



Lumbo-Pelvic Pain and the SIJ

Simeon NielAsher © 2020

simeon@triggerpoints3d.com

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WHAT WE WILL BE EXPLORING

Sixth in our series of workshops

- The Sacro-iliac Joint
 - Anatomy
 - Kinematics
 - Hints and Tips
- Trigger points 101
- Sciatica
- Piriformis Syndrome
- Conclusions
- Next workshops



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The S/IJ – there is some controversy

- SIJ pain is common cause of axial low back pain affecting between (10%-25%) of people. (Bernard & Kirkaldy, 1987; Fortin, et al., 1994, Cohen, 2007).
- SIJ dysfunction is the fourth most common cause of LBP and pelvic pain (Paris & Viti, 2007).
- 6-13% source of LBP, pelvis or referred lower extremity pain (Schwarzer, et al., 1995a, Bogduk, 1995).
- SIJ surface area is greater in males than females (Ebraheim & Biyani, 2003) increased biomechanical loading in males (Vleeming et al., 2012).
- Bone on bone articulation



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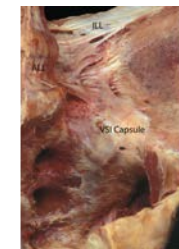
Sacrospinous & Sacrotuberous Ligaments

Sacrospinous: Sacrum to spine of the ischium

Sacrotuberous: Runs from lower sacral tubercles to ischial tuberosity

1. Gluteus maximus attachment
2. Tendon of the biceps femoris attachment

Both Ligaments: are stabilize to prevent posterior – superior rotation of the sacral apex around a transverse axis.



Sacroiliac ligament: actually three parts

1. Anterior or ventral sacroiliac from 3rd sacral segment to lateral preauricular sulcus
2. Interosseous sacroiliac massive bond between the upper parts of the joint
3. Dorsal sacroiliac - Partly covers the interosseous, from lateral sacral crest to PSIS and internal iliac crest.



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S/IJ Muscles

Posterior Muscular Attachments

Attach to Sacrum

- Erector Spinae
- Iliocostalis
- Longissimus
- Multifidus

Attach to Innominates

- Obliques (internal, external, transverse)
- Quadratus Lumborum

Attach to Sacrum

- Piriformis



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S/IJ Muscle Actions

Long head of Biceps

- Backward tilt and rotate sacrum to same side

Longissimus and Multifidus

Pull sacral base superiorly and posteriorly thru dorsal ligaments

Contralateral Latissimus Dorsi and Gluteus maximus through LDF

- Nutation of sacrum and extension of LS junction

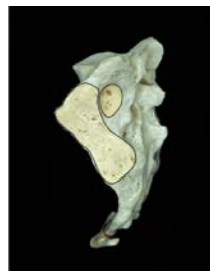
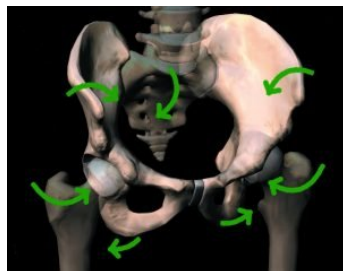
Piriformis

- Anterior tilt and rotate sacrum to opposite side
- Assisted by Ipsilateral Gluteus Maximus



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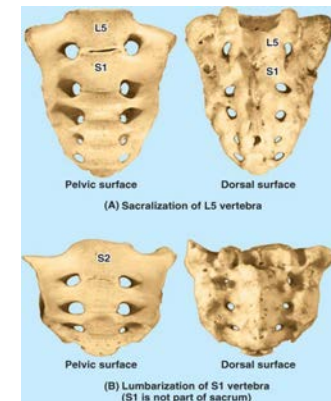
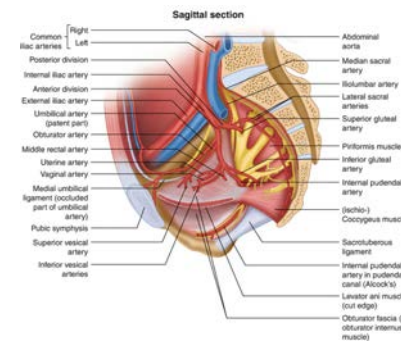
S/IJ Planes of motion and Variations



