PERFORMANCE SOCCER CONDITIONING
A NEWSLETTER DEDICATED TO IMPROVING SOCCER PLAYERS
www.performancecondition.com/soccer

# Soccer Hip Impingement as it Relates to Postural Restoration
## Part III: Management Considerations

***Jason Masek, MSPT, ATC, CSCS, PRC***


Jason Masek

*Jason completed his degree in Physical Therapy from Des Moines University Osteopathic Medical Center in Des Moines, Iowa. He received his athletic training experience from the University of Nebraska-Lincoln and the University of Minnesota. Jason currently practices at the Hruska Clinic Restorative Physical Therapy Services in Lincoln, Nebraska. After extensive experience in collegiate athletics, Jason has developed a strong background in sports medicine & athletic injuries with an emphasis in manual physical therapy. He is a member of the National Athletic Trainers Association, the American Physical Therapy Association, and the National Strength & Conditioning Association. Jason 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™.*

BEG INT ADV

Hip and pelvis injuries, such as hip impingement and labral tears, are often seen in soccer athletes. Soccer can predispose the hip to repetitive extremes of motion. When biomechanics are altered due to pelvic malalignment, undue stress may be placed on soft tissues; as a result, the individual may develop postural patterns that predispose the individual to secondary pathologies such as impingements and instabilities. Regardless of whether one can accurately identify the joint or soft tissue responsible, the rationale for any of these patterns is asymmetrical mechanical loads, creating overuse.

Part one of this series discussed the rotational influences about the pelvic girdle. Emphasis was placed on the arthrokinematics of the left and right acetabular-femoral (AF) and femoral-acetabular (FA) joints.6 Postural imbalances between the left and right sides of the pelvis predispose the pelvic girdle to various pathomechanics. Part two of this series discussed the myokinematics and osteokinematics of the pelvic girdle of a Left Anterior Interior Chain (Left AIC) patterned individual and how postural asymmetries between the left and right sides of the lumbo-pelvic-femoral complex may directly have an influence and/or predispose the individual to hip impingement.[7] Hyperextension combined with femoral external rotation is the injury pattern most commonly associated with the presentation of acetabular labral tears.[5] It is thought that the labrum takes on a weight bearing role at the extreme of motion with excessive forces leading to tearing. Furthermore, sports involving repetitive twisting motions and movements to end-range hyperflexion, hyperextension, and abduction are at greater risk.[9]

The relationship between an underlying postural pattern of asymmetry and pathomechanics of the lumbo-pelvic-femoral complex have been discussed in the preceding articles. For this reason it deserves some general treatment considerations as it relates to the soccer athlete. As a follow up to the previous articles, this article will demonstrate exercises designed to challenge the entire kinetic chain for training the soccer athlete. The aim of this article is to describe the management and treatment of hip impingement as it relates to the Postural Restoration Institute ™.

**Management Considerations**

Muscles that provide movement and control of the lumbo-pelvic-femoral complex have the ability to perform in more than one plane. The motion of the femoral-acetabular (FA) joint occurs in three planes: sagittal, frontal, and transverse, with the greatest motion occurring in the sagittal plane.[8] A thorough understanding of functional anatomy and movement patterns of the kinetic chain are critical to effectively evaluate and treat the soccer athlete. Because soccer involves repetitive twisting motions, quick accelerating motions and changes in direction, treatment should address three-dimensional movements throughout all three planes (sagittal, frontal, and transverse). Improper mechanics as a result from injury and or adaptations to repeated movements will most likely contribute to an undesirable asymmetrical state.

In the previous articles Anterosuperior Acetabular-Femoral Impingement (ASAF) and Anteromedial Femoral-Acetabular Impingement (AMFA) were described. [6, 7] The subsequent management considerations are proposed by the Postural Restoration InstituteTM in managing such conditions. [1, 3, 4]

**Anterosuperior Acetabular-Femoral Impingement**

An individual with a (Left AIC) pattern will demonstrate an anterior tilt and forward rotation of the left hemi-pelvis.[1, 2, 3, 4] Due to this position, the individual will usually demonstrate weakness and lengthening of specific muscles in all three planes. In the sagittal plane, attention must be given to the left biceps femoris to restore pelvic position in the sagittal plane (Figure 1). Contraction of the hamstring provides muscular opposition to the anteriorly tilted left hemi-pelvis.

