



about the AUTHOR

Travis Brown has led a career as a Strength & Conditioning Coach for over 12 years in Atlanta, GA, and at the University of Tennessee, Knoxville. He currently works for Speed to Win, which provides a pro level speed and agility training program, training progressions, and performance tracking software to colleges and high schools. He has trained, or played next to, over 90 NFL starters, 12 Pro-Bowlers & 1st-round NFL draft picks. During his career, he has trained a number of athletes ranging from youth to elite professionals, which include several MLB, NBA and two Olympic medal winners.

Speed and Agility: What Defines Them and How to Train for Both

Travis Brown, MS, CSCS,*D

Speed: Definition and How to Develop It

Speed is simply stride length (SL) x stride frequency (SF), or how far you step by how quick you step. No matter what height, weight or size an athlete is, to improve speed one must maximize each step for stride length and stride frequency. In order to do so, an athlete must be trained with different drills specific to each.

We can accomplish this by working through five different progressions or levels, which is what we use in the “Speed To Win” curriculum. The five levels of progression are as follows:

- Pre-Conditioning Aerobic Base
- Build Sprint Form & Anaerobic Base
- Develop Stride Length
- Develop Stride Frequency
- Addition of Power & Acceleration

In the Pre-Conditioning level, the goal is to get in aerobic shape, or to develop an aerobic base so sprinting can be taught to the athlete. We can accomplish this by doing specific dynamic warm-up drills such as high-knee grabs, high-knee walks, high knees, ankle-quad grabs (Figure 1), butt-kick walks, butt kicks, and more. We also incorporate long bungee cords while doing backpedals and sprints for about ten yards. The athlete should also develop his/her aerobic base by jogging short and long distances.

In the next level, we focus on building sprint form and anaerobic conditioning. We implement this by increasing flexibility and form through the use of speed warm-up and various stride-strengthening drills. We also incorporate heavy sled pulls. This forces the athlete to stay low when coming out of their stance and to drive the knee high and increase stride length, thus working on sprint form.

During the next level, focus is on developing stride length. We continue to apply the base dynamic warm-up exercises, with the addition of a high-knee grab, toe touch-skip, front lunge and press. This will help to increase flexibility and recruitment of the muscles which will help with the increase in stride length. And perhaps one of the more important components in increasing stride length is to implement the use of short bungee cords to work hip flexor (lying on your back) and hamstrings (laying face down).

While developing stride frequency, in the next level, we simply learn how to turnover an adequate stride length. We incorporate more advanced dynamic warm-up drills such as 1-2-3 skip with a high knee grab and a toe touch and flatten (Figures 2 – 6). A toe touch and front leg kick (Figures 7 – 8) would be another ideal warm-up drill to incorporate. This is also where the athlete learns how to sprint with increased stride length and stride frequency.

With the addition of power and acceleration, we apply sled pulls, the mule cords and push up starts. It is during this phase the athlete learns that in order to accelerate and use power, a forward lean must be created. Many times coaches focus on this phase, before developing most or any of the other phases or levels. The sled pulls that were used in the previous levels are now much lighter. This forces the athlete to practice accelerating zero to ten yards, transitioning to top speed between ten and twenty yards, and continuing to sprint at top speed for another ten yards. It is a thirty yard sprint working on forty yard dash technique. We also concentrate on the mule cords with a partner. As one athlete is pulling against their partner, which is working on deceleration, the other partner is working on acceleration with resistance. Then they switch after twenty yards.

In conclusion, it's important to remember that all of the levels overlap somewhat. For example, a simple high knee drill will and can develop aerobic conditioning, sprint form, and stride length. A simple butt kick drill can do the same, and if the heel is snapped quickly, stride frequency will be improved.

Agility: Definition and How to Develop It

Agility can be simply defined as change of direction. In other words, quickness is controlled deceleration. In order to improve agility, an athlete must increase acceleration, increase deceleration, and then increase change of direction. Too many times we see an increase in acceleration targeted without an additional effort to increase deceleration. This is a major mistake.

Let us think about the heavy/fast athlete. In sports today, we see a number of non-contact injuries, from torn ACLs to sprained ankles and sprained knees. In today's world, athletes are like a high performance sports car. Very fast and agile, able to turn corners at high speeds and stop on a dime. However, we are adding more and more muscle and body mass to the same frame that has supreme acceleration. It's like increasing the horsepower on that same sports car, without improving the brakes and framework of the car. And much like an athlete who tries to stop on a dime after accelerating, and ends up tearing their knee/ankle, the same would happen to the sports car. When attempting to stop, the body would tear right off the frame.

We can avoid this by working through five different levels of progression, and ensuring deceleration is stressed as much as acceleration. The five levels of development are as follows:

- Pre-Conditioning Agility
- Improve Footwork and Deceleration Strength
- Foot Work Patterns—Learn How to Accelerate and Decelerate
- Change of Direction with Conditioning Drills
- Develop Explosive Ability to Change Direction

In the Pre-Conditioning level, you implement various lateral movement conditioning drills, such as over-under walks, cariocas, side bounding, etc. In this level athletes must learn how to stay low, turn their hips and move laterally. This is the base of agility and must be set as the foundation.

