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The Reverse Squat - Backing Away from Traditional Strength Training Exercises

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Lori completed her Bachelor of Biology degree from Nebraska Wesleyan University in Lincoln, Nebraska and her Master of Physical Therapy from the University of Nebraska Medical Center. Her 11 years of clinical experience has resulted in a strong passion for the Postural Restoration science and patient interventions. Lori has recently moved back to the Lincoln area from North Dakota where she enjoyed providing in-services to physicians, chiropractors, physical therapists, coaches and athletes in the implementation of Postural Restoration in their practices. She currently practices at the Hruska Clinic, Restorative Physical Therapy Services in Lincoln, Nebraska. Lori is a member of the American Physical Therapy Association. Lori has earned the designation of Postural Restoration Certified (PRC) as a result of advanced training, extraordinary interest and devotion to the science of postural adaptations, asymmetrical patterns, and the influence of polyarticular chains of muscles on the human body as defined by the Postural Restoration Institute™.

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A variety of squatting activities are commonly used by athletes to improve power and performance. These activities include the Olympic squat, dead lift, and power clean. A problem with these activities is that they put an athlete at risk for injury by promoting a forwardly rotated position of the pelvis. In this position certain muscles become overworked, such as the back extensors (paravertebrals), hip flexors, quadriceps, and calves. At the same time, other muscles become less effective including trunk flexors (abdominals) and hip extensors (glutes and hamstrings). As a power lift is performed with more and more weight, muscle imbalances are created that can lead to increased lumbar lordosis (deep/arched back) and again increased risk for injury such as low back fatigue and strain, lumbar stenosis, spondylolysis, spondylolisthesis, IT band and knee pain.

At the Postural Restoration Institute™, emphasis is placed on the "functional" squat. The ability for an athlete to squat down bending their knees forward with their bottom tucked, back rounded, and heels on the ground without falling over is vital for postural symmetry (see figure 1). Many athletes cannot perform this functional test and will tend to squat with their back arched, on the balls of their feet and knees out (see figure 2). The inability to perform the "functional" squat demonstrates that an athlete has overactive back extensors, hip flexors, quadriceps and gastroc-soleus. The ability to perform the functional squat demonstrates a symmetrical and balanced pelvis. A balanced pelvis will allow an athlete to flex and extend their back, pelvis, and hip; requirements for jumping, running, walking, and breathing. A balanced pelvis results in more power, less injuries, and peak performance.

Specifically a symmetrical pelvis is important to the volleyball athlete. A neutral pelvis will allow the athlete to have an increased vertical jump in addition to being able to set, block, hit or serve with a more powerful swing utilizing abdominals. If the pelvis is forward with an increase in lumbar lordosis a swinging athlete is at a biomechanical disadvantage for power. Injuries will result in an over active back and pulling will occur through the anterior shoulder capsule creating instability.

Figure 1

Ideally here at the Postural Restoration Institute™, we would abandon the barbell back squat, dead lift and Olympic power clean. I know this goes against all traditional and current trends. Getting the athlete to perform these squats with proper position of the pelvis without feeling their back is challenging and not worth the risk of injury. We have found great success with our athletes performing the reverse squat (figure 3) and working in the frontal plane (to be discussed in the next article). The reverse squat when performed slowly

Figure 2

can be a challenging activity teaching the athlete to push themselves up from the floor utilizing their glutes and co-contracting their hamstrings and quads without cheating with their calves, hip flexors or back. This exercise also teaches the athlete to squat with their knees going forward, weight through the heels and the back rounded. This forward thinking may not catch on for a while, however, consider performing a "functional" squat after weight lifting or practice to ensure a balanced pelvis. Also, consider utilizing the reverse squat with your strength training regimen. Less injuries and peak performance will result in implementing these simple activities.

More Information Please! To contact Lori please visit www.posturalrestoration.com.

Figure 3

1. Stand away from a wall.
2. Squat down until your knees are maximally bent.
3. Reach forward with your hands as you attempt to maintain your bodyweight through your heels not your toes. Your back should be rounded and relaxed.
4. Keeping your hands reaching forward and your back rounded, slowly begin to raise your bottom up by straightening your knees as you push through your heels.
5. Continue to stand up as your back stays maximally rounded. Once you are upright, your knees should still be slightly bent.
6. Relax and repeat 4 more times.