Broadcast Summary

Sacroiliac Joint Dysfunction and Piriformis Syndrome

With Paula Clayton

About Paula Clayton

- Elite performance therapist and performance coach
- International and National conference speaker - Soft tissue master class
- MSc Physiotherapy
- Extensive experience in GB sport - wrestling, boxing, hockey, rugby, women's football, equestrianism, squash, badminton, and swimming
- Member of the physical therapy team for the 2012 Olympic Games
- Specialises in soft tissue release/active release; neuromuscular re-education; trigger point therapy; dry needling; IASTM[1] (similar to Graston);
- Author of 'Sacroiliac Joint Dysfunction and Piriformis Syndrome: A complete guide for physical therapists'

Context of writing the guidebook for physical therapists

• To provide an easy to use evidence-based material on fundamental principles that will enable practitioners to map approaches to dysfunction and injury in SIJ before attempting hands-on treatments.

• To provide clarity on questions repeatedly asked about SIJ dysfunction and piriformis syndrome (put puzzle pieces together) as these conditions affect structures that are closely associated to each other.

The SI joints

• Primary function is to transfer the weight of the upper body to the lower extremities. It is the discharge of this function that makes these joints vulnerable and injury-prone.

[1] *Implement assisted soft tissue massage*

• The soft tissues in the area should provide structural stability through the pelvis. If this is not carried out, pain can present remotely: knees, shoulders, back, or neck.

Assessing SI joints dysfunction

• SIJ dysfunction can happen to anybody but people with increased or too much load (i.e. athletes, pregnant women) and people with dehydrated tissues are more susceptible.

- Hydration level is best determined through the colour of the urine. Hydration plays a vital role in tissue creep response. The quantity of water required to keep the body hydrated varies individually.

- The nodules around the SIJ are not as significant. They can only be problematic when they irritate the cluneal nerve or cause inflammation in the area.

Cluster tests

• Cluster tests are used to correctly diagnose whether the pain originates from the sacroiliac joint.

• A systematic review of the SIJ provocation tests showed that when patients are positive in 3 out of 4 tests, the probability is high that they have SIJ dysfunction. The tests should be administered in the following order:

- Thigh thrust
- Distraction
- Sacral thrust
- Compression

The first 2 tests are imperative. It is recommended for clinicians to complete a cluster of 3 tests and if patients are positive on all of them, a fourth test is not necessary.

Manipulation is not a necessary part of the assessment – gentle thrusts and gentle loading will suffice.

• The thigh *thrust test has the highest sensitivity value*; while the *distraction test has the highest specificity value*. If patients are positive on these tests, further provocation tests are no longer necessary to ascertain that sacroiliac joint pain is present.

Outcome measure; form/force closure

• Qualitative questions are useful in measuring patients' symptoms, overall mental state, and how the pain affects their overall function – i.e. whether or not it is painful after walking for 30 minutes (dynamic load); or after standing for 30 minutes (static load). This manner of qualitative questioning is useful for outcome measures.

• Treating SIJ dysfunction would entail addressing the quality and the quantity of movement of the soft tissues around the joint, including the lower back and the hip. Also, there is a need to get full functional movement of all the structures that should be providing force closure to the joint.

- ***Force closure:*** the forces acting across the joint to create stability, generated by structures with a fibre direction perpendicular to the sacroiliac joint and adjustable according to the loading situation. These structures include muscles, ligaments and thoracolumbar fascia.

- ***Form closure*****:** the stability of the joint created by the shape of the surfaces and surrounding pelvic anatomy. The position of the bones in the SIJ creates a keystone-like shape, with the sacrum wedged between the ilia, adding stability in the pelvic ring.

Muscle slings that contribute to force closure of the SIJ

Name of sling	Components
1. Longitudinal	• Multifidus attaching to the sacrum • Deep layer of thoracolumbar fascia • Long head of biceps femoris attaching to the sacrotuberous ligament
2. Anterior oblique	• External oblique • Internal oblique • Transverse abdominus
3. Posterior oblique	• Latissimus dorsi and contralateral • Gluteus maximus • Biceps femoris

SIJ pain

• Few patients present with true SIJ pain. About 90% of those with pain in the SI region come from spinal referral.

• SIJ pain is difficult to fix because it is of inflammatory origin. Patients with painful SIJ respond to surgery or prolotherapy.

On plolotherapy

- An injection procedure using sclerosing agent to treat small tears and weakened tissue with the end goal of relieving back pain and improving function. It is also referred to as sclerosant therapy.

On nerve block injections

- There has been controversy that arose concerning the injection process in that it is unreliable for diagnosing sacroiliac joint pain.

- Injections should be carefully administered (ultrasound guided) to avoid leakage of anaesthetic from the SIJ nerve block.

