

Improving Weight Transfer

Failure to transfer weight efficiently from the left to the right foot is a common cause or contributing factor in the development of many of the most common lower extremity injuries.

Ever experienced the pain of a bunion(big toe pushed into the 2nd with a resultant bump), plantar fasciitis, shin splints, patellofemoral pain (kneecap pain), “arthritic” knee pain, pain from the hip or low back pain right on that pointy spot above the buttock?

Failure to transfer the weight onto the limb can be a contributing factor in all of these pathologies. Just like a piece of machinery (for all you physics aficionados), if energy and force is lost in pieces it is going somewhere and eventually the force being absorbed into the system will cause failure of a part.

The reasons for the lack of efficiency are many and include previous Low Back injury and worse with nerve root involvement, loose pelvic joints(SI Joint), weakness of the gluteal muscles, previous traumas to the lower extremity joints such as knee and ankle sprains and the blessed genes your parents donated.

On exam the most common patterns that we observe are a big toe deformities, knock knee posture, flat feet, a wider than normal foot stance, an increased side to side shift with walking, a drop of the unsupported hip when stepping, a wobbly ankle when balancing or complete inability to maintain one leg balance. On higher performance tests like the squat the pelvis will deviate toward one side and the weaker leg will “collapse” inward toward “knock knee posture”. The more unpredictable the surface or the worse the lighting, the worse the failure. Assessment of these factors can be quite complicated.

The Good News: Over the years of our experience we have realized that certain exercises can improve the compensation to help prevent the injuries in almost any patient. I have divided them into three categories. The progressions are limited only by your own creativity as long as you adhere to the basic principal of the original.

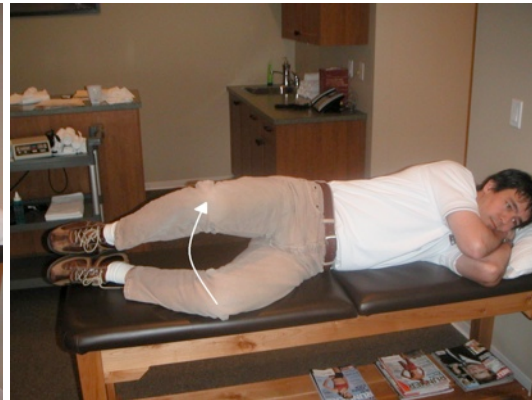
Core control:

Since the limb attaches to the pelvis, the pelvis better be a solid fountain for attachment. In this exercise the pelvic floor is key. Not a maximal contraction but about 25% without inhibiting breathing. Lying on your back with knees bent. Contract the pelvic floor muscles 25% as if to stop urinating. Complete about 30 repetitions of about 3 seconds each.



Gluteal (medius) and external hip rotator strength:

The Clamshell- side lying knees and feet together with a slight bend of the knees. Tighten the pelvic floor and using the hip muscles separate the knees 6-8” and slowly return to start position. The feet remain relaxed and together throughout. Complete 50-100 or more repetitions (remember you take a lot of steps in a row with walking so train specifically).



Balance:

Initially we need to just practice standing on 1 leg unsupported. Then on 1 leg on a pillow or cushion. Add in looking over the shoulder as you improve(alternate for 10). Also try to control your balance as you raise the opposite knee up then stick the foot behind (alternate for 10). When these become easy you need to find ways to further destabilize your surface or increase the complexity of your body movements while still maintaining your balance. Be patient as balance training is a very long-term process and change is slow.



The hip hike:

This takes good skill with the previous exercises so it may be left for the first couple of weeks. Standing on a step with one foot and the other is off the side. Tighten pelvic floor balance on the foot on the step. Lower the unsupported side of the pelvis and then raise it back up using the gluteal muscles from the leg you are standing on. Repeat 30 or more repetitions.



To better deal with the complex issues or injuries that you already have see your Physiotherapist for an assessment of the whole chain. They may then design a custom program that should offer better results.

Remember Prevention is Better.

Brian Woltz BScPT, FCAMT, CGIMS