In the frontal plane emphasis is placed on the left ischiocondylar adductor and the right gluteals. Shifting ones weight over the right hip results in relative adduction and internal rotation of the right hip or right acetabular-femoral internal rotation (AF IR) and

abduction and external rotation of the left hip or left acetabular-femoral external rotation (AF ER). To return the pelvic girdle to a neutral state, an active contraction of the right hip abductors and/or left hip adductors is required. Recruitment of ipsilateral femoral-acetabular internal rotators with contralateral AF ER are required (Figures 2 & 3).

Restoration of the transverse plane requires rotational movements across the acetabular-femoral (AF), femoral-acetabular (FA), and lumbo-sacral joints. The right gluteus maximus assists in obtaining femoral acetabular external rotation (AF ER) on the right as well as orientating the sacrum to the left (Figure 4). The left gluteus medius and ischiocondylar adductor assist in obtaining femoral acetabular internal rotation (FA IR) on the left to allow for single leg stance control (Figure 5).

**Anteromedial Femoral-Acetabular Impingement**

Just as the case with Anterosuperior Acetabular-Femoral Impingement, left biceps femoris recruitment is necessary to restore position of the pelvic girdle in the sagittal plane (Figure1).

In the frontal and transverse planes emphasis is placed on the left adductors and the right gluteals. More emphasis is placed on the right gluteus musculature to abduct and externally rotate the femur in the acetabulum while adduction and internal rotation of the acetabulum on the femur is maintained on the left side (Figures 6 & 7). Soccer requires many skills (running, multidirectional changes, kicking) that are performed entirely or predominantly from a unilateral weight-bearing stance. Thus single leg dynamic stance activities which incorporate right femoral acetabular external rotation (AF ER) with left acetabular femoral internal rotation (AF IR) are necessary (Figures 8, 9, & 10)

It is beyond the scope of this article to fully understand how to treat an individual with a Left AIC pattern; however these three articles should provide the reader a better appreciation of how the arthrokinematics and myokinematics of the left and right lumbo-pelvic-femoral complex are interrelated. In closing, the next time one is evaluating a soccer athlete, take the time to consider the pathomechanics of the lumbo-pelvic-femoral complex and incorporate techniques from the Postural Restoration Institute ™ (PRI) into their rehabilitative program.

**More Information Please!** To contact Jason go to the Postural Restoration Institute™ web sit at www.posturalrestoration.com

**References**


**1.** Hruska, RJ. Myokinematic Restoration-An Integrated Approach to Treatment of Lower Half Musculoskeletal Dysfunction. Postural Restoration Institute Course Manual. 2007.

**2.** Hruska, RJ. Postural Respiration-An Integrated Approach to Treatment of Patterned Thoraco-Abdominal Pathomechanics. Postural Restoration Institute Course Manual. 2007.

**3.** Hruska, R.J. Advanced Integration. Postural Restoration Institute Course Manual. 2007.

**4.** Hruska RJ. Impingement and instability. Postural Restoration Institute Course Manual 2007.

**5.** Mason JB. Acetabular labral tears in athletes. Clinic Sports Medicine 2001; 20:779-91

**6.** Masek, J. Soccer Hip Impingement as it Relates to Postural Restoration. Performance Soccer Conditioning. 2007; 13 (3)

**7.** Masek, J. Soccer Hip Impingement as it Relates to Postural Restoration. Performance Soccer Conditioning. 2007; 13 (5)

**8.** Nordin, M., & Frankel, V.H. Basic Biomechanics of the Musculoskeletal system (2nd Ed.) Malvern Pennsylvania; Lea & Febiger 1989.

**9.** Schmerl M, Pollard H, Hoskins W. Labral injuries of the hip: A review of diagnosis and management. Journal of Manipulative and Physiological Therapeutics 2005; 28:(8) 632.e1-e8.


*Figure 1*

**90-90 Hip Lift with Hemibridge**

**1.** Lie on your back with your feet flat on a wall and your knees and hips bent at a 90-degree angle.

**2.** Inhale through your nose and exhale through your mouth performing a pelvic tilt so that your tailbone is raised slightly off the mat. Keep your back flat on the mat.

**3.** Maintain your hip lift with your left leg on the wall and straighten your right leg.

**4.** Slowly take your straight right leg on and off the wall as you breathe in through your nose and out through your mouth. You should feel the muscles behind your left thigh engage.

**5.** Perform 3 sets of 10 repetitions, 1-2 times a day.

**Right Sidelying Adductor Pull Back**

**1.** Lie on your right side with your toes on a wall, ankles and knees together and your back rounded. Place a pillow under your head and keep back and neck relaxed.

