

Advanced Lumbar Stabilization Exercises

Introduction

The role of the “core” muscles is to stabilize or protect the spine from potentially injurious forces. For athletes, the core muscles serve the role of transferring forces to and from the extremities. Injuries to the spine may result when an athlete has insufficient endurance capacity to stabilize the spine or incorrectly uses the spine muscles to generate power².

Athletes often overlook stabilization training. Undertraining the core may occur for two reasons. First, it can be difficult to adequately train the torso muscles using only gym machines. Second, athletes may skip their core training because they “don’t feel the pump” and discard these exercises as a waste of time. Hopefully after reading this article and trying the exercises you will be able to see how easy it is to add stabilization exercises to your program, and how challenging they can be.

In a previous *Ounce of Prevention* (Vol 3, No 6) column I described how endurance training of the core is necessary to maintain spine health¹. As with any form of training, an individual should start with beginning exercises. In the initial phase, exercises such as the bird dog (aka four point opposite arm and leg raise) (figure 1), side bridge (figure 2), front plank, and crunches should be performed. These exercises should be performed with high repetitions and for

longer durations to maximize endurance capacity³. Table 1 describes a sample introductory program.

Once an individual masters the techniques of the initial exercises, he or she should progress to advanced exercises (table 2). A NSCA Strength and Conditioning Specialist® (CSCS®) could provide additional help for your program development.

Each exercise should be performed with the abdominal muscles braced. Contracting the abdominal and trunk muscles without creating movement of the abdominal wall will engage the trunk muscles and enhance stability².

Front Plank on Stability Ball (Figure 3)

Support your body weight through your hands while your legs balance on the stability ball. Your body should be held in a straight position with no bending occurring at the spine or hips. Hold each

repetition for 10 – 15 seconds. Increase the challenge of the exercise by raising and holding one arm in line with the body. A half-dome stability ball may be used in place of a regular stability ball.

Side Bridge with Hip Abduction (Figure 4)

Assume the side bridge position (figure 2). Many perform this exercise incorrectly by using their top arm to provide support or by rotating at their spine. Once you have assumed the correct posture, raise your top leg off of the bottom leg approximately 6 inches. Make sure that movement only occurs from the hip and not by side bending at the waist or low back.



Figure 1. Bird Dog



Figure 2. Side Bridge

Table 1. Initial Core Stabilization Exercise Program

Exercise	Repetition / Duration
Bird Dog	10 Repetitions x 10 Second Holds
Side Bridge	Pyramid: 4 Repetitions x 10 Second Holds (right side then left side) 3 Repetitions x 10 Second Holds (right side then left side) 2 Repetitions x 10 Second Holds (right side then left side)
Front Planks	2 to 3 sets x 10 second holds
Crunches	Repetitions to Fatigue (Usually 30 to 40)
Perform 3 – 5 days a week	

Crunch on Stability Ball (Figure 5)

The classic crunch exercise can be made more challenging by laying your torso on a stability ball. This is an excellent exercise for the abdominal muscles.

Back Bridge on Stability Ball (Figure 6)

Start by placing your feet on the ball and rest your torso on the ground. While maintaining your foot position on the ball, lift your buttocks and lower torso region off the ground (figure 6). Hold each repetition for 5 to 10 seconds.

Conclusion

Core training should be performed as part of a regular sports training program. Once mastery of the initial exercises has occurred, advance to those presented in this article. ▲

References

1. Brumitt J. (2004). The missing component of core training: Endurance. *NSCA's Performance Training Journal*, 3(6):16 – 18.
2. McGill SM. (2002). *Low back disorders: Evidence-based prevention and rehabilitation*. Champaign, IL: Human Kinetics.
3. Luoto S, Heliovaara M, Hurri H Alaranta M (1995). Static back endurance and the risk of low back pain. *Clinical Biomechanics*, 10:323 – 324.

About the Author

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Table 2. Advanced Core Stabilization Program

Exercise	Repetition / Duration
Bird Dog	10 Repetitions x 10 Second Holds
Front Plank on Stability Ball	4 – 5 Repetitions x 10 – 15 Second Holds
Side Bridge with Hip Abduction	10 Repetitions Each Side x 5 Second Holds
Crunch on Stability Ball	Repetitions to Fatigue (Usually 30 to 40)
Back Bridge on Physioball	10 Repetitions x 5 – 10 Second Holds
Perform 3 – 5 days a week	



Figure 3. Front Plank on Stability Ball



Figure 4. Side Bridge with Hip Abduction



Figure 5. Crunch on Stability ball



Figure 6. Back Bridge on Stability ball