In the next level, we focus on improving footwork and deceleration strength. While you are working on improving agility, you are also working on improving speed. Therefore, a lot of agility work at the beginning is teaching the body to stop. It is during this level that we implement proper footwork at change of direction spots with the ladder. The athlete works on this by doing a series of basic ladder drills, such as straight one foot in every hole, side two feet in every hole, one-two-three cuts (a.k.a. Icky Shuffle, Figures 9 – 12) and one-two-three-four in and outs. We also incorporate the same ladder drills with low hurdles. This forces the athlete to change direction around an obstacle (the hurdle). And finally, we increase strength at change of direction spots with change of direction strengtheners, which is simply starting from a lunge position sprinting forward, stopping at five-yards, and backpedaling back to the beginning and then starting over.

For the next level, we focus on footwork patterns and learning how to accelerate and decelerate. The athlete accomplishes this by implementing straight ahead and lateral stop and go drills. This

can be accomplished through five-yard sprints and stopping (going forward, as well as moving laterally). And to work on footwork patterns, we add in more advanced ladder drills, such as two feet in every hole going forward, one foot in every hole moving laterally, one-two-three spin cuts (Figures 13 – 17) and one-two-three-four in and out of the ladder moving laterally. These would be in addition to the other ladder drills in the previous level, therefore, increasing intensity. We also incorporate the same ladder drills with the combination of low and high hurdles, thus increasing intensity.

In the fourth level, we work on changing direction with conditioning drills. It is during this level that we implement even more advanced dynamic warm-up drills, such as opposite elbow to ankle lunge and toe touch-hand walk-hurdler stretch (Figures 18 – 21). Remember, our lateral movement drills, change of direction strengtheners, and learning how to start and stop are what teach us how to change direction. We also add in cone drills, such as the W drill, outside foot cuts and shuffle-sprint-shuffle. Now athletes are ready to condition themselves by actually changing direction.

In the final phase, we develop explosive ability to change direction. Here is where the athlete should be able to put together everything for agility (acceleration, deceleration, and change of direction). This can be done by practicing the five-ten-five pro agility shuttle and the three-cone drills. We also incorporate more advanced cone drills, such as backpedal-sprints and spin cuts.

Keep in mind, just as with the speed levels, the agility levels do sometimes overlap. Many of the base dynamic warm-up drills, are key components in the foundation for becoming more athletic. This is thoroughly accomplished in both "Speed to Win" curriculums, by overlapping speed, agility, and explosion to become a more explosive athlete that is extremely quick. ■

Speed and Agility: What Defines Them and How to Train For Both



Figure 1. Ankle Quad Grab



Figures 2. 1-2-3 Skip to Touch Flatten



Figure 3. 1-2-3 Skip to Touch Flatten



Figure 4. 1-2-3 Skip to Touch Flatten



Figure 5. 1-2-3 Skip to Touch Flatten



Figure 6. 1-2-3 Skip to Touch Flatten



Figure 7. Toe Touch



Figure 8. Front Leg Kick



Figure 9. 1-2-3 Cuts



Figure 10. 1-2-3 Cuts



Figure 11. 1-2-3 Cuts



Figure 12. 1-2-3 Cuts



Figure 13.. 1-2-3 Spin Cuts



Figure 14. 1-2-3 Spin Cuts

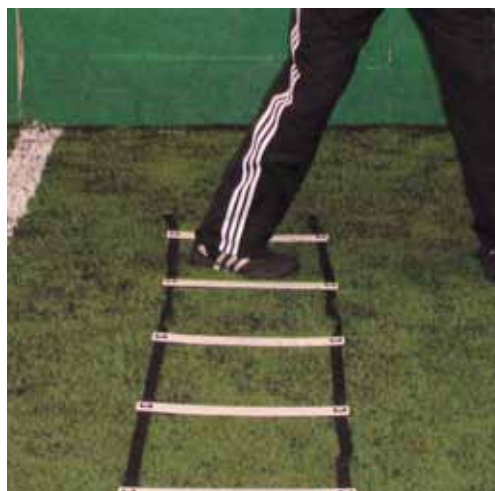


Figure 15. 1-2-3 Spin Cuts



Figure 16. 1-2-3 Spin Cuts



Figure 17. 1-2-3 Spin Cuts



Figure 18. Toe-Touch Hurdler Stretch



Figure 19. Toe-Touch Hurdler Stretch



Figure 20. Toe-Touch Hurdler Stretch



Come learn ground based explosive movements at a Fly Solo Camp and demonstrate your ability to implement the principles into your program.

After camp, purchase an Index Test License so your athletes can compete with athletes from around the world.

To learn more about the NSCA Coaching Performance Program please visit...

www.nsca-lift.org
or call 800-815-6826



Figure 21. Toe-Touch Hurdler Stretch