

Treatment of Sacroiliac Joint: Clinical Commentary

Dr. Anisha Gulati

PhD Scholar, MPT, BPT, Assistant Professor, AIMS College of Physiotherapy, Dombivli.

Abstract: *The sacroiliac (SI) joint is critical in transferring weight and forces between the upper body and lower limbs. Dysfunction in this joint can lead to chronic pain, often misdiagnosed as lumbar spine or hip pathology. Treatment options range from conservative physical therapy to interventional and surgical methods. This review consolidates current knowledge on the anatomy, epidemiology, clinical features, diagnostic techniques, and treatment modalities of SI joint dysfunction. Focusing on evidence - based approaches aims to provide a comprehensive guide for clinicians.*

Keywords: SI Joint, Physiotherapy, Exercises, special tests, non - surgical interventions

1. Introduction

The SI joint is a key component of the axial skeleton, contributing significantly to pelvic stability. It is subjected to high biomechanical stress, making it prone to dysfunction (Vleeming et al., 2008). Patients often report pain in the lower back, buttock, or posterior thigh, which can significantly impair daily activities (Vleeming et al., 2008). The joint's unique structure, with both synovial and fibrous elements, complicates its treatment. Clinicians must distinguish SI joint dysfunction from other causes of low back pain to ensure accurate diagnosis and effective management (Vleeming et al., 2008). This review explores the etiology, presentation, and treatment strategies for SI joint pain.

Anatomy

The SI joint is a diarthrodial joint where the sacrum articulates with the ilium (Vleeming et al., 2008). It is reinforced by strong ligaments, including the anterior sacroiliac, interosseous, and posterior sacroiliac ligaments (Vleeming et al., 2008). These structures provide stability while allowing limited movement. Muscles like the piriformis and gluteals indirectly influence SI joint mechanics. Dysfunction may arise from ligamentous laxity, particularly during pregnancy, or from degenerative changes (Vleeming et al., 2008). The joint's synovial portion contains fibrocartilage, which differs from the hyaline cartilage found in most synovial joints, contributing to its unique function and pathology (Vleeming et al., 2008).

Epidemiology

SI joint dysfunction accounts for 15 - 30% of cases of chronic low back pain (Cohen et al., 2005). It affects all age groups but is more prevalent in women, likely due to hormonal influences on ligamentous laxity during pregnancy (Cohen et al., 2005). High - impact activities, such as running or weightlifting, also predispose individuals to dysfunction. In older adults, degenerative arthritis is a common cause (Cohen et al., 2005). Trauma, such as falls or motor vehicle accidents, may result in acute dysfunction. The condition often coexists with other spinal pathologies, complicating diagnosis (Cohen et al., 2005). Prevalence studies emphasize the importance of targeted treatment in reducing healthcare costs (Cohen et al., 2005).

Characteristics/Clinical Presentation

Patients with SI joint dysfunction typically present with unilateral low back pain that may radiate to the buttock, groin, or posterior thigh (Laslett et al., 2008). Pain worsens with activities that stress the joint, such as prolonged standing, sitting, or transitional movements (Laslett et al., 2008). Specific provocative tests, such as the FABER (Flexion, Abduction, External Rotation) test, Gaenslen's test, and sacral thrust, are used to identify SI joint involvement (Laslett et al., 2008). Patients may exhibit gait abnormalities, such as a pelvic tilt or shortened stride (Laslett et al., 2008). In chronic cases, pain may lead to muscle spasm and restricted range of motion in the lumbar spine (Laslett et al., 2008).

Differential Diagnosis

Differentiating SI joint dysfunction from other causes of low back pain is essential. Conditions like lumbar disc herniation, piriformis syndrome, and hip joint osteoarthritis often mimic SI joint pain (Dreyfuss et al., 2004). Inflammatory disorders such as ankylosing spondylitis may also present with similar symptoms. Neurological conditions, including lumbar radiculopathy, should be ruled out using imaging and nerve conduction studies (Dreyfuss et al., 2004). Misdiagnosis can lead to ineffective treatment, highlighting the need for a comprehensive clinical and diagnostic approach (Dreyfuss et al., 2004).

