Sacroiliac Joint Dysfunction & Treatment

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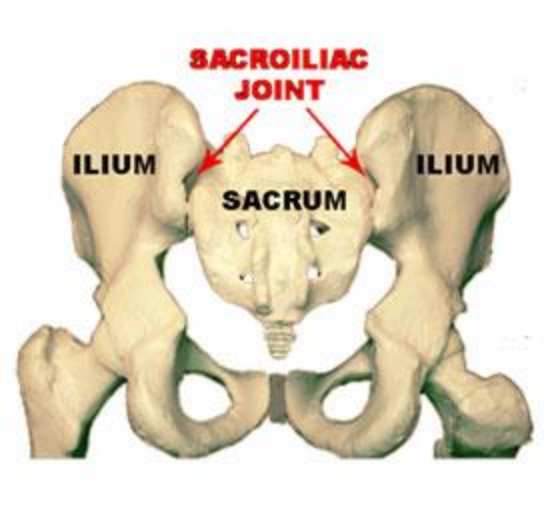
Sacroiliac (SI) Joint

- 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

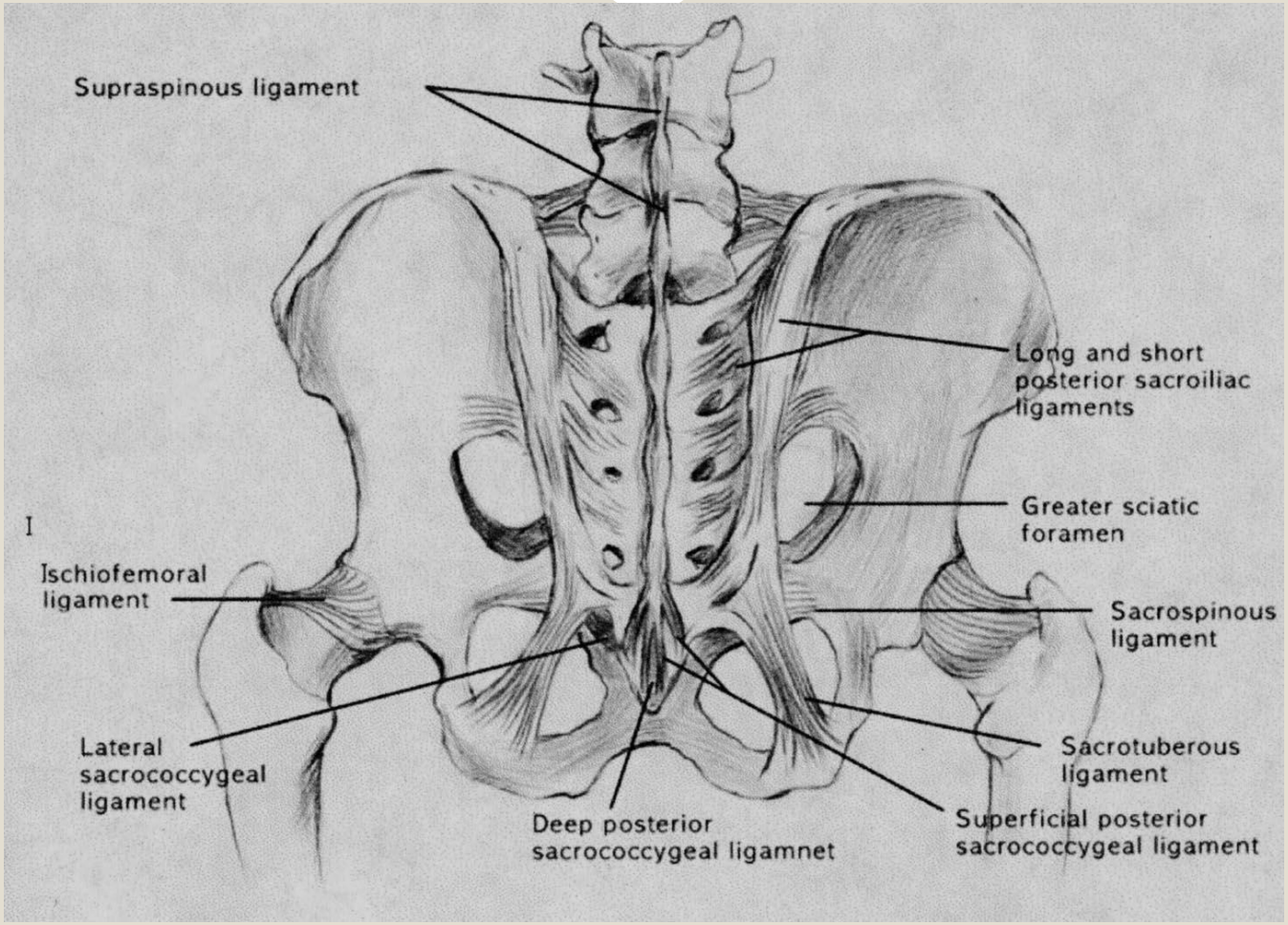
- SI ligamentous structure is extensive and functions as a connecting band between the sacrum and ilia
  - Limit motions in all planes of movement
  - These ligaments are weaker in women

