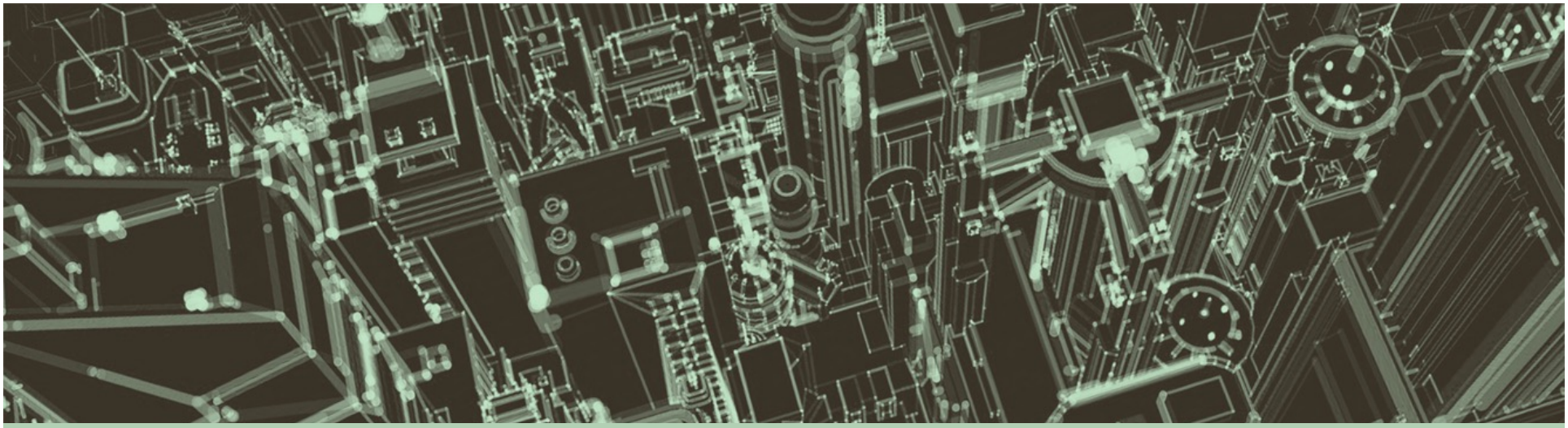


Sacroiliac Joint Pain is NOT the Diagnosis. Why Does Their SIJ Hurt?

Eric Shoemaker DO, FAAPMR, DABPM

Disclosures

- None

Sacroiliac Joint Pain

- 14-30% of axial low back pain
- Interventional treatment is expensive
  - Buysman et. al. 2018
    - Retrospective analysis of 302 patients who underwent SIJ fusion
    - Nonsurgical treatment costs prior to surgery
    - Cost an average of $16,803 just in the 9 months leading up to surgery
  - Medicare pts cumulative 5-year direct medical costs $18,527 ± $28,285 (± SD) per patient. (2014)

- Cohen SP, Chen Y, Neufeld NJ. Sacroiliac joint pain: a comprehensive review of epidemiology, diagnosis and treatment. Expert Rev Neurother. 2013 Jan;13(1):99-116.
- Cohen SP. Sacroiliac joint pain: a comprehensive review of anatomy, diagnosis, and treatment. Anesth Analg. 2005 Nov;101(5):1440-1453.
- Bernard TN Jr, Kirkaldy-Willis WH. Recognizing specific characteristics of nonspecific low back pain. Clin Orthop Relat Res. 1987 Apr;(217):266-80.
- Buysman EK, Halpern R, Polly DW. Sacroiliac joint fusion health care cost comparison prior to and following surgery: an administrative claims analysis. Clinicoecon Outcomes Res. 2018 Oct 17;10:643-651.
- Ackerman SJ, Polly DW Jr, Knight T, Holt T, Cummings J Jr. Nonoperative care to manage sacroiliac joint disruption and degenerative sacroiliitis: high costs and medical resource utilization in the United States Medicare population. J Neurosurg Spine. 2014 Apr;20(4):354-63.

