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Postural Restoration Institute™ Presents the New Off-Season: Balanced Regeneration Series #1 Identifying Imbalances in Athletes Can They Achieve AF IR on the Left Hip?

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Lisa Bartels

Lisa was a member of the University of Nebraska volleyball team from 1995-1997. She was introduced to the science of Postural Restoration as a patient under the care of Ron Hruska. She had suffered from long-standing injuries sustained during her collegiate volleyball career and found success with the treatment techniques she learned at the Hruska Clinic and later received from the Postural Restoration Institute. Lisa returned to practice physical therapy at the Hruska Clinic Restorative Physical Therapy Services in Lincoln, Nebraska after completing her Doctorate of Physical Therapy from the University of Nebraska Medical Center in Omaha. Lisa is a member of the American Physical Therapy Association.

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Welcome to the new off - season: Balanced Regeneration - a series of articles dedicated to creating balanced athletes participating in a side dominate sport. A side dominate sport is defined as a sport in which skills are performed utilizing a "preferred" side of the body on a repeated basis. Each issue of this publication will present a new installment that develops a progressive step-by-step plan designed to create a balanced athlete which will reduce pain and the chance of injury created by postural imbalances.

The Problem-Anatomy of Imbalance

If the members of a baseball team were instructed to stand shoulder to shoulder in a straight line with their arms at their sides, it would appear that the pelvis and trunk of all players was neutral, facing straight ahead. Despite appearances, the pelvis may not be in a neutral resting position in several of those athletes. The Postural Restoration Institute™ assumes that all right side dominant athletes have at least some postural instability because of their asymmetric sport demands. Most competitive baseball players that are evaluated with Postural Restoration methodology initially present with significant left side vs. right side differences; differences in bony position, differences in muscle strength/function, and differences in the integrity of various joint sockets. The reason for these differences is due to right sided dominance and repetitive right extremity demands which can over time generate an unleveled pelvis. Specifically, the left side of the pelvis will commonly rotate forward relative to the right side, a left pelvic torsion. The left pelvis naturally should rotate forward when you load/stand on the right leg, but you don't want to get stuck in that position, which commonly occurs. This is significant because athletes must continue to compensate in one or more areas of the lower extremities, trunk, and upper extremities to remain balanced over the unleveled pelvis. Unfortunately significant pain patterns can emerge if left vs. right differences becomes significant and the athlete continues to train and compete in this faulty position.

You can take any baseball athlete through various objective testing such as the vertical jump test, pro-agility run, or 10/40 meter run to measure strength and performance, but none of these tests tell you anything about the resting position of the spine and pelvis, or the strength differences between the left and right sides of the body, or why the athlete has a reoccurring tendency towards knee pain or back pain. From a sports medicine and biomechanics perspective several tests and measures can be used to identify the specific pathomechanics athletes are using which helps prioritize neuromotor retraining on an individual basis. Understanding these tests/measures is probably beyond the scope of coaching responsibility. I do think it is feasible, however, for coaches, particularly strength coaches, to learn how to effectively test postural balance/triplanar functional strength on separate sides of the body. The specific triplanar skill PRI evaluates is AF IR. Acetabular (socket) Femoral (ball) Internal Rotation (AF IR) is a term the Postural Restoration Institute™ has coined as an individual's ability to shift into their hip. During reciprocal motion of the legs and trunk, whether an athlete is running or approaching for a baseball attack, both the femur and pelvis rotate over each other simultaneously. For simplicity sake shifting into a hip can be described as the socket of the pelvis rolling over the ball of the femur as the weight of the body is transferred to the supporting lower extremity (heel strike to midstance). Athletes who have acquired a left pelvic torsion often lose the ability to shift into the left hip (AF IR) because they can't effectively co-contract the left adductor with the left gluteus medius, during left stance phase of gait. The pelvic torsion changed the position/length of musculature on the left relative to the right. Specifically, the left inner thigh is no longer positioned to pull the left

femoral head into the hip capsule while the left gluteus medius is no longer positioned to lock the pelvis against the femur during stance phase. Strength testing using PRI methods aims to identify those athletes who are significantly impaired in this ability