Sacroiliac Joint

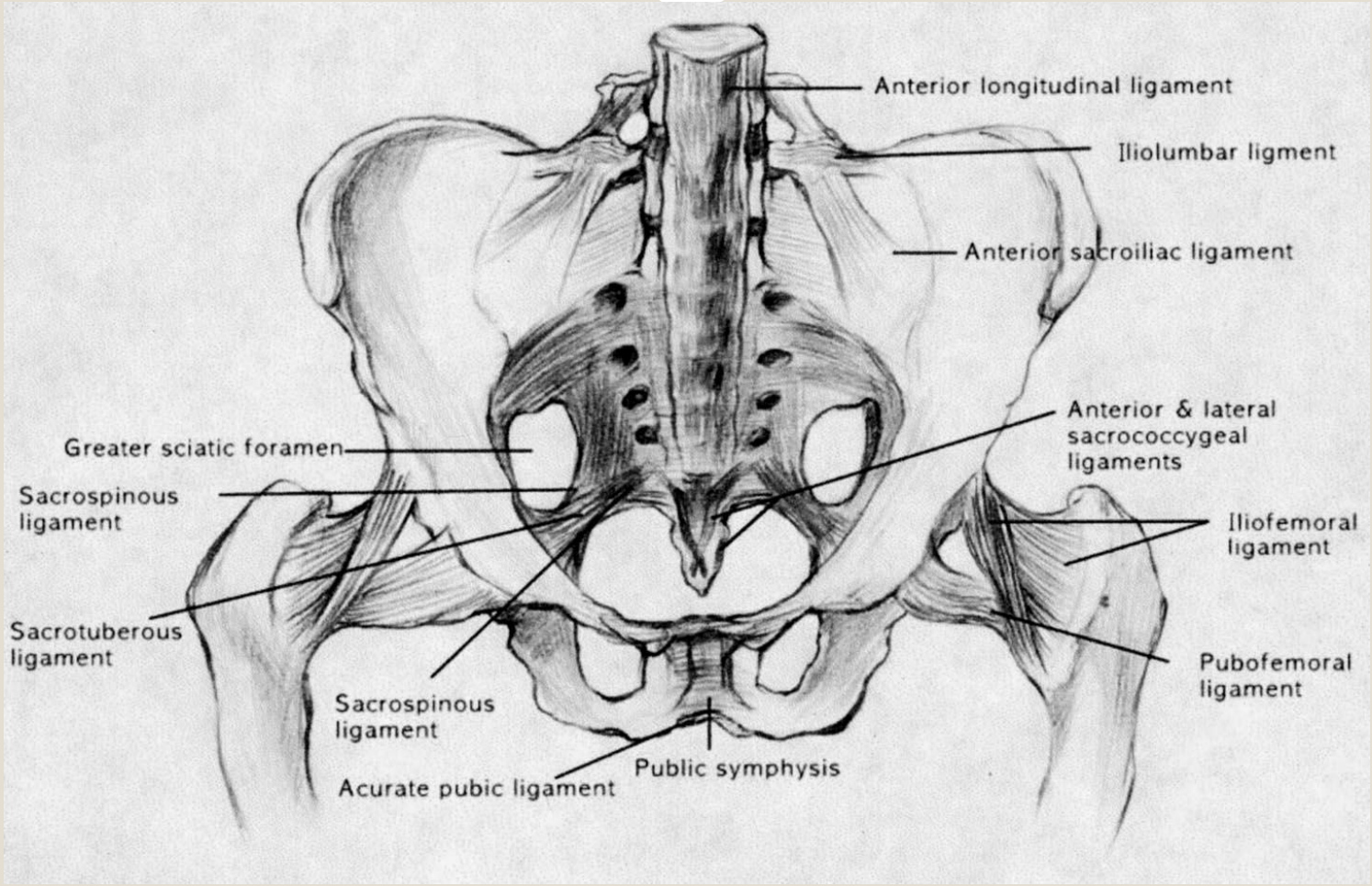
Ligament	Function
Sacrospinous and Sacrotuberous	Resists forward tilting (nutation) of the sacrum on the hip bone during weight bearing of the vertebral column
Interosseous	Resists anterior and inferior movement on the sacrum; strongest ligament supporting the SI joint
Posterior (dorsal) sacroiliac	Resists backward tilting (counternutation) of the sacrum on the hip bone during weight bearing of the vertebral column

p. 44, Dutton

Posterior View



Anterior View



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

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

- Cohen, S.P. (2005). Sacroiliac Joint Pain: A Comprehensive Review of Anatomy, Diagnosis, and Treatment. *Anesthesia & Analgesia*, 101, 1440-53.
- Dutton, Mark. (2011). Orthopaedics for the Physical Therapist Assistant. Massachusetts: Jones & Bartlett Learning.
- Slipman, C.W., Whyte, W.S., Chow, D.W., Chou, L., Lenrow, D, Ellen, M. (2001). Sacroiliac Joint Syndrome. *Pain Physician*, 4, 143-152.