

The Use of PRI-Inspired Exercise in Collegiate Hockey

At UMass Lowell, we have been implementing PRI-Inspired exercises into our training program for the last 2 years. I say “PRI-Inspired” because I am not an accredited PRI Practitioner. Therefore, any use of their methodology or exercise prescription is “inspired” by the Postural Restoration Institute, and not explicitly in accordance with their standards.

That being said, as I have continued to learn about their philosophy, I have implemented more concepts and exercises from the “PRI toolbox”. To be clear, as a Performance Coach it is not my role to treat pain, which is the primary use of physical therapy based approaches to movement. However, the secondary use of physical therapy “modalities” for lack of a better term is to improve the ability to move, and in turn reduce the chance of injury or re-injury. This is how I see PRI type exercises and approaches having an impact in performance training, and how we use it with our hockey team.

If you are not overly familiar with PRI and their approach to movement, a short synopsis is this: the human body is not built symmetrically, and therefore there are predictable patterns of joint alignment and potential muscular compensations and/or dysfunctions that tend to occur. Many of the specific PRI interventions are aimed at creating “centration” so that optimal muscular length/tension relationships occur and we can move from as close to a “neutral” position as possible. This is of course a very generalized explanation of the PRI philosophy, and there are many more concepts you can explore within the Postural Restoration Institute if you so desire.

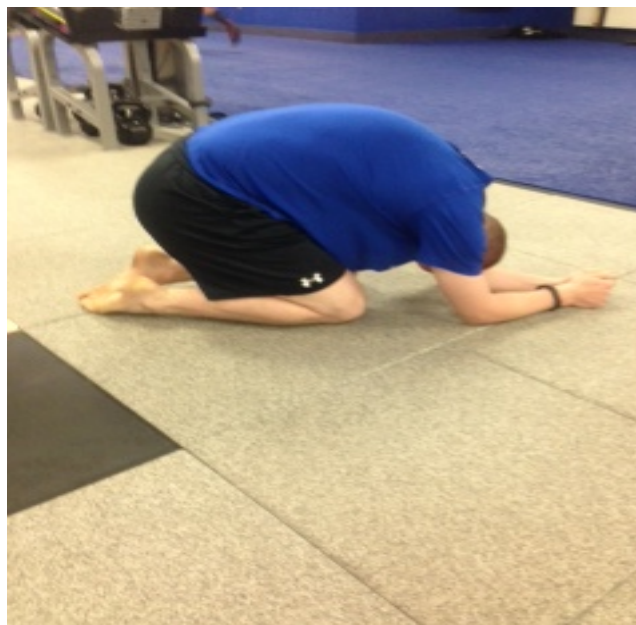
In our setting, we utilize PRI exercises to improve “posture” and movement efficiency. When I mention posture, it is important to understand and become familiar with some of the basic compensations that PRI highlights. These are different from any explanation of the root causes of movement dysfunction than I have seen from any other group. One of the primary postural dysfunctional patterns is something called “Left AIC”, which stands for Left Anterior Interior Chain. While the purpose of this article is not to get into what exactly the PRI nomenclature means, this particular pattern is ingrained in all humans to some degree due to a number of physiological asymmetries which are nearly universal. In the case of a “L AIC” pattern, a person will be weight-shifted towards the right, often times with the left foot positioned slightly in front of the right during idle standing. In addition, this position is associated with an extended, adducted, and internally rotated right hip and flexed, abducted, and externally rotated left hip. Admittedly, there are a lot more to these patterns than this simple description; I would point you in the direction of www.posturalrestoration.com and Kevin Neeld’s “Optimizing Movement” DVD for a more in depth explanation.

The important take away is that when our players walk in the door everyday, their hips are not starting from a neutral alignment. Our use of PRI exercises is in an

attempt to “centrate” their pelvis on and over their femoral heads, so that when we get into training or onto the ice, we are moving from as close to a “neutral” position as possible from both legs, providing an opportunity for more symmetrical and less compensatory movement through the pelvic complex.

In addition to the “L AIC” pattern, most of our players are in a “PEC” pattern, which is in effect a bilateral anterior pelvic tilt. This is something many of us have recognized with our athletes for a long time, but which has many more implications on movement and dysfunction when viewed through the PRI lens. This anterior pelvic tilt does not just affect hip/low back mechanics, but has a significant influence on the position and function of the diaphragm, which in turn has a significant impact on upper extremity positioning, not to mention the ability to breathe properly and efficiently.

