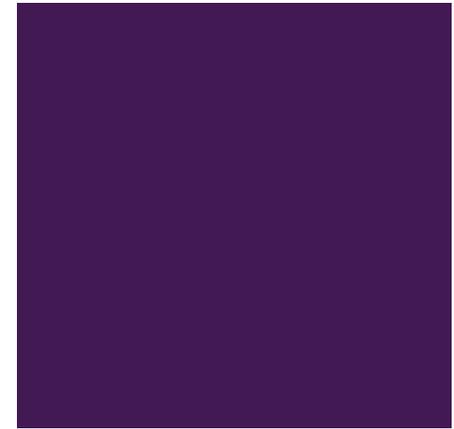
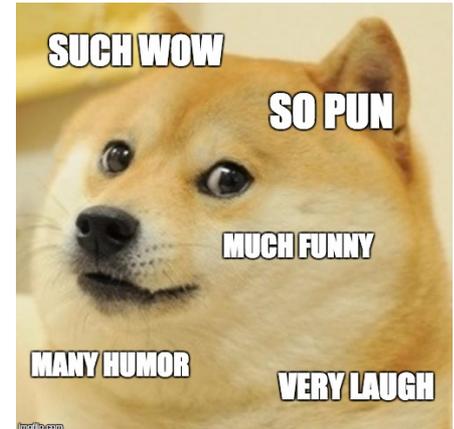
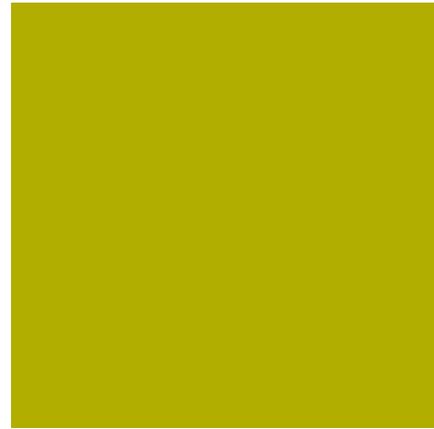




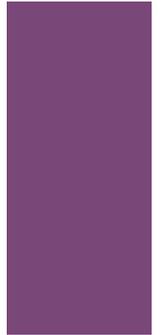
LUMBAR  
RADIOFREQUENCY  
RHIZOTOMY AND  
SACROILIAC JOINT  
PAIN:



....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:

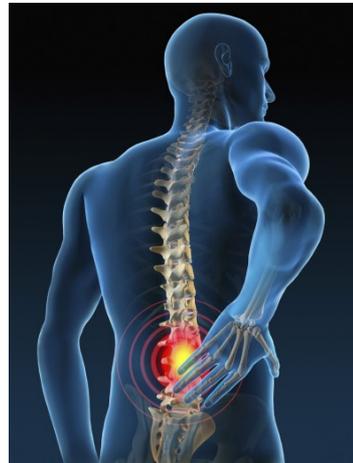
- Specific or Non-Specific
- Acute or Chronic

- 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<sup>1,2</sup>

- 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 <sup>2,3</sup>

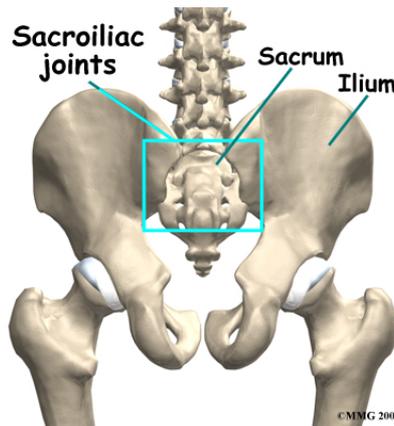


- Traumatic Injury
- Prolonged Low-Grade Strain (Overuse)
- Gait Abnormality
- Leg Length Discrepancy
- Pregnancy
- Structural Abnormalities
- **Lumbar Procedures**