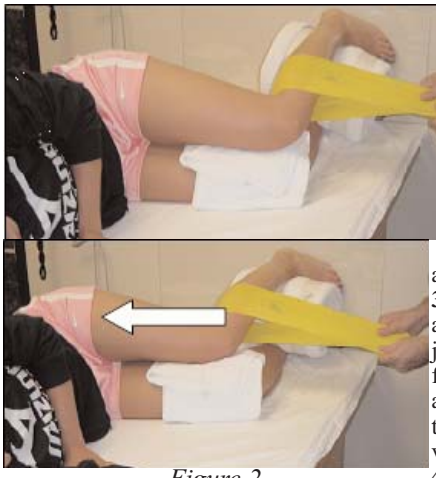


*Figure 2*

**2.** Place a bolster of appropriate size between your feet and a towel between your knees. Your left knee should be lower than your left hip and ankle.

**3.** Place tubing around your left leg just below your knee for resistance. Have another person hold the other end to provide resistance.

**4.** Push your bottom foot into wall.

**5.** Begin by <u>inhaling</u> slowly through your nose as you "pull back" your left leg.

**6.** <u>Exhale</u> through your mouth as you <u>squeeze</u> your left knee down into the towel for 3 seconds.

**7.** Inhale again as you "pull back" your left leg further. You should begin to feel your left inner thigh engage.

**8.** Exhale and squeeze your left knee down.

**9.** Continue the sequence until you have completed 4-5 breaths in and out. Attempt to pull back your left leg further each time you inhale.

**10.** Relax your knees back to the starting position and repeat the sequence 4 more times.

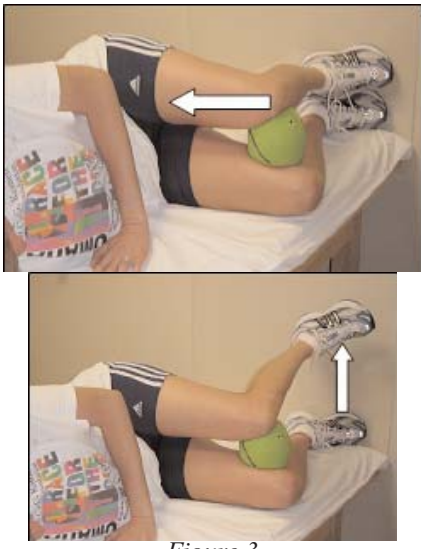


*Figure 3*

**Right Sidelying Left Glute Med**

**1.** Lie on your right side with your toes on a wall, ankles and knees together and your back rounded.

**2.** Place your lower arm under your head and upper hand on the floor in front of you to help stabilize your trunk.

**3.** Place a 4-5 inch ball between your knees.

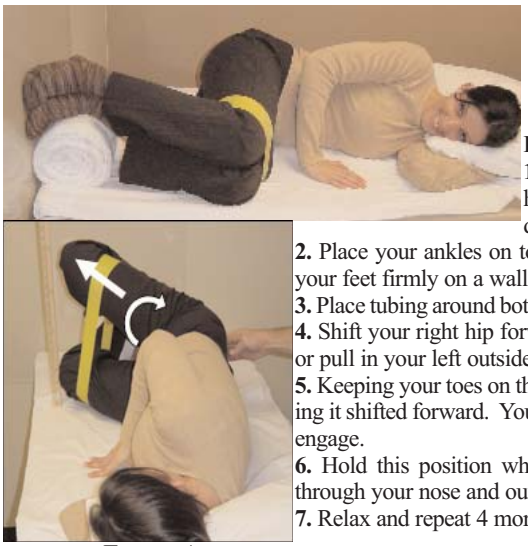
**4.** Slide and guide your left hip backward as far as you can without arching your back.

**5.** Push your right toes into the wall.

**6.** Rotate your left thigh "in" by lifting your left foot towards the ceiling. You should feel your left outside hip engage.

**7.** Hold this position for 4-5 deep breaths inhaling through your nose and exhaling through your mouth.

**8.** Relax and repeat 4 more times.



**Left Sidelying Right Glute Max**

**1.** Lie on your left side with your hips and knees bent at a 60-90-degree angle.

**2.** Place your ankles on top of a 3-5 inch bolster and place your feet firmly on a wall.

**3.** Place tubing around both thighs slightly above your knees.

**4.** Shift your right hip forward until you feel a slight stretch or pull in your left outside hip.

**5.** Keeping your toes on the wall, raise your right knee keeping it shifted forward. You should feel your right outside hip engage.

