



Honsberger Health

A quarterly newsletter Dec 2009



Cindy Salopek BSc BScPT Cindy is the co-director of the Honsberger Physiotherapy Aurora Clinic. She holds a professional degree in Physical Therapy from the University of Western and a Bachelor of Science from the University of Guelph. She has over 11 years of work and post-graduate experience in an orthopaedic multidisciplinary setting under a biomechanical model. Cindy enjoys the challenge of the urban athlete and the complexity of the human body. As much as she explores different causative factors and treatment regimes in rehabilitation, she finds prevention is all about getting back to the basics!

A Rationale for the Loss of Vertical Jump

In sport it is all about performance! A critical component of sport performance is maximizing energy output. Take for example, the vertical energy needed to improve a layup in basketball or make the spike in volleyball. Common answers for improving performance include repeated practice and sport specific training & conditioning. However clinical examinations suggest another answer - poor biomechanics!

In order to understand the biomechanical flaws associated with poor vertical jump we must first examine the components of vertical jump.

Maximal vertical jump requires that you have:

1. A solid foundation to propel from.
2. Maximal muscle load and contraction (concentric and eccentric) of the calf, quadriceps and gluteal/posterior chain muscles.
3. The balance and flexibility to maintain the body in a vertical plane to maximize vertical drive.

The points of breakdown include:

A poor foundation to propel from. Clinically 95% of altered foot mechanics involve excessive pronation (inward collapse of the foot). Pronation is a normal component of foot mechanics as it allows us to unlock the foot and absorb shock. If too much pronation occurs there is internal rotation of the leg which reduces maximal muscle contractions for vertical gain. The foot remains unlocked at toe off providing a poor foundation to propel from.

Poor alignment. A pelvic imbalance or a longer leg can cause excessive pronation of the foot on the same side with similar consequences as above.

The Holiday Bowling Party was a great time to get together with the entire Honsberger staff and their families!

Happy Holidays to all our patients and a safe and balanced New Year!



HERE WE GROW AGAIN!

Honsberger Physiotherapy would like to welcome Jeff Overholt to the team as our new Kinesiologist in the Markham clinic.

Jeff is currently an assistant coach with one of the leading providers of golf instruction in Canada. He is also a level 2 golf fitness instructor.

We are also pleased to introduce Amanda Wong and Alma Moric who have joined our administrative teams in Aurora and Markham!

Muscle weakness. The body will try to compensate for a muscle weakness. When an action is repeated, the compensation intensifies, leading to joint and soft tissue change, and strain, ultimately resulting in poor alignment.

Stiff spine. A lack of flexibility in the mid back makes it difficult to maintain an upright torso. The upper torso tilts forward in the squat phase and muscle energy is needed to return the torso to the erect position in the jump phase. There is an expenditure of energy in this movement and therefore, less energy for vertical drive.

The best way to discover these flaws is through a biomechanical examination. At Honsberger Physiotherapy we have devised a series of effective and inexpensive functional, sport-specific screening tests, to quickly identify areas of dysfunction and biomechanical breakdown. These screening tests, otherwise known as the **Honsberger Health Index**, visually demonstrates areas of break down. If dysfunction is recognized, a full biomechanical assessment follows. Only when the biomechanical flaw is identified, and cleared can optimal performance be obtained. So remember... a loss of vertical jump and a lack of reasonable performance are strong indicators for biomechanical testing.

Honsberger Physiotherapy and Biomechanics Clinic

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Gordon McFarlane RMT Gordon is a Registered Massage Therapist from the Canadian College of Massage and Hydrotherapy, and a Kinesiology graduate of Laurentian University. He holds a variety of coaching certificates including a CSCF level 2, CSIA level 2, NCCP level 3 in skiing and mountain biking. Gordon is very active in alpine skiing, adventure racing, and is a senior elite mountain bike racer.

The Posterior Chain

Our posterior chain is without doubt the single most important group of muscles in our body. They are particularly important for those engaged in sports, which involve full body movements requiring any kind of strength or power.

The posterior chain can be simplified as the hamstrings, glutes (the buttocks) and back muscles. Most compound movements involving the legs, such as squats, will strengthen the glutes, but unfortunately people usually focus on what training effect it is having on the legs.

Dysfunction, or dominance, of one group of muscles will affect the function of the others. For example spending too much time sitting down leads to tight hip flexors and hamstrings. The glutes then "switch off" causing the lower back and hamstring to overactivate which can lead to back pain.

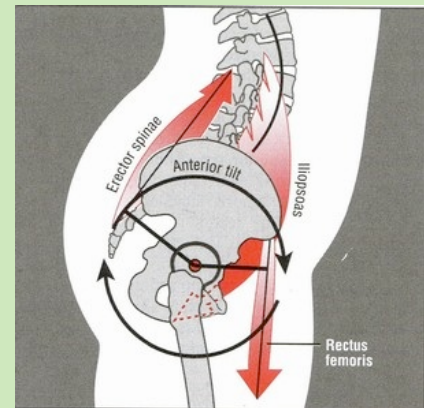
The Importance of the Glutes to Sports Performance

Power comes from the ability to perform 'triple extension' with well directed force. In other words you are able to coordinate extension (straightening of the joint) at your ankles, knees, and hips simultaneously. This can be seen best when watching Olympic lifting. Your glutes are the largest muscle in your body, so if they aren't firing on all cylinders, you're not reaching your 'power potential' and won't be jumping as high or running as fast as you could be!

In running, if you are restricted to 80-90% extension of the hips, the inability to maximize stride length will result in a greater number of strides required over a given distance. Early fatigue will result, which will clearly affect performance.

Injury prevention is also a key consideration. Many athletes suffer from low back pain. This is often due to the Lower Crossed Syndrome, which is caused by tight hip flexors pulling on the front of the spine where they attach, tight back muscles, and weak hamstrings and glutes causing the pelvis to tilt forward.

One of the most clinically relevant patterns of muscle dysfunction is a lower crossed syndrome. Simply stated, the lower crossed syndrome is a grouping of weak muscles combined with overactive or tight muscles, that create a predictable movement pattern in the lower back that can lead to injury.



Honsberger Physiotherapy would like to welcome our gr. 11 Co-operative Learning Students. Zach Andrews from Dr. G.W. Williams and Shirley Lui from Unionville H.S. spend each day shadowing therapists and learning about biomechanical therapy. This is the fourth year for this program and we are pleased to have such excellent students!

These imbalances often manifest themselves as either nagging back aches in training and competition or pulled hamstrings.

The Solutions

Any athlete not paying close attention to glute function is risking reduced performance at best, and injury at worst. However, there is little point rushing into some of the exercises commonly used to increase glute strength such as deadlifts and lunges. These will only serve to strengthen the dominant muscles, increasing the dysfunctional compensatory patterns. The first stage is to get your glutes firing with flexibility exercises to 'open' the hips, allowing room for the extension to occur.

Once your glutes are firing with activation and isolation exercises such as hip lifts, you can move on to compound exercises which will deliver noticeable strength gains and biomechanical pattern improvement.

Conclusion

No matter what sport you are involved in, or if you just want to achieve a high level of athletic strength and conditioning, you must pay attention to the function of your posterior chain!

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