causing speed to slow. Next, from a technical standpoint, when approaching the cut, you must sink your hips. We have seen in previous articles that strength is the key to speed. Where is your body's greatest strength? As an athlete, it should be in your hips. If not, stop reading and go to the weightroom now to hit the squat rack, then return to reading. The more elongated your body is when changing direction, the less control and efficiency you will display. Sink the hips approaching your cut, and force your body to coil and spring out of it as a result.

Next, let's say you are planting and redirecting at a 90° angle. You must sink your hips, put your outside foot in the ground, and gain ground with the inside foot coming out of the cut. Too often, athletes leave precious seconds on the field because their cuts are inefficient. I often see young competitors step under themselves with the inside foot coming out their cuts. Why does this happen? A few reasons: One, this is a mechanically deficient bad habit. You must practice your mechanics repeatedly. But, practice does not always make perfect if you are practicing the wrong way. Do not reinforce bad habits. Two, it could be a strength issue. Your body naturally seeks the strongest muscle group (or the most beneficial joint angle) as a mechanical advantage, so if your hamstrings, hips, and lower legs are weak, you will use the quads of your inside leg to propel out of the cut rather than the hips and hammies (combined with the push of the outside plant leg) to gain ground from the COD. Three, it could be an issue of speed endurance. When fatigue sets in, the body seeks the strongest (or least fatigued) muscle group. Training must engage total body speed endurance to ensure this is not a deficiency for you (refer to July 2014 article).

Be sure your training involves multi-directional modalities to maximize your performance. Continue training hard and remember to...

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