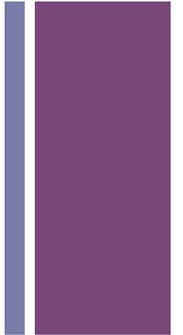
## Some Statistics <sup>1,2</sup>

- 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?<sup>1,3</sup>

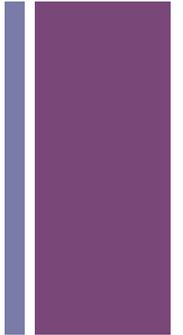


- The referral patterns of SIJ and facet joint pain are similar and can be difficult to differentiate
  - However, true SIJ pain rarely radiates above L5 or distal to the knee
- Chronic pain often results from multiple structures and the interplay of multiple comorbidities
- LBP and SIJ pain are often 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)?<sub>1</sub>

- 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



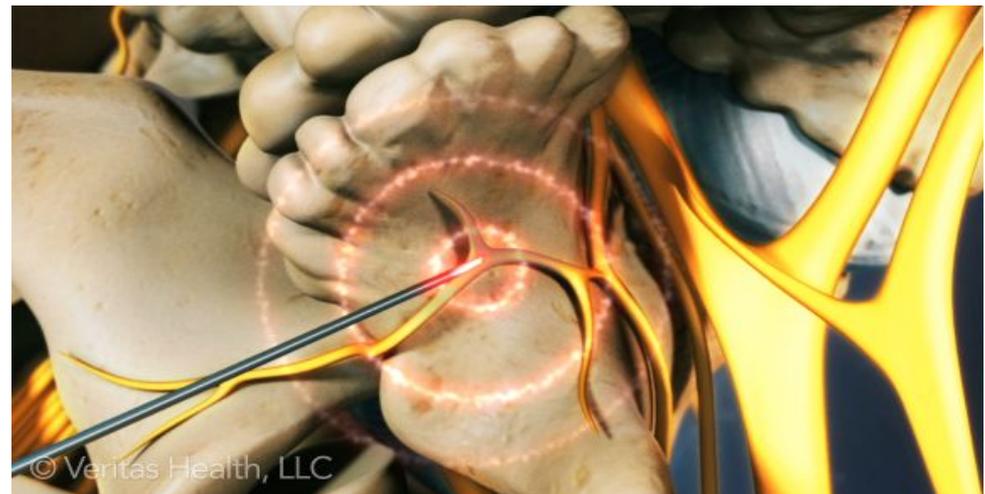
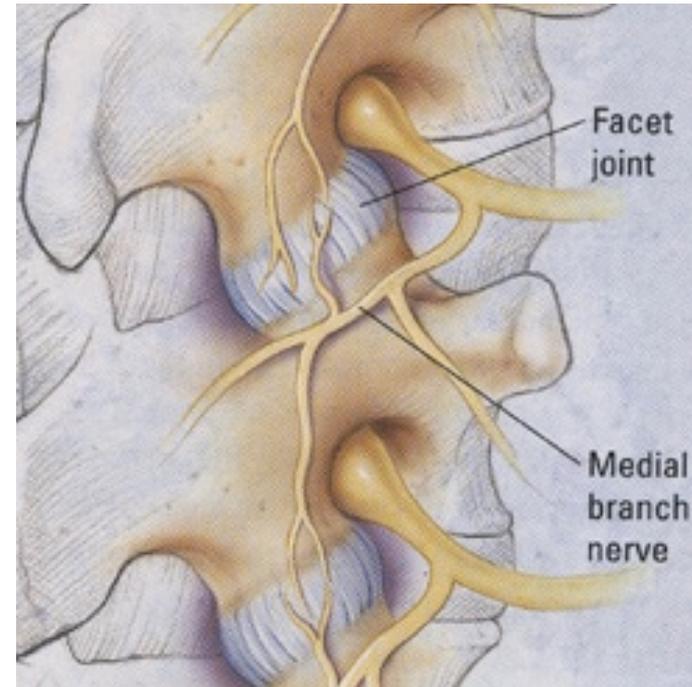


## Risks<sup>1,2</sup>

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<sup>1,2</sup>.**





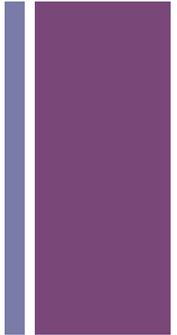
# So What's the Connection?