We utilize one of two primary exercises prior to foam rolling and stretching each day, with the intention of addressing these typical asymmetrical patterns. “Rock Back Breathing” is an exercise that takes the athlete out of the “PEC” or anterior pelvic tilt. With this exercise, we are decreasing lumbar extensor tone, and utilizing diaphragmatic breathing patterns to help position the rib cage and pelvis in a more advantageous position. We perform 2 sets of 4 full breath cycles, where we breathe fully in through the nose for 3 seconds and then fully exhale for 6 seconds through pursed lips. On the inhalation, we cue “breathe into the low back”, or “pop the dents out of the hood from underneath”. The goal here is really to get a posterior tilt of the pelvis and flexion the spine. As we breathe out, we are cueing “ribs down”, “use your abs to breathe out”, and/or “breathe out until you cough”. We want complete exhalation, forcefully using our deep abdominals to drive this.



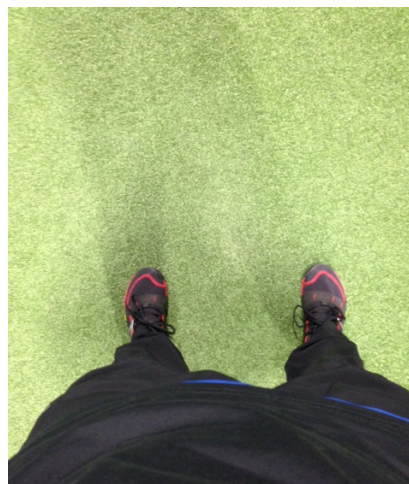
The other exercise we use is called the “90/90 Hip Shift”. There are a lot of moving parts with this one, but the purpose is to shift the athlete out of the “L AIC” pattern. You may be able to more easily picture what this exercise is supposed to be doing by standing in an exaggerated L AIC pattern. This means you are weight shifted to the right, sitting into your right hip, with your left foot slightly in front of the right and externally rotated.

Shifted Right in L AIC Pattern



This is the posture you will begin to see all around you as you watch people stand in place. The 90/90 Hip Shift exercise is essentially meant to take you from this right shifted position, and pull you towards the left and into the left hip. Think about standing in that right shifted pattern, and then sliding your hips over to your left, while at the same time internally rotating your left foot, so that both feet are pointing straight ahead and your hips are square.

Shifted Left Out of L AIC Pattern



In the exercise, we set up with our heels up on a bench, with our hips and knees flexed to 90 degrees. We place a small foam roller between the knees to cue some adduction and to help with the upcoming hip shift. We then posteriorly tilt our pelvis using our hamstrings (think about getting your sacrum ½" off the floor and feeling your hamstrings flex). This is our initial progression, and if we can get here, we will begin to incorporate the breathing aspect. Similar to the Rock Back Breathing exercise, we will try to fully inhale through the nose, and then I cue them to "use their abs" to exhale.

When we have all of that down, we incorporate the hip shift. This is the part of the exercise that "shifts us left" so to speak. While in that 90/90 position with the sacrum just off the floor, we want to drive the left femur down, while the right femur moves up. The foam roller between the knees should rotate slightly counter-clockwise if this occurs. What we are going for here is "activation" of the left adductors. I will cue them to "feel their left heel" and "pull the left knee down and the right knee up". Again, once we can get into this position correctly, we will add in the balloon breathing. The last piece of this exercise is to reach the right arm overhead on the floor. This acts to open the upper right chest wall and facilitate proper rib cage positioning as well.

90/90 HIP SHIFT



Notice the left knee is lower than the right. "Pulling" the left femur down into the hip "activates" the left adductors, helping to shift the pelvis towards the left when in standing

We add a layer of complexity to the 90/90 Hip Shift by using balloons to increase the resistance of our exhalation. Whether or not you use balloons, it is important to understand that the breathing component of both of these exercises is crucial to repositioning and centration. Prior to using balloons, we used straws to force exhalation through pursed lips, effectively increasing the resistance and the force needed by the expiratory muscles. I tell our players that the straws are like push ups, and balloons are like bench press. There is just much more resistance with the balloons. Anecdotally, our players actually like the balloons better, as they seem to be able to “feel” what they are supposed to be doing. I also think it is much harder to cheat with the balloon...you simply can’t blow it up without using proper breathing patterns.

We will also use these exercises post-training to help restore posture. In addition, the focused diaphragmatic breathing assists in shifting the ANS into a more parasympathetic tone, which aids in the recovery process. One benefit from all of the breathing work we do (outside of the PRI-inspired purpose) is to make our players more aware of how they breathe and how they can improve their recovery, be it in-game on the bench, post game or training to calm their nervous system, or even help them get into a more relaxed state prior to bed.

I view the use of PRI-inspired methodologies in performance training as one more piece of the puzzle to improving movement. Just as mini-band exercises were seen as pointless by some a few years ago and are now accepted as basic warm up exercises, I think PRI type exercises and breathing work will eventually be seen in the same light. They are not the “be all-end all”, nor are they pointless. Like just about everything else, I think there is a time and a place for this type of work, especially when the goal is to improve movement and decrease the chance of injury.

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