R/IM	SACRUM	R/IM	SACRUM
t right	t right	t right	t right
r left	r left	r left	r left
t left	t left	t left	t left
r right	r right	r right	r right
t right	t right	t right	t right
r left	r left	r left	r left
t left	t left	t left	t left
r right	r right	r right	r right
t right	t right	t right	t right
r left	r left	r left	r left
t left	t left	t left	t left

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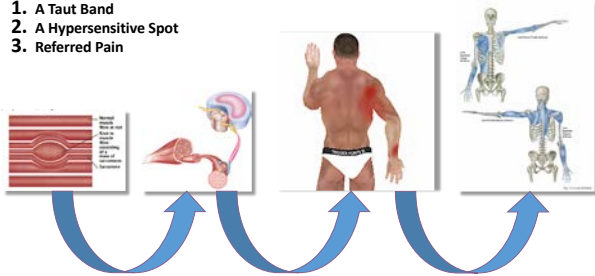
Sacral Variations – S.B.O.



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TRIGGER POINTS 101

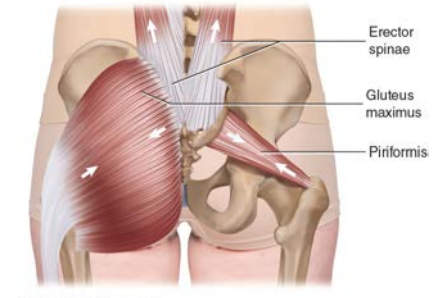
1. A Taut Band
2. A Hypersensitive Spot
3. Referred Pain



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Attachment Trigger Points

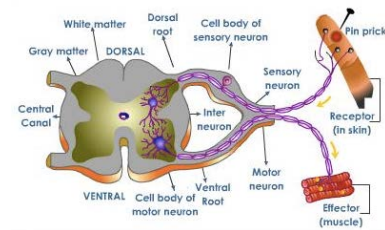
- Myofascia is a continuum.
- It has been noted that the area where the tendon inserts into the bone (tendo-osseous junction) is often "exquisitely" tender (Simons et al. 1998; Davies 2004).
- This may well be the result of the existing forces travelling across these regions. It has also been suggested by the same authors that this may result from an associated chronic, active myofascial trigger point. This is because the tenderness has been demonstrated to reduce once the primary central trigger point has been treated; in such cases, the point is described as an *attachment* trigger point.
- Furthermore, it has been suggested that if a chronic situation occurs where the primary and attachment trigger points remain untreated, "degenerative changes" within the joint may be precipitated and accelerated (Simons et al. 1998).



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Trigger Points, Lumbo-Pelvic Pain

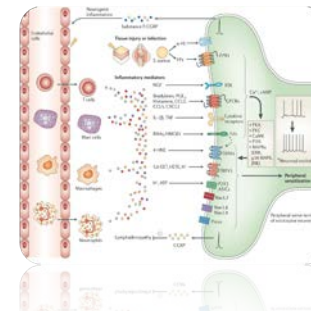
- Trigger points may play a hugely important role in activating, perpetuating and also relieving Lumbo-Pelvic Pain
- Peripheral and central sensitization
- Nociceptive drive
- Dorsal Horn Wind-up



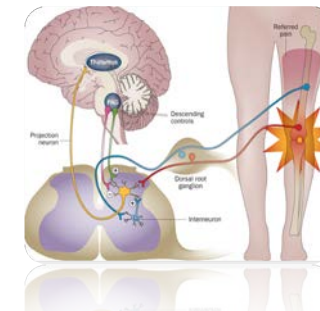
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Sensitization – Increasing the burden of nociceptive input