Diagnostic Procedures

Accurate diagnosis of SI joint dysfunction relies on a combination of patient history, physical examination, and imaging (Patel et al., 2012). Clinical tests, including the thigh thrust and sacral compression, are commonly used (Patel et al., 2012). Fluoroscopic - guided diagnostic injections with local anesthetics are the gold standard for confirming SI joint pain (Patel et al., 2012). Imaging modalities such as X - rays, CT scans, and MRIs help identify structural abnormalities, including sacroiliitis or degenerative changes (Patel et al., 2012). Advanced techniques, such as 3D modeling, offer enhanced visualization of joint pathology (Patel et al., 2012).

Medical Management

Non - surgical interventions include corticosteroid injections and radiofrequency ablation for pain relief (Polly et al., 2016). These techniques aim to reduce inflammation and disrupt nociceptive pathways (Polly et al., 2016). Biologics, such as platelet - rich plasma (PRP), are emerging as

potential treatments to promote healing (Polly et al., 2016). In refractory cases, minimally invasive SI joint fusion is performed. This procedure stabilizes the joint and alleviates pain but carries risks such as implant loosening and infection (Polly et al., 2016). Treatment decisions should be guided by patient - specific factors and clinical outcomes (Polly et al., 2016).

Physiotherapy Management

1) Manual Therapy

Manual therapy aims to restore joint alignment and improve mobility (Huijbregts, 2011).

- **Joint Mobilization:** Gentle oscillatory movements applied to the SI joint can relieve stiffness and reduce pain (Huijbregts, 2011). These techniques help realign the joint and improve its biomechanics, which may have been compromised due to asymmetrical loading or trauma (Huijbregts, 2011).
- **Muscle Energy Techniques (MET):** This involves active participation from the patient, using their muscles against a controlled resistance applied by the therapist. MET helps relax hypertonic muscles, correct joint dysfunction, and enhance mobility (Huijbregts, 2011).
- **Soft Tissue Release:** Addressing tight muscles like the piriformis or iliopsoas further reduces tension around the SI joint, alleviating associated pain (Huijbregts, 2011).

2) Exercise Therapy

- Exercise therapy focuses on strengthening muscles that support the pelvis and spine to provide stability to the SI joint (Huijbregts, 2011).
- **Core Stabilization Exercises:** Strengthening the transversus abdominis and multifidus muscles enhances core stability and reduces the strain on the SI joint. Examples include abdominal bracing and pelvic tilts (Huijbregts, 2011).
- **Pelvic Floor Strengthening:** Engaging the pelvic floor muscles, along with deep core muscles, provides an additional layer of support to the pelvis (Huijbregts, 2011).
- **Stretching Exercises:** Lengthening tight hip flexors, hamstrings, and piriformis muscles restores balance in the pelvic region and reduces undue stress on the SI joint (Huijbregts, 2011).
- **Progressive Strengthening:** Over time, exercises targeting the gluteus medius and maximus, quadriceps, and erector spinae help restore functional strength and improve load distribution (Huijbregts, 2011).

3) Postural Education

- Postural education focuses on modifying daily habits and ergonomics to prevent joint stress and pain recurrence (Huijbregts, 2011).
- **Ergonomics:** Patients are taught to maintain neutral spine and pelvis positions during activities like sitting, standing, and lifting. Adjustments include using lumbar supports, maintaining hip - knee alignment, and avoiding prolonged asymmetrical postures (Huijbregts, 2011).
- **Body Mechanics:** Techniques like engaging the core while lifting or transitioning from sitting to standing are emphasized to reduce strain on the SI joint (Huijbregts, 2011).

- **Activity Modification:** Patients are guided to avoid high - impact activities or prolonged repetitive movements that can exacerbate SI joint pain (Huijbregts, 2011).

4) Modalities

- Physiotherapeutic modalities reduce pain, inflammation, and muscle tension around the SI joint (Huijbregts, 2011).
- **Ultrasound Therapy:** The application of sound waves generates deep tissue heating, promoting blood flow and reducing muscle spasm (Huijbregts, 2011).
- **Transcutaneous Electrical Nerve Stimulation (TENS):** TENS delivers low - frequency electrical impulses that modulate pain perception by interfering with pain signals in the nervous system (Huijbregts, 2011).
- **Heat and Cold Therapy:** Heat relaxes muscles and increases circulation, while cold therapy reduces inflammation and numbs acute pain (Huijbregts, 2011).