Tests for SIJ pain

1. Bridge assessment

- To confirm hypermobility/instability of the SIJs, administer double to single bridge assessment to check accessory movements - whether patients can control hips/legs concentrically and hold them isometrically.

- To re-establish stability, it is necessary to strengthen and tighten the structures that influence the SIJ.

2. Bunkie test

- Will show which myofascial tracks are dysfunctional. The foot that holds the weight on the Bunkie determines which line is to be tested. Areas to be tested are: the anterior power line and all the muscles in that line; the posterior power line and all the muscles in that line; and the medial line.

- Check whether patients can hold all of those positions for about 40 seconds and if there is any burning pain, sensation, or cramping, the test should be stopped.

- This test can be administered to both athletes and non-athletes and can form part of their strengthening programme.

3. Straight leg raise test and active straight leg raise test

Difference between the two tests -

Straight leg raise test	Active straight leg raise test
• Passive test	• Active test
• Neural tension test used to assess neural tissue involvement as a result of a space occupying lesion- often a lumbar disc herniation.	• Loading test used to assess pain provocation and the ability to load the pelvis through the limb.
• The clinician lifts the *patient's leg by flexing at the hip until the patient complains of pain or tightness in the back or back of the leg	• *Patient is instructed to lift one leg 20cm off the bed. A positive response is the complete inability to lift the leg.

***patient in supine**	• A scale is used to rate the level of difficulty/heaviness in lifting the leg – varies from slight difference in heaviness to complete inability.

Assessing a good plank

For non-athletes: Lie facedown with legs extended; elbows bent and directly under shoulders. Feet are hip-width apart while elbows are shoulder-width apart and should be in a straight line from head to heels. Note how many seconds they could hold that position and whether they have pain.

Hands-on work fascially around SIJs

- Putting pressure on the fascia by hands-on work or by using Kinnective tool which changes the polymerisation and the depolymerisation of the fascia. This process attracts water which then improves 'sliding' in the area.

- The Kinnective tool is useful in treating soft tissues (i.e. post-surgery scar tissue and around portals).

Yoga, pilates, and breathing exercises

• Activities for SIJ pain relief include stretching exercises, strengthening movements, and self-mobilisation.

• Pilates focuses on relaxing tense muscles and strengthening them. Pilates exercises that engage/strengthen transverse abdominal muscles help keep the body upright and improve overall stability. Strengthening the glutes impacts other muscles positively.

• Yoga focuses on increasing the flexibility of muscles; with inadequate supervision some people may attempt to push beyond their capabilities, causing injuries.

• Stretches should be held for 60-90 seconds to stimulate fascial involvement.

Teaching diaphragmatic breathing

1. Place one hand on your chest and the other just below your rib cage.

2. Breathe slowly through your nose so that the stomach moves out against your hand. Hand on the chest should remain as still as possible.

3. Tighten your stomach muscles – let them fall inward as you exhale through pursed lips. Hand on the upper chest must remain as still as possible.

• Diaphragmatic breathing has a massive positive effect on stability and influence transverse abdominal muscles. It should form part of any athlete's exercise routine. Patients with stability problems tend to be chest breathers as this is posturally easier to do.

- While hyperventilation is common among women in the later stage of the menstrual cycle, it switches off transversus abdominis both in postural and phasic operation which has a big effect on stabilisation of the SIJ. Educating patients on the need for diaphragmatic breathing to stabilise the SIJ is as important as breathing rehabilitation.

Testing psoas

- Patient lies in supine, leg is extended.
- Take one leg up into about 40-50 degrees angle.
- Laterally rotate the leg and get the patient to hold that position.
- Let the patient do a few diaphragmatic breaths.

Viscosity

In the context of fascial technique, the lack of viscosity means the area is problematic, lacking movement, and not gliding.

Difference between dynamic tape and kinesio tape

*Dynamic tape	Kinesiology tape
• Composed of a synthetic, stretch nylon and lycra cloth	• Predominantly cotton
• Designed to stretch in all direction (4-way stretch)	• Designed to stretch longitudinally (2-way stretch)
• Has many times the resistance and recoil	• Very gentle recoil, designed to lift the skin
• Can stretch over 200% of its resting length	• Stretch 140%-180% with a defined rigid end point
• Designed to work mechanically, to alter movement patterns while absorbing load and re-injecting that energy back into movement, all without limiting range of motion. *Source - https://www.dynamictape.info	• Designed to work neurophysiologically – interfaces with the skin to alter pain perception, address lymphatic drainage, and encourage changes in the neuromuscular function.

- The tape helps reduce the eccentric load and rehabilitate the tissues as well.

Sacroiliac belt

Provides stability to the base of the spine and helps increase strength throughout the back, hips and legs. It is designed mainly to compress, stabilise, and support the sacroiliac joints.

‘Rehab my patient’

Is an exercise prescription software for therapies with videos that show patients how to get into correct exercise positions as part of their rehabilitation/treatment programme.