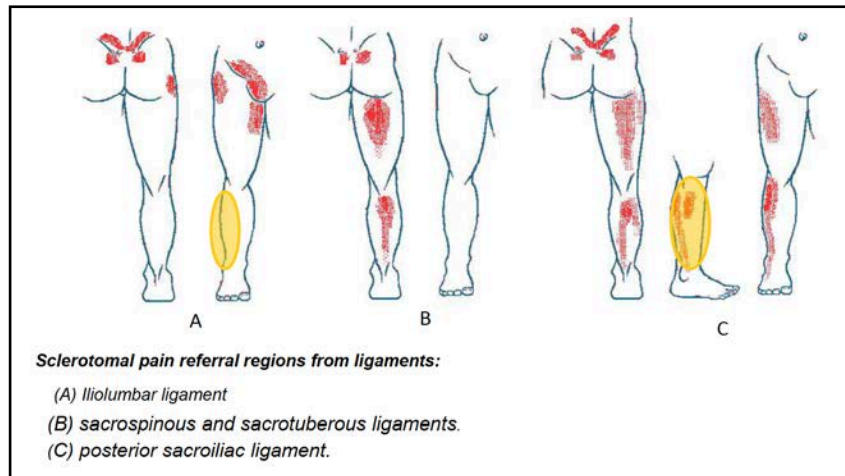
Peripheral – 2 to 5 segments



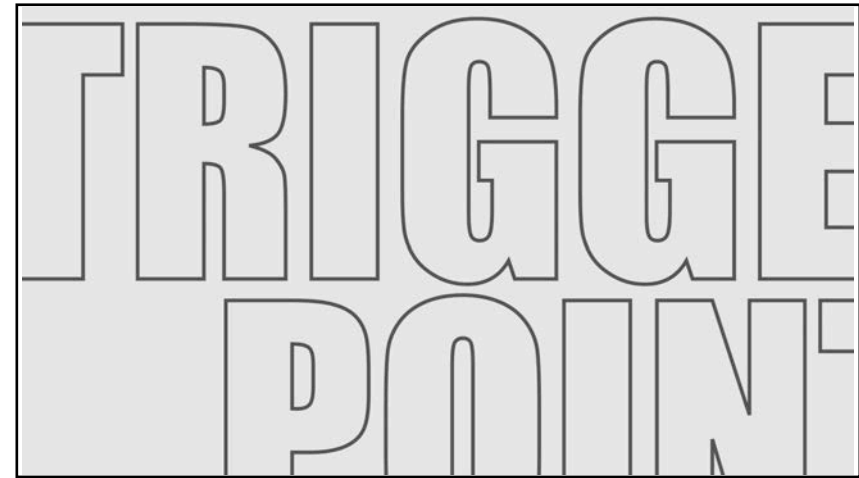
Central - Windup



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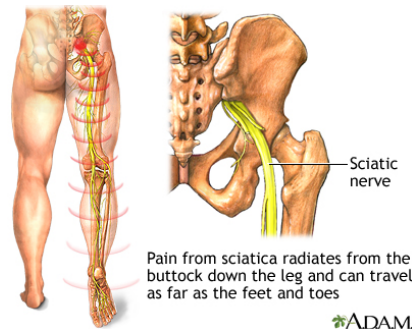
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Sciatica

Sciatica is a symptom of an underlying medical condition, not a diagnosis. It is characterized by pain that radiates along the path of the sciatic nerve.

The sciatic nerve is the largest nerve in the body, beginning in the lower back (L3/4/5 S1/2/3), and running through the hips, buttocks (sometimes piercing the flesh of the piriformis (19%) and down to the leg. In most cases, sciatica is unilateral.

Common causes of sciatic pain are discopathic, from a Spondylolisthesis, Spinal stenosis and pregnancy. It may also be related to trigger points in the **Hamstring, Obturator Internus** and/or **Piriformis** muscles.