**6.** Hold this position while you take 4-5 deep breaths in through your nose and out through your mouth.

**7.** Relax and repeat 4 more times.

*Figure 4*

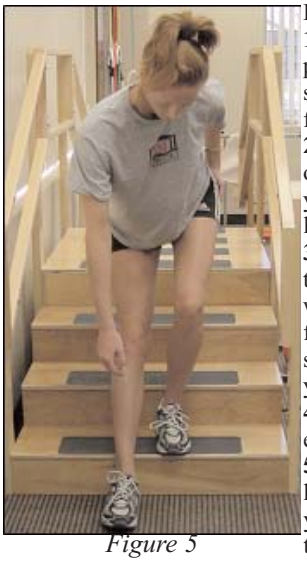


*Figure 5*

**Retro Stairs**

**1.** Stand with your heels placed in front of 6-inch stairs and point your toes forward.

**2.** Advance your left foot on the first step keeping your feet neutral or parallel with each other.

**3.** Shift your hip back and to the left as you place weight through your left foot. Your zipper line should be lined up over your left great toe.

**4.** Keep your back rounded.

**5.** Begin lifting your right leg to the step keeping your weight shifted over to the left. You should be using your left leg to advance yourself to the next step.

**6.** Continue to advance up the stairs until you have completed 1 flight always leading with your left foot.

**7.** Relax and perform 1-2 more flights (10-12 steps).

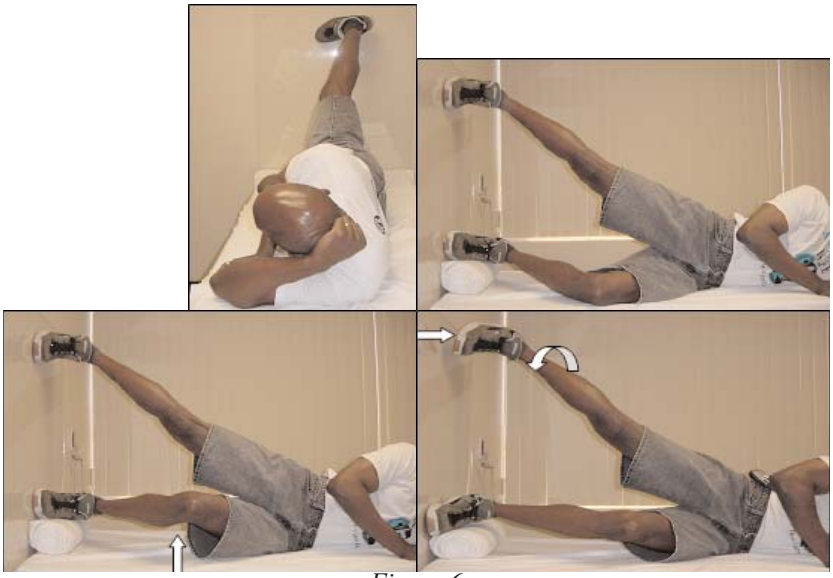


*Figure 6*

**Left Sidelying Left Flexed Adduction with Concomitant Right Extended Abduction**

**1.** Lie on your left side with your right leg straight and your left leg bent at a 60-degree angle. Your right shoulder, hip, knee and ankle will be lined up.

**2.** Place 2-3 pillows under your head so that your head is slightly side bent to the right.

**3.** Place your left foot on a 2-3 inch bolster with your toes pressing into the wall and a small bolster underneath your left side.

**4.** Slightly raise your left knee off of the floor by turning your thigh "in" or by pushing your left heel into the wall and using it as a pivot point. You should feel your left inner thigh engage.