Sacroiliac Joint Pain

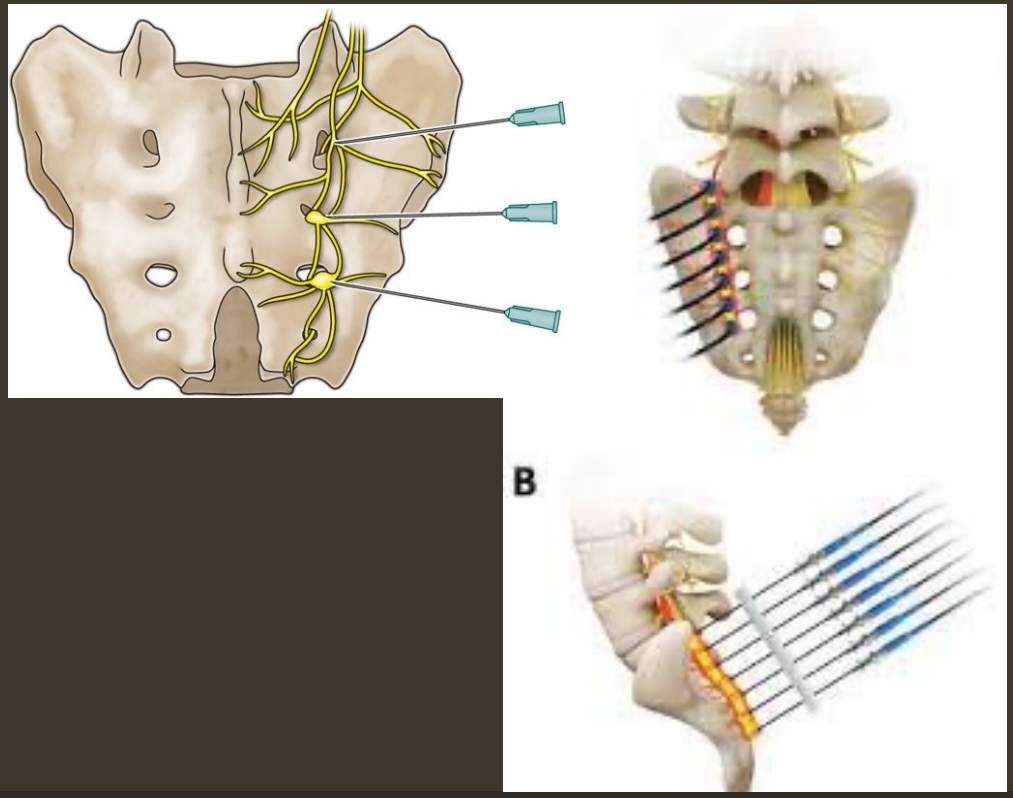
- The people who make the decisions
  - "value" of a given intervention
- Over utilized procedures
  - Under the microscope
- Marginal level of benefit
  - Outcomes measured from the 10,000 foot view

Sacroiliac Joint Pain

- Appropriate utilization of the intervention
  - Optimize noninterventional treatment
- Rigorous patient selection
- Optimal technique

Sacroiliac Joint Pain

- SIJ RFN



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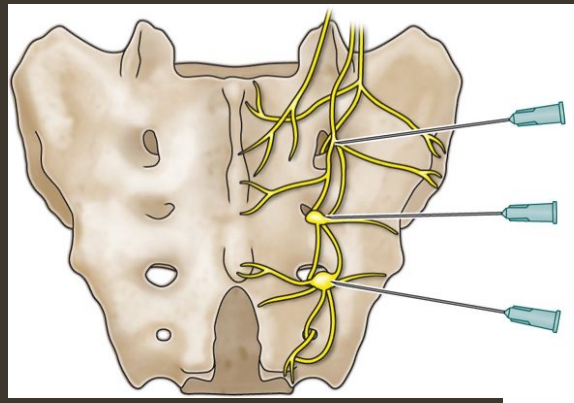
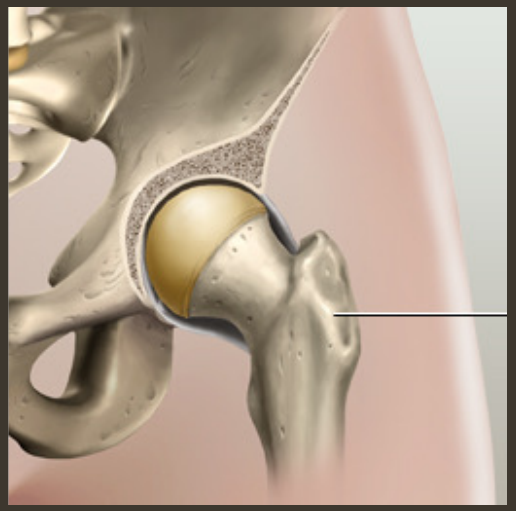