How Lumbar Procedures Relate to SIJ Pain

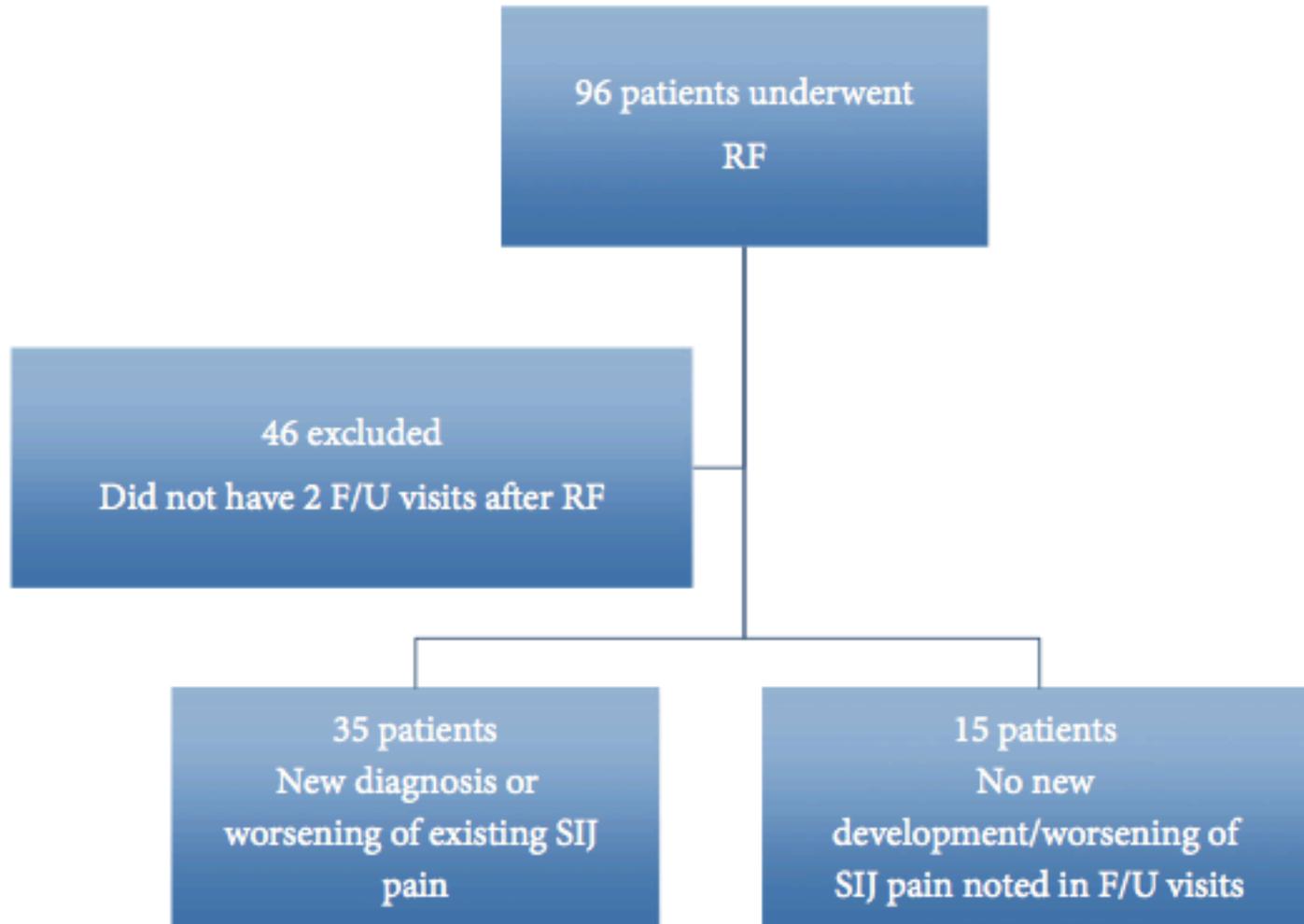


# New Research in 2017<sup>2</sup>

- 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<sup>2</sup>





Rimmalapudi and Kumar, 2017<sup>2</sup>

