# Sacroiliac Joint Syndrome

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| **Diagnosis/Condition:** | Sacroiliac Joint (SIJ) Syndrome<br>SIJ sprain/strain<br>SIJ dysfunction |
| **Discipline:** | DC |
| **ICD-10 Codes:** | S33.6XXA; M99.04 |
| **Origination Date:** | 2006 |
| **Review/Revised Date:** | 10/2024 |
| **Next Review Date:** | 10/2026 |

Sacroiliac joint dysfunction is a term used to describe the pain of the Sacroiliac joint. A variety of conditions can cause SIJ dysfunction including degenerative and inflammatory arthritis, trauma, prior lumbosacral fusion, hip arthritis, limb length inequality, infections, and neoplasia.[1] The SIJ is a complex structure; it is a true diarthrodial joint with unique characteristics not typically found in other diarthrodial joints. It differs with others in that it has fibrocartilage in addition to hyaline cartilage, with matching articulate surfaces between the sacrum and ilium separated by synovial fluid and surrounded by a fibrous capsule.[2]

While the incidence of lower back pain in humans parallels the incidence of the common cold, several attempts have been made to establish the prevalence of SIJ syndrome in persons with back pain. Goldthwait and Osgood first discussed the possibility that SIJ injury could cause low back pain as early as 1905. The SIJ has been found to be the primary culprit for lower back pain (LBP), but it is still overlooked and treated as LBP.[3] The literature reports that the SIJ is the pain origin in as many as 30% of patients presenting with low back pain.[4] Another study stated Sacroiliac joint syndrome is a significant source of pain in 13% to 30% of people with low back pain.[5] SIJ dysfunction and degeneration is common after spinal fusion,[6] and reported in up to 40% in some studies.[7]

Predisposing factors for SIJ pain include true and apparent leg length discrepancy, older age, inflammatory arthritis, previous spine surgery, pregnancy, athletic injuries, and trauma. Females are more likely to present with SIJ dysfunction than males.[8]

The main function within the joint is to provide shock absorption for the spine and to transmit forces between the upper body and the lower limbs. Motion of the SIJ is limited to minute amounts of rotation and of translation, suggesting that clinical methods utilizing palpation for diagnosing SIJ pathology may have limited clinical utility.[9] Ambulation is heavily impacted by the SI joint, as this is the only orthopedic joint connecting the upper body to our lower body.

Because studies have documented that motion does occur, slightly subluxed and even locked positions can occur. Too much movement (hypermobility or instability) the pain is typically felt in the lower back and/or hip and may radiate into the groin area. Too little movement (hypomobility or fixation) the pain in typically felt on one side of the lower back or buttocks and can radiate down the leg. The pain usually remains above the knee, but at times pain can extend to the ankle or foot and is similar to sciatica.

Muscles and ligaments surround and attach to the SI joint in the front and back, primarily on the ilial or sacral surfaces. These can all be a source of pain and inflammation if the SI joint is dysfunctional. It is highly dependent on its strong ligamentous structure for support and stability. The ligamentous structures offer resistance to shear and loading. The deep anterior, posterior, and interosseous sacroiliac ligaments resist the load of the sacrum relative to the ilium. Superficial ligaments (e.g., the sacrotuberous ligament) react to dynamic motions (such as straight-leg raising during physical motion). The long dorsal sacroiliac ligament can become stretched in periods of increased lumbar lordosis (e.g., during pregnancy). The most common disrupted and/or torn ligaments are the iliolumbar ligament and the posterior sacroiliac ligament.

Sacroiliitis is not the same as SI joint dysfunction. Sacroiliitis is specific to inflammatory processes present in the SI joint and the pain sensed is a direct result of those inflammatory processes.

## Subjective Findings and History

- Symptoms of SIJ dysfunction mimic those of other lower back disorders and include low back, hip, groin, and radiating symptoms of leg pain and paresthesia's.
- Macro trauma: Evidence of trauma adequate to support disruption of SI soft tissues, e.g., a fall, lifting, sudden step, unguarded movement. Actual SI sprain is a rare entity.
- Micro trauma: Repetitive traumatic events not singularly capable of producing injury, short hamstring muscles, asymmetrical movement.
- The location of pain upon presentation can be unilateral or bilateral but is most often not midline. Pain may radiate to the groin, anterior thigh or even down the leg presenting a pain pattern similar to sciatica.
- Paroxysmal character of the pain.
- Pain in lower abdomen and groin due to tension in iliacus muscle is a common feature.
- Pain which comes on after remaining for some time in one position, but which disappears on active movement.
- Pain increased with weight bearing, standing from seated position, or climbing stairs and decreased with recumbency.
- Pregnancy: Hormonal changes which occur during pregnancy and produce relaxation of pelvic ligaments may influence the SIJ for up to 12 months.
- History of lumbar/lumbosacral fusion have an increased incidence of SIJ pain and degeneration[10]

- History of leg crossing sitting. The elongation of the piriformis muscle bilaterally by crossing the legs may be functional in the build-up of active or passive tension in the sacroiliac joint.[11]