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Sciatica - Aetiology

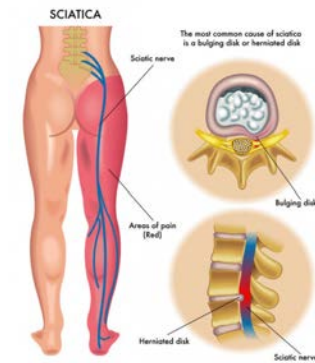
The probability of experiencing pain from sciatica peaks in the 50s and then declines. It is rare for people under the age of 20 to suffer from this condition.

Those who suffer from degenerative arthritis of the lumbar spine, lumbar disc diseases, slipped disc, or a trauma or injury to the lumbar spine are at a higher risk of suffering from sciatica.

Obesity or being overweight can increase the risk of sciatica, as the weight will increase stress on the spine.

Occupation that requires spinal rotation, carrying heavy objects or prolonged driving may also contribute to sciatica.

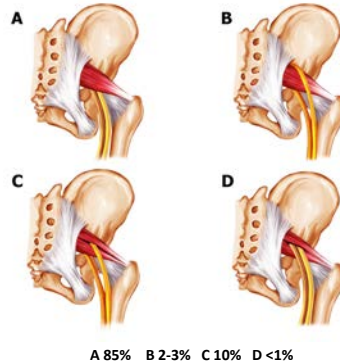
Diabetes also increases the risk of nerve damage.



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Piriformis Syndrome

- Pseudosciatica
- Several variations of the sciatic nerve
- Trigger points make the piriformis muscle shorter fatter
- May lead to compression of the sciatic nerve - neuropathy
- Associated with S/IJ
 - Crossed leg postures
 - Cycling/motorbike
 - Sitting on buckle in airplane
 - Sitting on wallet/keys



A 85% B 2-3% C 10% D <1%

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Symptoms

The pain associated with sciatica can vary in degree. Some people experience infrequent pain while others are incapacitated by the pain.

- Constant pain in one side of the leg or buttock
- Pain worsens with prolonged sitting
- Burning, tingling, or searing pain in the leg
- Weakness, numbness, or difficulty moving the leg or foot
- A sharp pain which might affect ability to walk or to stand up
- Symptoms that worsen with (valsalver) cough, sneeze



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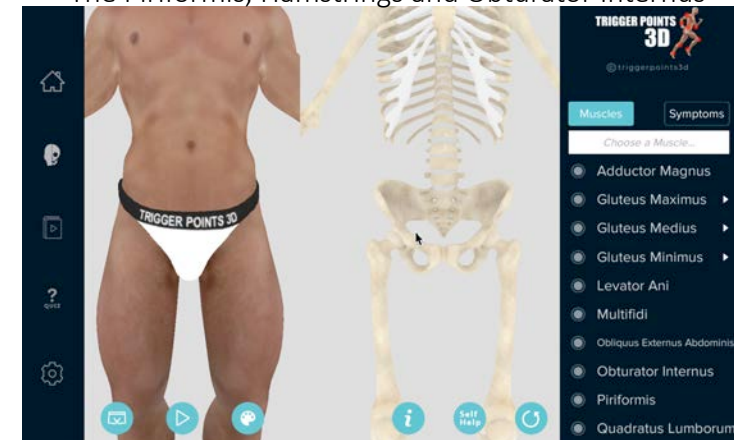
Red Flags

- Pain that develops gradually, and slowly gets worse and worse over days or weeks
- Constant back pain that is not eased by lying down or resting
- Pain that travels to the chest, or is higher in the back behind the chest
- Weakness of any muscles in a leg or foot
- Lack of feeling (numbness) in any part of the buttock or leg
- Taking steroid tablets for more than three months
- Numbness around the anus - saddle anesthesia
- Bladder symptoms such as loss of bladder sensation, loss of bladder control, incontinence, loss of sensation when passing urine
- Incontinence (faeces, stools, or motions)



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The Piriformis, Hamstrings and Obturator Internus



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Dr Bob Gerwin on the Hamstring



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Dr Bob Gerwin on the Piriformis



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Dr Bob Gerwin on the Obturator Internus



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