**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.**



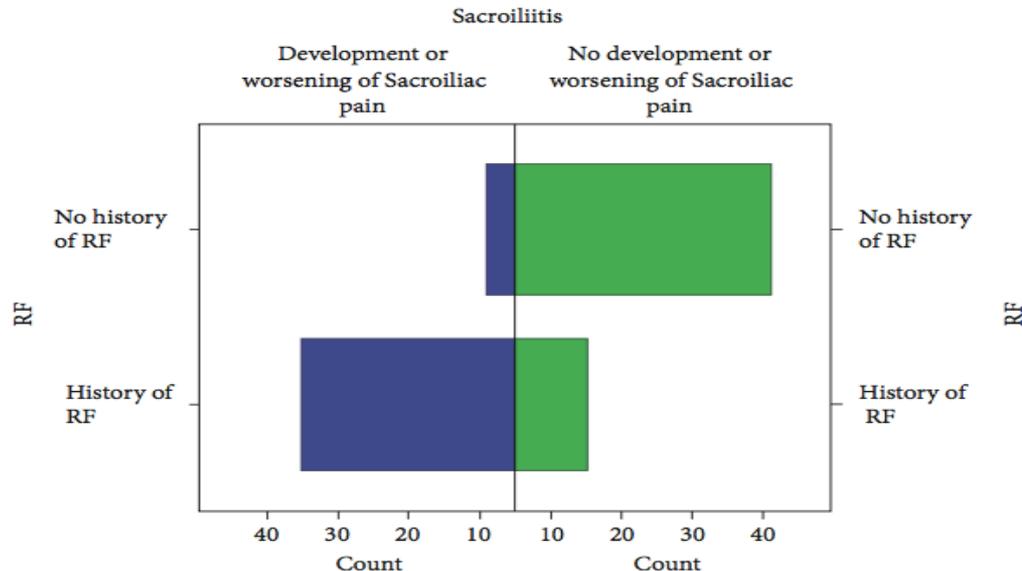
## Study Results<sup>2</sup>

- 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 Results<sup>2</sup>

- 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 Relationship<sub>2</sub>?