**8.** Keep your left knee raised from the floor and turn you right toes in.

**9.** Attempt to take your right foot off of the wall. You should feel your right outside hip engage.

**10.** Hold this position while you take 4-5 deep breaths in through the nose and out through the mouth.

**11.** Relax and repeat 4 more times.

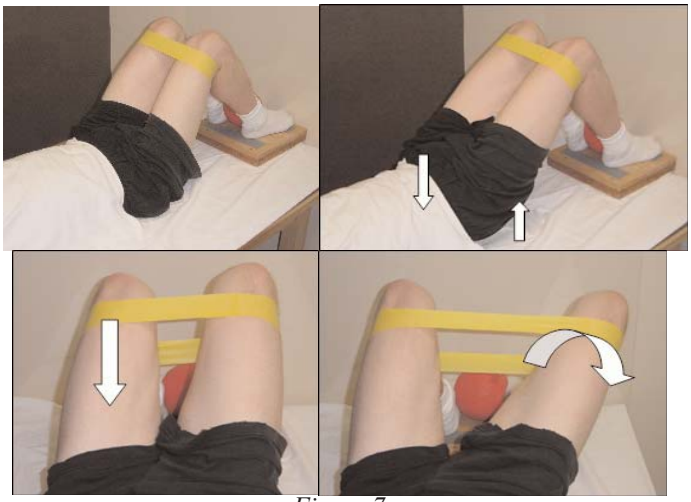


*Figure 7*

**Supine Hooklying Right Glute Max with R AF ER**

**1.** Lie on your back and place your feet on a 2-inch block against the wall.

**2.** Place a band around your knees and a ball between your ankles.

**3.** Inhale through your nose and exhale through your mouth performing a pelvic tilt so that your tailbone is raised slightly off the mat. Keep your back flat on the mat.

**4.** Shift your left knee down. You should feel your left inner thigh engage.

**5.** Turn your right leg out. You should feel your right outside hip engage.

**6.** Hold this position while you take 4-5 breaths in through your nose and out through your mouth.

**7.** Relax and repeat 4 more times.

*Figure 8*

**Single Leg Wall Left AF IR with Right Glute Max**

**1.** Place a band around both your legs slightly above your knees.
**2.** Stand facing away from a door. Place your right foot flat against the door by bending your right knee.
**3.** Align your knees together by adjusting your body's position and distance from the door.
**4.** Shift your right knee down towards the floor. Your right knee will be below the level of your left. You should feel your left outer hip engage.
**5.** While standing on your left leg, push your right foot firmly into the door as you maintain steady control and balance of your trunk.
**6.** Turn your right knee outward. You should feel your right outside hip engage along with your left outside hip.
**7.** Balance in this position while you take 4-5 deep breaths in through your nose and out through your mouth.
**8.** Relax and repeat 4 more times.

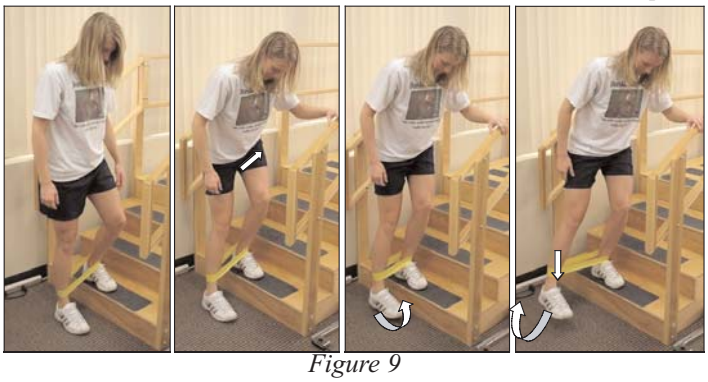


*Figure 9*

**Resisted Single Leg Lateral Dips**

**1.** Place your left foot on a 2-6 inch step.
**2.** Place a band around both of your ankles.
**3.** Place your left foot on the first step and position it slightly behind your right foot.
**4.** Shift your weight over to your left side.
**5.** Slowly raise your right foot off the ground keeping your right toes turned in. Keep your right heel closer to the ground than your right toes.
**6.** Bend your left knee as you shift your hips to the left. Slowly bring your right foot out to the side keeping your right heel close to the ground and your toes up.
**7.** You should feel your left outside hip, left inner thigh and right outside hip engage as you "dip" your right foot down and out to the side.
**8.** Hold this position while you take 4-5 deep breaths in through your nose and out through your mouth.
**9.** Relax and repeat this sequence 4 more times.

*Figure 10*

**Standing Supported Right Squat in Left Hip Extension and Knee Flexion**

**1.** Stand against a desk or counter and place your right foot on a 2-inch block.
**2.** Place your hands on the surface in front of you and round your back.
**3.** Maintaining contact with your right shoe arch, begin to straighten your right knee as you raise your left foot off the floor.
**4.** Keeping your left leg straight, hike your left hip up above the level of your right. Your left foot will be higher than your right.
**5.** Keeping your left hip hiked, bring your left thigh back and bend your left knee.
6. Maintaining the above position, squat down by bending your right knee. You should feel the muscles on the front of your right thigh engage.
**7.** Hold this position while you take 4-5 deep breaths in through your nose and out through your mouth.
**8.** Relax and repeat 4 more times.