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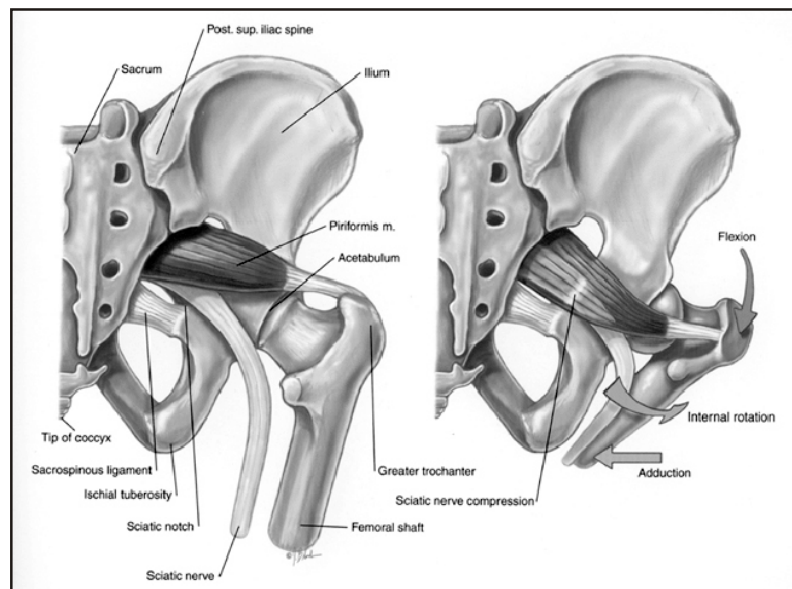
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## S.O.T. & PIRIFORMIS MUSCLE SYNDROME

In SOT we often speak about iliofemoral technique (IFT) and step out toe out (SOTO) techniques as part of treatment protocols for categories one, two and three. However the concept of how they might globally relate to the body is seldom addressed both causally and with regard to their long term effects.

While to some IFT and SOTO are two completely separate techniques for completely different purposes, what I propose is a different way of perceiving these SOT diagnostic and treatment techniques.

Piriformis muscle syndrome is a relatively rare condition that relates to increased tension at the lateral one-third of the piriformis muscle insertion. It presumes that there can be myofascial influences of a dysfunctional piriformis muscle affecting the sciatic nerve, particularly in the sciatic foramina. DeJarnette presented a modification of this theory by suggesting that the piriformis muscle might become "boggy and swollen" and therefore create an entrapment neuropathy at the sciatic foramina. [Figure 1] This creates two hypothetical causes of piriformis muscle syndrome: one due to increased piriformis muscle tension and the other related to decreased piriformis muscle tension.



**Figure 1.** Common piriformis muscle and sciatic nerve positions and rationale for SOTO procedures relief of sciatic nerve entrapment by the piriformis muscle.

One possible side effect of anterior sacroiliac (SI) joint dysfunction could be altered tension of the piriformis muscle at its attachment to the anterior aspect of the sacrum. Joint instability or fixation tends to lead to altered muscle function and it would be reasonable to assume that the piriformis muscle would be no exception.

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## S.O.T. AND PIRIFORMIS MUSCLE SYNDROME (cont...)

Increased piriformis muscle tension could be associated with decreased greater trochanter internal rotation. The longer the decreased internal rotation present, it would be expected that there would be greater restriction of the joint capsule and related myofascial structures affecting the greater trochanter. The IFT could diagnose and help treat this condition. Sometimes the prone hip release technique which is part of DeJarnette extremity technique could also be used to help release chronic fixations. Sometimes patients with this chronic presentation will find that there is a global pelvic rotation where one side has restricted internal rotation and the other side will have restricted external rotation. In these chronic cases there are various types of exercises that can be used to reduce this pelvic rotational pattern. One type of stretching posture could be placing the restricted internal rotation leg turned outward with the restricted external rotation leg internally rotated with heel towards the groin. [Figure 2]

Alternatively decreased piriformis muscle tension can be diagnosed by palpation of bogginess in the sciatic notch and particularly weakness of the piriformis muscle upon testing. This condition can lead to sciatic nerve radicular syndrome and while is associated in SOT with category three can be a part of the category three/two transition due to anterior SI joint instability. Usually the SOTO procedure will help reset the spindle cell's firing and allows the muscle return to its "normal" length. Generally 2-3 attempts will allow the muscle's strength to normalize and as it normalizes the rhythm of the sacrum will be felt in the leg and foot being held. DeJarnette's standing step out toe out (SOTO) can be a valuable treatment for patients that have this condition if it is chronic. [Figure 3]

Ultimately seeing the piriformis muscle as an integral part of SI joint dynamics and the increased/decreased muscle tensions reacting to this dysfunctional joint might help the doctor understand the rationale for SOT treatment of various types of piriformis muscle syndromes. Like many conditions that present clinically, they are present sub-clinically, and if treated before becoming symptomatic could assist general body dynamics and neuromusculoskeletal health.

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**Figure 2.** Exercise to "unwind" global pelvic rotation secondary to left chronic reduced hip internal rotation (IF).



**Figure 3.** With chronic weakness of piriformis muscle (in above case right side) the affected side is externally rotated as heels stay in align and pelvis maintains neutral position over non-rotated leg.