Damien Howell
Physical Therapy

Buttock/Hip pain – Piriformis syndrome
Should Piriformis Syndrome be treated with stretching exercises?

A frequent diagnosis for pain in the buttock is piriformis syndrome. The piriformis muscle is a muscle which originates on the front of the tail bone deep in the pelvic floor and attaches to the posterior lateral aspect of the thigh bone.

There is lack of agreement of exactly what a piriformis syndrome is (Stewart JD 2003). It is can be damage to the sciatic nerve from tumors or growths in the vicinity of the piriformis muscle; damage to sciatic nerve from abnormal nerve muscle structure; damage to sciatic nerve from trauma and scarring (contusion to buttock); and/or chronic buttock pain with NO evidence of nerve damage. The term syndrome is often used when the reason that the features which occur together (patho-physiology) has not yet been discovered.

The diagnosis of piriformis syndrome is often made by excluding other pathologies, and diagnostic imaging is of little benefit. A wide range of treatments have been proffered for management of piriformis syndrome including: rest, stretching, strengthening, shoe inserts/orthotics, injections (steroid, prolotherapy, sclerosis agents), surgery, gait training.

Stretching exercises have been proposed as a mainstay of intervention (Papadopoulos EC 2004). There is some debate regarding what might be the most effective way to stretch the piriformis muscle. There is debate among anatomist what actions occur with contraction or activation of the piriformis muscle. All agree the muscle moves the thigh bone away from the body (abducts the thigh) and extends the hip. Controversy exists regarding whether the piriformis muscle externally rotates the thigh or internally rotates the thigh. Historically it was believed that the piriformis muscle externally rotates the thigh. More recent investigation suggests that the piriformis muscle switches from externally rotating the thigh to internally rotating the leg if the hip is flexed beyond 60 degrees.

Many experts have observed that pain associated with piriformis syndrome is often aggravated by sitting, and very few experience symptoms when standing or walking/running. There is an interesting study which actually measured the length of the piriformis muscle (in vivo and in-vitro) standing, sitting, and sitting with legs crossed (Snijder DJ 2005). Cross-legged sitting resulted in a relative elongation of the piriformis muscle by 11%, compared to normal sitting and by 21% compared to the length of the piriformis when standing. It should be noted that the leg that was crossed over top of the other was resulted in the greatest elongation. The leg crossed over the top is in a position of relative hip flexion, hip adduction, and hip external rotation.

Some investigators have observed that individuals classified as having piriformis syndrome that pain is relieved by walking with the foot on the involved side pointing outward (thigh externally rotated). It is hypothesized that this position externally rotates the hip lessening the stretch on the piriformis muscle when the hip is in relative extension relieving the pain.

A study by M Reiss (1994) found that 62% of the population preferred to sit with the right leg crossed over the other, 26% preferred to cross left over right, and 12% reported they had no preference. Forty five percent of woman sit with legs crossed most of the time or nearly all of the time and 72% said they did it out of habit (Venastat 1999).

These observations raise question about the logic of the common treatment recommendation for piriformis syndrome of stretching exercises. Perhaps, pain in the area of the piriformis occurs because the muscle is stretched too much from sitting with legs crossed. Perhaps a better treatment would be to avoid stretching the piriformis muscle, and to avoid sitting with legs crossed.