AF IR ability can be tested several ways. Later in this series you will be introduced to exercises that force athletes to shift into left AF IR, so the training exercises will also function for your testing needs. The best way to learn AF IR testing is in a side lying position because anti-gravity muscles such as the quadriceps are taken out of the equation. From the figures provided, this activity may look easy. Try it. It is extremely difficult, particularly on the left side. To test left AF IR have the athlete lie on their left side with the right foot/ankle resting on a stool/crate/object that is roughly 15-18 inches high. The left knee is bent so the left foot is directly below the right knee. The right ankle, right knee, right hip, right shoulder, right ear should be in a straight line (Figure 1). The athlete's body can not log roll forward or backward, rather it must remain vertically aligned. Have your athlete attempt to lift the left knee up slowly (Figure 2). The left foot and left hip must remain in contact with the surface they are lying on. They cannot use the right leg for leverage by pushing the right foot down into the stool. If the athlete has AFIR ability, whether it is weak or strong, they will feel both the left inner thigh near the groin and left outer hip, and they may describe the left leg as feeling extremely heavy to lift. If you can see they are using the top leg, or the knee easily lifts as the body rolls backward (Figure 3), they are compensating. Reverse the test and perform on the right side, it may still be very difficult, but usually a significant strength difference is apparent for both the tester and the athlete. As you begin testing your athletes some will use the right leg, some will roll backward, some will feel the right lower back engage, some won't be able to lift the left knee at all. Keep your records simple. Can your athlete contract the proximal left inner thigh and the left outer hip together? Yes or no?

Restoring AF IR to the left side of the body has huge implications for the health of not only the hip joints, but the knees, back, and shoulder joints as well. Each issue of this publication will present a new installment that develops a progressive step-by-step plan designed to create a balanced athlete with symmetrical AF IR ability. The next article will instruct coaches to reduce left pelvic torsions and prepare the left hip for AF IR training by facilitating and emphasizing hamstring musculature on the left. We initiated this series with a discussion on testing because as you progress your athletes through the Balanced Regeneration program, you must learn to test and retest and retest your athletes. Why? So you know if their right side dominant tendencies are being controlled.

Please note that techniques provided in Figures 1 through 3 are only examples of the many non-manual Postural Restoration Institute™ techniques that could be considered appropriate for addressing the underlying biomechanical deficit described. For more information and references, please visit www.posturalrestoration.com. **O**

More Information Please!

Contact Lisa @ lbartels@lovemyback.com

Figure 1

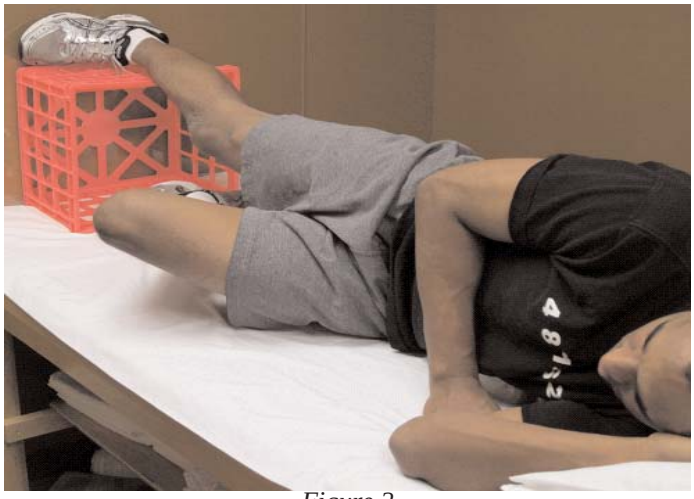

Figure 2

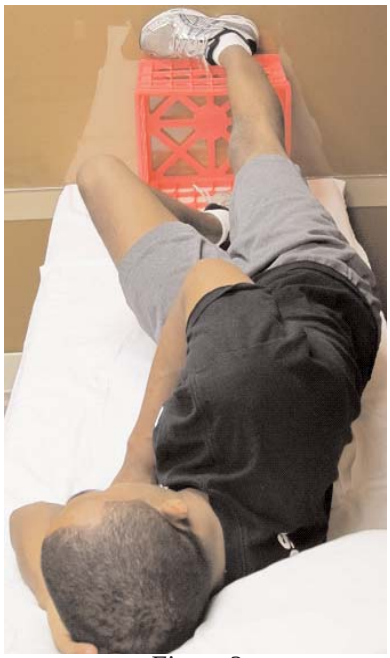

Figure 3