Sacroiliac Joint Dysfunction & Treatment

AMY HOYER
Sacroiliac (SI) Joint

- Why is this going to be important to you?

- Some look at the SI Joint as either the end of the spine or the beginning of the lower extremity. Which way do you see it?
Sacroiliac Joint

- SI joint pain is a condition that affects 15% to 25% of patients with axial low back pain
- Largest axial joint in the body
  - Diarthrodial synovial joint
- Designed primarily for stability
Functions of the SI Joint

- Transmission and dissipation of trunk loads to the lower extremity
- Limiting x-axis rotation
- Facilitating parturition (giving birth)
- Various types of motions:
  - Gliding
  - Rotation
  - Tilting
SI Joint Muscles

- Muscles are functionally connected to SI joint ligaments, therefore their actions can affect joint mobility
- Muscles involved:
  - Gluteus maximus and minimus
  - Piriformis
  - Biceps femoris
  - Quadratus lumborum
  - Erector spinae
SI Joint Ligaments

- SI ligamentous structure is extensive and functions as a connecting band between the sacrum and ilia
  - Limit motions in all planes of movement
  - These ligaments are weaker in women
## Sacroiliac Joint

<table>
<thead>
<tr>
<th>Ligament</th>
<th>Function</th>
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<tbody>
<tr>
<td>Sacrospinous and Sacrotuberous</td>
<td>Resists forward tilting (nutation) of the sacrum on the hip bone during weight bearing of the vertebral column</td>
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<td>Interosseous</td>
<td>Resists anterior and inferior movement on the sacrum; strongest ligament supporting the SI joint</td>
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<tr>
<td>Posterior (dorsal) sacroiliac</td>
<td>Resists backward tilting (counternutation) of the sacrum on the hip bone during weight bearing of the vertebral column</td>
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Posterior View

- Supraspinous ligament
- Long and short posterior sacroiliac ligaments
- Greater sciatic foramen
- Ischiofemoral ligament
- Lateral sacrococcygeal ligament
- Sacrospinous ligament
- Sacrotuberous ligament
- Deep posterior sacrococcygeal ligament
- Superficial posterior sacrococcygeal ligament
Anterior View

- Anterior longitudinal ligament
- Iliolumbar ligament
- Anterior sacroiliac ligament
- Greater sciatic foramen
- Sacrospinous ligament
- Sacrotuberous ligament
- Sacrospinous ligament
- Acruate pubic ligament
- Pubic symphysis
- Iliofemoral ligament
- Pubofemoral ligament
Aging of the SI Joint

- Changes begin in puberty and continue throughout life
  - Adolescence
    - Iliac surfaces becomes rougher, duller, coated in some areas with fibrous plaques
  - 30’s – 40’s
    - Surface irregularities, crevice formation, clumping of chondrocytes
  - 60’s
    - Motion may become markedly restricted
  - 80’s
    - Erosions and plaque formation are inevitable
Mechanism of Injury

- Combination of axial loading and abrupt rotation
- Pathological changes affecting SI joint structures
  - Capsular or synovial disruption
  - Capsular and ligamentous tension
  - Hypomobility or hypermobility
  - Extraneous compression or shearing forces
  - Abnormal joint mechanics
  - Microfractures or macrofractures
  - Soft tissue injury
  - Inflammation
Risk Factors

- Leg length discrepancy
- Gait abnormalities
- Prolonged vigorous exercise
- Scoliosis
- Spinal fusion to the sacrum
- Pregnancy
SI Joint Pain

- **Referral patterns for SI joint pain:**
  - Radiation into the buttock
  - Lower lumbar region
  - Lower extremity
  - Groin area
  - Upper lumbar
  - Abdomen
SI Joint Pain

- Pain may worsen with:
  - Riding in a car
  - Weight bearing on the affected side
  - Valsalva
  - Forward flexion in standing position

- Pain may be relieved with:
  - Weight bearing on non affected side
Treatment

Widely acknowledged to be one of the most challenging problems

Treatment modalities consist of:
- Physical therapy
- Orthotics
- SI Joint blocks
- Surgery
- Mobilization

Treatments can be divided this way:
- Correcting the underlying pathology
- Alleviating symptoms
Physical Therapy

- Stretching and strengthening the weak muscles
- Pelvic stabilization
- Restoration of postural and dynamic muscle imbalances
- Correction of gait abnormalities
Sacroiliac Pain Rehabilitation Exercises

- Hamstring stretch on wall
- Quadriceps stretch
- Hip adductor stretch
- Isometric hip adduction
- Gluteal sets
- Lower trunk rotation
- Single knee to chest stretch
- Double knee to chest stretch

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For more information...

- A great source of information on SI Joint Pain
  - http://www.spine-health.com/
- SI Joint Dysfunction Animation
  - http://www.youtube.com/watch?v=1iwmcCw4bAw
Assessment Tools

- One minute paper
  - Touch on what stood out the most to you
  - How much did you retain?

- Presentation Evaluation
References