LUMBAR RADIOFREQUENCY RHIZOTOMY AND SACROILIAC JOINT PAIN:

....When Back Pain is a Real Pain in the Butt
Learning Objectives

At the conclusion of this presentation, the learner will:

- Demonstrate understanding of the common causes of SIJ pain;
- Demonstrate understanding of the basic steps involved in Radiofrequency Rhizotomy (RFR);
- Demonstrate a basic understanding of how RFR may relate to SIJ pain;
- Recognize the clinical significance of the latest research on RFR and SIJ pain.
Low Back Pain (LBP)

Can be classified as:
- Specific or Non-Specific
- Acute or Chronic

- Specific LBP has an identifiable cause, such as:
  - Fracture
  - Tumor
  - Herniated nucleus pulposus and other disc pathologies

- Specific LBP accounts for ~10% of cases

- Non-Specific LBP accounts for the remaining cases and does not have an identifiable cause

- Acute LBP is most often diagnosed in men, while women are more likely to be diagnosed with chronic LBP
Some Statistics$^{1,2}$

- Low back pain (LBP) is one of the most commonly occurring pain complaints in adults.

- The lifetime prevalence of LBP has been estimated to be as high as 90%.

- In those with LBP, the prevalence of facet joint pain ranges from 15-40%.
SIJ Pain: Common Causes

- Traumatic Injury
- Prolonged Low-Grade Strain (Overuse)
- Gait Abnormality
- Leg Length Discrepancy
- Pregnancy
- Structural Abnormalities
- Lumbar Procedures
Sacroiliac Joint (SIJ) pain is most commonly seen in pregnant women, athletes, and the elderly

Estimates for the prevalence of SIJ pain varies widely

It is believed that 15-30% of those with LBP also have SIJ pain
SIJ Pain: Why Don’t we have a Clearer Picture?\textsuperscript{1,3}

- The referral patterns of SIJ and facet joint pain are similar and can be difficult to differentiate
  - However, true SIJ pain rarely radiates above L5 or distal to the knee
- Chronic pain often results from multiple structures and the interplay of multiple comorbidities
- LBP and SIJ pain are often seen in similar populations
- SIJ pain is often studied in populations with chronic LBP, clouding researchers’ ability to differentiate the two conditions
What is Radiofrequency Rhizotomy (RFR)?

- RFR can be used to manage facet joint pain in the lumbar spine

- Each facet joint has two medial branch nerves responsible for pain signal transmission

- Fluoroscopy is used to pass a radiofrequency needle through connective tissue to the area of the medial branch nerves

- Electrical current is passed through the needle to induce muscle contraction and reproduce pain, ensuring that the correct nerves have been isolated. The medial branch nerves are then anesthetized

- Radiofrequency waves are then used to heat the tip of the needle, creating a heat lesion on the nerves and disrupting pain signal transmission
Risks\textsuperscript{1,2}

The risks of this procedure are low:

- The medial branch nerves do not contribute to sensation or movement in the extremities
- The medial branch nerves do control small muscles in the low back, but the loss is easily compensated for by larger muscle groups

Success rates vary, with up to 50\% of patients reporting complete pain resolution\textsuperscript{1,2}.
So What’s the Connection?
How Lumbar Procedures Relate to SIJ Pain
A study conducted by Rimmalapudi and Kumar investigated the relationship between RFR and SIJ pain.

They conducted a retrospective chart review of 96 patients who underwent RFR during the predetermined study period.

46 charts were excluded because patients did not have at least 2 follow-up clinic visits.

Of the 50 charts included in this study, SIJ pain was established using physical findings, FABER, Gaenslen’s, and Fortin Finger Test.

Study population: 66% female, 34% male; ages ranged from 34-84 with an average age of 57.8 years.

A control group was established using another study conducted by DePalma et al. in which participants did not undergo RFR.
Rimmalapudi and Kumar, 2017

96 patients underwent RF

46 excluded
Did not have 2 F/U visits after RF

35 patients
New diagnosis or worsening of existing SIJ pain

15 patients
No new development/worsening of SIJ pain noted in F/U visits
Researchers hypothesized that SIJ pain would be diagnosed more frequently in those who have undergone RFR for lumbar facet joint pain when compared to those that did not.
Study Results

- 35/50 (70%) participants either developed SIJ pain or reported increased SIJ symptoms after undergoing RFR

- 21/35 participants did not have any symptoms of SIJ pain prior to RFR and developed bilateral SIJ pain after the procedure

- 8/35 went on to develop unilateral SIJ pain

- 3 patients with unilateral SIJ pain went on to develop bilateral SIJ pain

- 3 patients had mild bilateral SIJ pain prior to RFR that progressed to severe SIJ pain after the procedure
Study Results²

- In the DePalma study, only 18.2% of participants went on to develop SIJ pain.

- Analysis revealed a statistically significant difference in the rate of occurrence of SIJ pain in those that underwent RFR compared to those that did not (p < 0.001).
What Could Explain this Relationship²?

- Rimmalapudi and Kumar propose that the increase in occurrence of SIJ pain is most likely due to changes in gait pattern post RFR. Gait patterns are altered secondary to a reduction in lumbar spine pain and more stress is placed on the SIJ.

- It is also proposed that the reduction in facet joint pain makes pre-existing SIJ pain more apparent and therefore it is more likely to be diagnosed.
Why This Study Matters
And What You Can do in the Clinic
Important Takeaways

- It is imperative that clinicians thoroughly evaluate patients presenting with LBP/SIJ pain using evidence-based diagnostic tools.

- In doing so, clinicians can not only help to reduce the occurrence of unnecessary procedures, but help guide treatment to the correct areas.

- As clinicians, it is important to be knowledgeable about the procedures our patients undergo so that we can successfully maximize the quality of their care.
The Lumbo-Pelvic-Hip Complex
SIJ Provocation Testing

3/5 positive tests is indicative of SIJ pathology

FIG 1. The Distraction Test (testing right and left SIJ simultaneously).
Note: Vertically oriented pressure is applied to the anterior superior iliac spinous processes directed posteriorly, distracting the sacroiliac joint.

FIG 2. The Thigh Thrust Test (testing the right SIJ).
Note: The sacrum is fixated against the table with the left hand, and a vertically oriented force is applied through the line of the femur directed posteriorly, producing a posterior shearing force at the SIJ.

FIG 3. Gaenslen’s Test (testing the right SIJ in posterior rotation and the left SIJ in anterior rotation).
Note: The pelvis is stressed with a torsion force by a superior/posterior force applied to the right knee and a posteriorly directed force applied to the left knee.

FIG 4. The Compression Test (testing right and left SIJ).

FIG 5. The Sacral Thrust Test (testing right and left SIJ simultaneously).
Note: A vertically directed force is applied to the midline of the sacrum at the apex of the curve of the sacrum, directed anteriorly, producing a posterior shearing force at the SIJs with the sacrum rotated.

LASLETT ET AL. SI TESTING
KNOWLEDGE TEST
Fin.

Any Questions?


(3) McMorris, M. PT, DPT, OCS. *The Sacroiliac Joint*. The University of North Carolina at Chapel Hill. 2015.