- 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



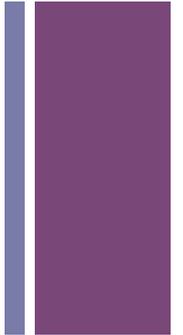


# Why This Study Matters

And What You Can do in the Clinic



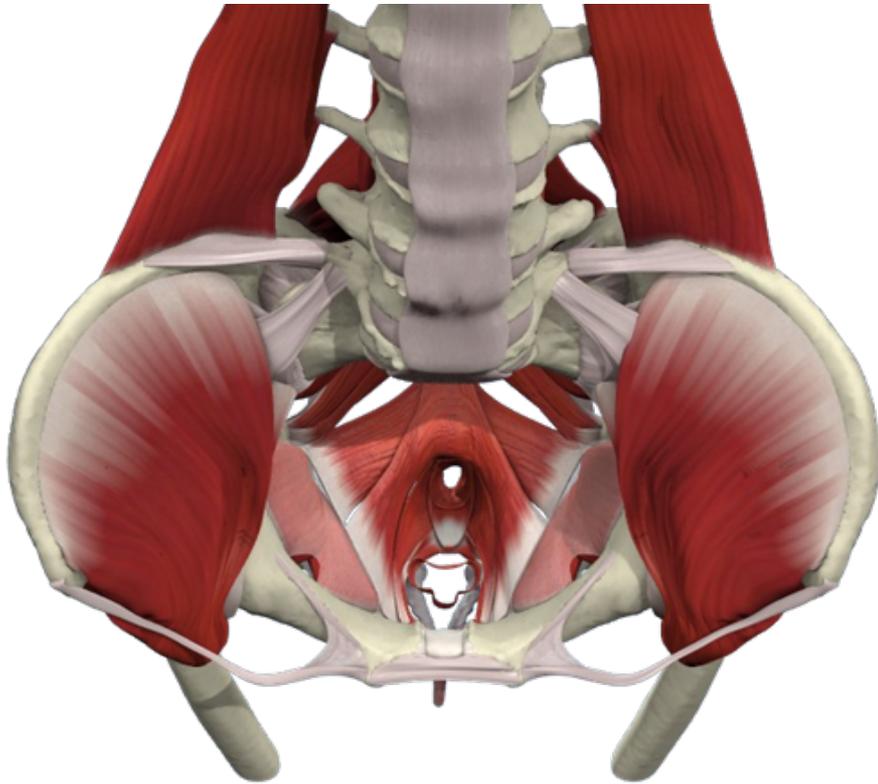
# Important Takeaways<sup>2</sup>



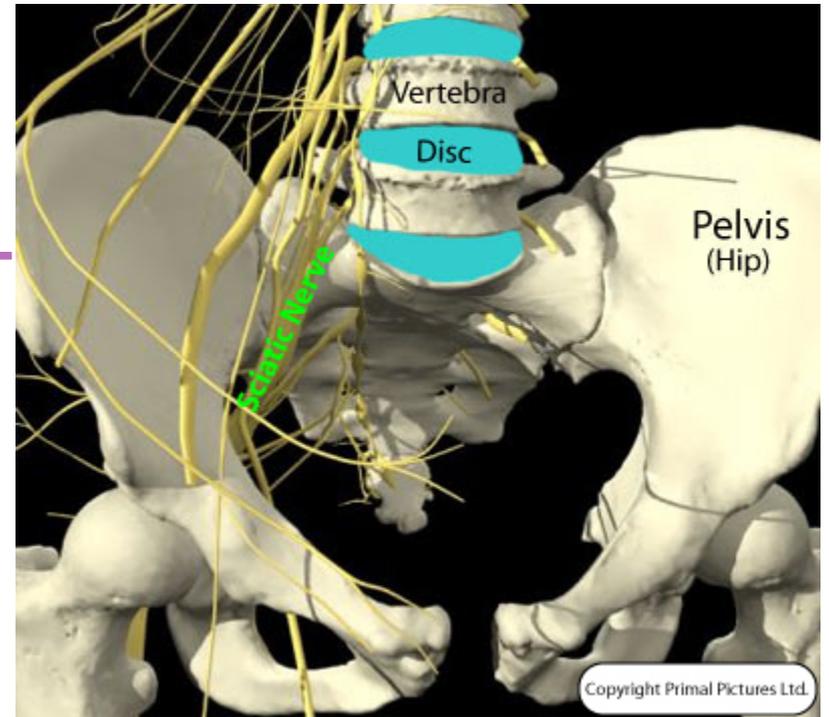
- It is imperative that clinicians thoroughly evaluate patients presenting with LBP/SIJ pain using evidence-based diagnostic tools.
- In doing so, clinicians can not only help to reduce the occurrence of unnecessary procedures, but help guide treatment to the correct areas.
- As clinicians, it is important 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



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# SIJ Provocation Testing<sup>1</sup>

3/5 positive tests is indicative of SIJ pathology

LASLETT ET AL. SI TESTING



**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.

# KNOWLEDGE TEST





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Fin.

Any Questions?



- (1) S. P. Cohen, Y. Chen, and N. J. Neufeld, “Sacroiliac joint pain: a comprehensive review of epidemiology, diagnosis and treatment,” *Expert Review of Neurotherapeutics*, vol. 13, no. 1, pp. 99–116, 2013.
- (2) Varun Kumar Rimmalapudi and Sanjeev Kumar, “Lumbar Radiofrequency Rhizotomy in Patients with Chronic Low Back Pain Increases the Diagnosis of Sacroiliac Joint Dysfunction in Subsequent Follow-Up Visits,” *Pain Research and Management*, vol. 2017, Article ID 4830142, 4 pages, 2017.
- (3) McMorris, M. PT, DPT, OCS. *The Sacroilliac Joint*. The University of North Carolina at Chapel Hill. 2015.