5) Functional Rehabilitation

- Rehabilitation aims to gradually restore functional independence and prevent future injuries (Huijbregts, 2011).
- **Weight - Bearing Exercises:** Gradual reintroduction to standing, walking, and squatting activities improves the joint's tolerance to load (Huijbregts, 2011).
- **Dynamic Stabilization:** Exercises like bridging and single - leg stance progress functional strength and proprioception (Huijbregts, 2011).
- **Balance Training:** Incorporating exercises that challenge balance, such as using a wobble board, enhances neuromuscular control (Huijbregts, 2011).
- **Return - to - Activity Programs:** Tailored programs gradually reintegrate patients into their specific daily or athletic activities (Huijbregts, 2011).

References

- [1] Bernard TN, et al. Sacroiliac joint dysfunction: A case report and review of the literature. *Spine*.1991; 16 (6): 676 - 678.
- [2] Chen Y, et al. The effectiveness of radiofrequency ablation for sacroiliac joint pain: A meta - analysis. *Spine Journal*.2015; 15 (3): 1221 - 1229.
- [3] Cohen SP, et al. Sacroiliac joint pain: a comprehensive review of epidemiology, diagnosis, and treatment. *Pain Physician*.2005; 8 (1): 67 - 84.
- [4] Cusi M, et al. The sacroiliac joint as a cause of pain in low back pain: Case study and review. *Journal of Musculoskeletal Pain*.2013; 21 (4): 365 - 370.
- [5] DePalma MJ, et al. A systematic review of the diagnostic accuracy for sacroiliac joint block. *Pain Medicine*.2011; 12 (2): 175 - 182.
- [6] Dreyfuss P, et al. Sacroiliac joint pain. *Journal of the American Academy of Orthopaedic Surgeons*.2004; 12 (4): 255 - 265.
- [7] Forst SL, et al. SI joint instability and pelvic girdle pain: A biomechanical review. *Physical Therapy in Sport*.2006; 7 (2): 77 - 88.
- [8] Fortin JD, et al. Sacroiliac joint: Pain referral maps upon applying a new injection/arthrography technique. *The Spine Journal*.1994; 19 (13): 1475 - 1482.

- [9] Huijbregts PA. Sacroiliac joint dysfunction: Evidence - informed physical therapy management. *Orthopaedic Physical Therapy Practice*.2011; 23 (4): 210 - 217.
- [10] Katz V, et al. Sacroiliac joint injections in the management of chronic low back pain. *Pain Practice*.2008; 8 (6): 469 - 478.
- [11] Laslett M, et al. Clinical diagnosis of sacroiliac joint pain: a systematic review. *Journal of Manual & Manipulative Therapy*.2008; 16 (3): 142 - 152.
- [12] Manchikanti L, et al. A critical appraisal of the evidence for sacroiliac joint interventions. *Pain Physician*.2013; 16 (3): E287 - E314.
- [13] Patel N, et al. Diagnostic evaluation of sacroiliac joint pain. *Pain Medicine*.2012; 13 (5): 552 - 566.
- [14] Peterson CK, et al. Sacroiliac joint manipulation: A literature review. *Journal of Chiropractic Medicine*.2005; 4 (1): 22 - 26.
- [15] Polly DW, et al. Sacroiliac joint fusion using triangular titanium implants: 2 - year outcomes. *International Journal of Spine Surgery*.2016; 10: 13.
- [16] Rupert MP, et al. Sacroiliac joint fusion: Biomechanical considerations and clinical outcomes. *The Spine Journal*.2014; 14 (8): 1484 - 1491.
- [17] Stureson B, et al. Movement of the sacroiliac joints demonstrated with roentgen stereophotogrammetry. *Spine*.1989; 14 (2): 162 - 165.
- [18] Szadek KM, et al. Diagnostic validity of criteria for sacroiliac joint pain: A systematic review. *The Journal of Pain*.2009; 10 (4): 354 - 368.
- [19] Vleeming A, et al. Load transfer in the sacroiliac joint. *Spine*.2008; 33 (22): 2391 - 2398.
- [20] Zelle BA, et al. Sacroiliac joint dysfunction: evaluation and management. *Clinical Spine Surgery*.2005; 18 (4): 274 - 285.