



Balancing Power and Speed in Sprinting

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Developing Speed for Sprinting

If you consider what the components for speed are, they include firing frequency and muscle fiber recruitment. Contemporary training programs work on increasing firing frequency through foot or leg drills or through repetitive running for set distances (1). Muscle fiber recruitment typically is done in the weight room with explosive lifts. However, explosive lifts require proper training and supervision to avoid injury. Immediate improvements in speed usually come from neuromuscular adaptations. Neuromuscular adaptations enhance firing frequency and muscle requirement. A safer method of recruiting muscle fibers for the development of speed includes the addition of more balance work into the conditioning program.

If you look at most movement patterns of the lower body, at one point during the movement the body must support itself on one leg. However, we do not ask athletes to condition that way. We usually get on a weight machine and use two limbs; thus, never really working on the weaker limb. Each time the weaker limb steps on the ground by itself, it slows you down because, for a split fraction of a second, it must adjust appropriately during the running stride.

Balance work takes advantage of proprioception, the ability of muscle to respond to abnormal positions and situations. Proprioception provides a sense of joint position and movement.

Doing balance work in conjunction with explosive power movements in your sprint training provides an opportunity to recruit and train additional muscle fibers. If done properly, the end result is improved speed. The following program will illustrate how to incorporate the right blend of balance and power into the sprinting program.

Single Leg Backbridge (Figure 1)

Lie with your back on the ball and with one leg firmly in contact with the ground. Make sure that the leg that is on the ground is at an angle greater than 90 degrees and your foot is pointed straight ahead. Raise the other leg off the ground and maintain this position for three to four sets of 30 to 45 seconds depending on the level of leg imbalance.

Balance on Wobble Board (Figure 2)

Balance on each leg on the wobble board. Repeat for three to four sets of 30 to 45 seconds on each leg. Ultimately build to 60 seconds on each leg for three to four sets.

Balance on Wobble Board with Weighted Ball (Figure 3)

Once balance work on a wobble board has been mastered, the next level of progression is to hold on to a weighted jelly ball or medicine ball. Repeat for three to four sets of 30 to 45 seconds on each leg.

Bulgarian Step Ups (Figure 4)

With a 35lb universal bar on your back (trapezius), place the right foot on a box. Make certain that the effort is placed on the foot that is on the box to step up. Step up on the box with the trailing leg. Do three to four sets of six repetitions on each leg.

Jelly Ball Kick Ups (Figure 5)

Use a three to four pound jelly ball for beginning training programs to allow for safe progressions to a heavier weighted jelly ball. Place the ball between the feet. Squeeze the ball with the feet and drive down during the preparation phase. Next, drive up while kicking the jelly ball up in the air. Repeat for three to four sets of six to ten repetitions.



Figure 1. Single Leg Backbridge

Split Squat Jump (Figure 6)

Place one leg in front of the other in a split position. Drive down with the legs and arms and explode up while maintaining the split squat position. Landing should be done in the same position as the drive phase. Do three to four sets of six jumps on each leg.

L Hops (Figure 7)

Place one leg on a table making the hip angle about 90 degrees to the floor. Make sure that you have a soft landing mat or floor while performing these routines. Drive down on one leg and explosively drive up on the same leg. Do three to four sets of six to eight repetitions on each leg.

Box Step Ups (Figure 8)

Place one foot on a box and step up on that foot while driving the other leg up. Make sure to maintain the same arm action that you would in the running motion. Do three to four sets of six to eight repetitions on each leg.

Quick Foot Step Ups (Figure 9)

Place an aerobic step on a secure floor to prevent movement of the box. On command, the athlete will step onto the box with the leg/foot that they normally drive off with the blocks. The athlete will step on and off the box as fast as possible for 30 seconds. Make sure to maintain the proper sequence of arm movements in the running motion.



Figure 2. Balance on Wobble Board

Stadium Hops (Figure 10)

Use aluminum stadium steps to do this exercise, as it will provide a much softer landing. Place the hands behind the head and squat, then explosively drive up to the next step. Perform this for about 10 rows and walk down and repeat the same procedure three to four times.

Single Leg Hops (Figure 11)

Find an area that is soft and level if you are outside. Line up six cones and practice jumping over one or two to line up the appropriate distance between cones. Take a running start at the cones and then single leg hop over each one. Perform this drill three to four times on each leg.

Granny Throws (Figure 12)

Use a 16 pound jelly ball or medicine ball. Squat down and drive straight up while tossing the ball as explosively as you can. Perform this drill six to eight times.

Inclined Sprints

Find an inclined area that is no more than four to five percent grade. The distance needed should be about 25 to 35 meters in length. On command sprint for a set distance of 25 to 35 meters. Perform this sprint six to eight times.



Figure 3. Balance on Wobble Board with Weighted Ball

There are many ways to train for speed such as tubing, parachutes, and shoulder harnesses. (2,3). The isolated balance work and explosive routines done by each leg as depicted in this article will target those individual muscle fibers not normally conditioned by traditional sprint training. Incorporating balance and explosive movement patterns, as it relates to sprinting will develop the sprinter into a faster athlete. By following this program during the pre-season, the sprinter will have an excellent base of functional and explosive strength training as it relates to sprinting. The simplicity of this training program is that it does not require an expensive weight room to get results. ■

References

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3. Letzelter, M., G. Sauerwein, and Burger R. Resistance runs in speed development. *Modern Athlete and Coach* 33:7 – 12. 1995.



Figure 4. Bulgarian Step Ups



Figure 5. Jelly Ball Kick Ups



Figure 6. Split Squat Jump



Figure 7. L Hops



Figure 8. Box Step Ups



Figure 9. Quick Foot Step Ups

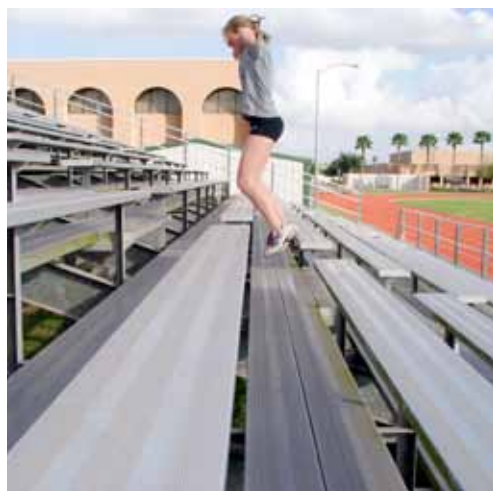


Figure 10. Stadium Hops



Figure 11. Single Leg Hops



Figure 12. Granny Throws