## Objective Findings

- Provocative orthopedic tests such as Double SLR, Goldthwaite's, homolateral stabilization, Smith Peterson, SLR, Yeoman's, Belt.
- The diagnostic performance of most clinical tests was poor with low specificity (0·03–0·95), sensitivity (0·08–0·90), and positive likelihood ratio (0·3–1·4), when used in isolation. The thigh thrust is the most sensitive test (0·88), the distraction test is most specific (0·81), and the compression test has the strongest positive likelihood ratio (2·20). Three or more positive pain provocation tests showed optimal sensitivity, specificity, and positive likelihood ratios.[12]
- Hip Abduction and External Rotation (HABER) test can reproduce familiar pain in SIJ-positive LBP individuals and has moderate levels of sensitivity and specificity for identifying SIJ-positive LBP individuals.[13]
- Palpation:
  - Motion palpation (Gillet test).
  - Pain distribution and palpable tenderness caudal to the posterior superior iliac spine are fairly reliable indicators that the pain generator is the SI joint.[14]
- Shortened hamstring muscles, weak gluteal muscles.
- Evaluating kinetic chain and posture may reveal antalgia, shift of weight to unaffected SIJ, and guarded gait.
- Limp on affected side due to fatigue or pain.
- Nerve compression signs are likely negative.
- Decrease/loss of normal spinal ROM, esp. sagittal.
- Sensory: possible minor hyperesthesia.
- Leg length inequality.
- Diagnostic imaging: Imaging is usually not helpful, but depending on age and history of prior episodes, degenerative or inflammatory changes may be apparent (see CHP radiographic guidelines).
- The most definitive evaluation is image-guided injection of anesthetic solutions into the joint which is diagnostic if there is at least 75% symptom relief acutely.[15]
- SIJ block injection is considered a "gold standard" diagnostic test of SIJ pain.
- Absence of neurological deficit/nerve root tension signs.

## Assessment

- In cases of low back pain, it is important to differentiate the pain generator and indicate the specific anatomic structures involved, e.g., lumbar disc syndrome vs SIJ syndrome.
- Rule out inflammatory arthropathy, lab testing, MRI (bone marrow edema), e.g., ankylosing spondylitis, Reiter's syndrome.
- Orthopedic/neurologic examination directed at differentiating neurogenic from sclerogenic pain.

The choice of treatment is dependent on whether the SI joint is hypomobile or hypermobile. A hypomobile or fixated joint responds best to mobilization and a hypermobile joint responds to stabilization treatments.

## Plan

Lifestyle Changes:

- Limit bed rest.
- Activities/work restrictions, if appropriate.
- Address precipitating factors: e.g., wallet in back pocket.

Supplements and Nutrients:

- Supplementation to control pain and inflammation.

Pharmaceuticals (OTC):

- NSAID to control pain and inflammation.

Immobilization, Bracing, Taping:

- A pelvic belt is most effective in a high position.[16]
- Braces/supports, trochanter belt for hypermobility, heel lift (leg length inequality), and orthotics.

Physical Modalities (Western):

- A 2023 study concluded that physical therapy-based management approaches ranging from combined exercise therapy to MET and K-taping were significantly more effective than traditional approaches.[17]
- Ice/heat application at home.

Movement and Exercise:

- Exercise therapy appear to be effective in reducing pain and disability in patients with SIJD.[18]
- Motor control exercises in combination with other musculoskeletal therapies revealed a significant and clinically relevant decrease in pain and disability at short-term, especially in peripartum period.[19]
- Active exercise/stretches for mobility, endurance, strength, and stability.
- Walking.

Soft Tissue Therapies:

- Myofascial therapy.

Manual Adjustments/Manipulation:

- Manipulation of SIJ hypomobility and other areas of joint dysfunction.[20]
- A study showed that sacroiliac joint manipulation can influence peak pressure distribution between feet.[21]

- A single session of SIJ and lumbar manipulation was more effective for improving functional disability than SIJ manipulation alone in patients with SIJ syndrome.[22]
- A 2017 study revealed that manipulation to be the most effective in reducing pain and disability associated with SIJD.[23]
- Structural movement of the sacroiliac joint may be maximized with manual therapy.[24]

Acupuncture (excluding pharmocoacupture):

- A 2022 study showed that Acupuncture may have therapeutic advantages in improving sacroiliac joint malposition.[25]

Injection Therapies:

- A study showed a proportion of patients with symptomatic SI joint instability as an etiology of low back pain can have clinically meaningful functional gains with prolotherapy treatment.[26]
- Fluoroscopically guided injections into the joint have been found to be helpful for diagnostic and therapeutic purposes.[27]
- In those who fail to experience sustained relief from SIJ injections, radiofrequency denervation may provide significant relief lasting up to 1 year.[28]

## Length of Treatment

- Conservative therapy: 1-2 months with emphasis on active care, early.
- Risk factors for chronicity: co-morbidity (degenerative joint disease, hypermobility, pelvic deformity).
- Lack of improvement: consider a fixated pubic symphysis.

## Referral Criteria

Referral to an appropriate specialist may be appropriate after 1-2 months of care without symptomatic or functional improvement or upon appearance of neurologic deficits.

UpToDate: Subacute and chronic low back pain: Nonsurgical interventional treatment (Accessed 2024)

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