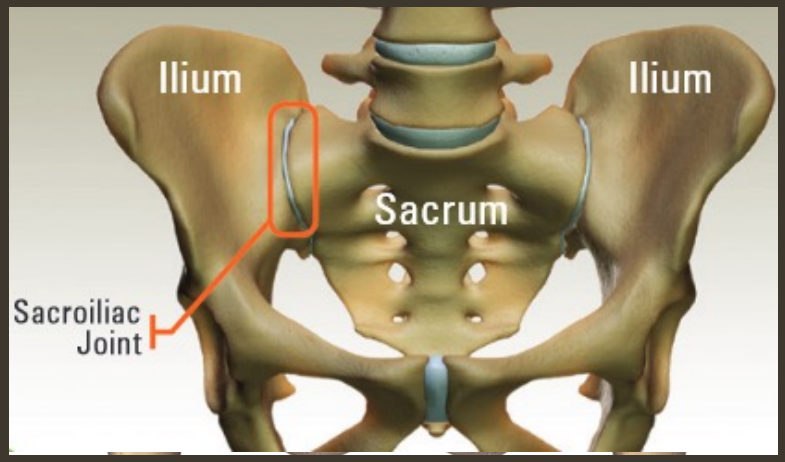
Good Outcomes

Sacroiliac Joint

- Form closure joint

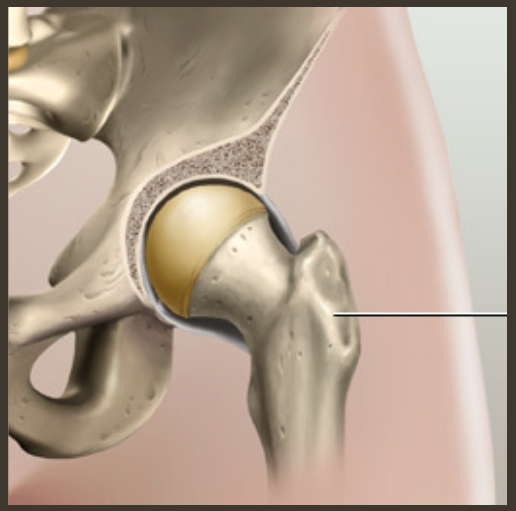


- Force closure joint



Sacroiliac Joint

- Form closure joint



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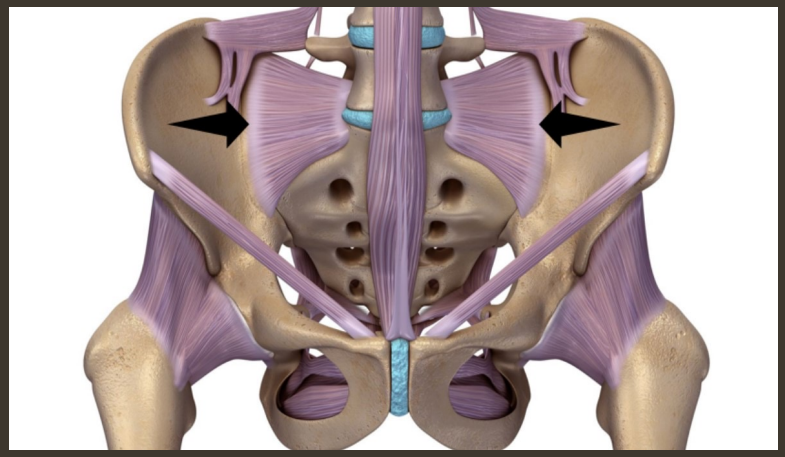


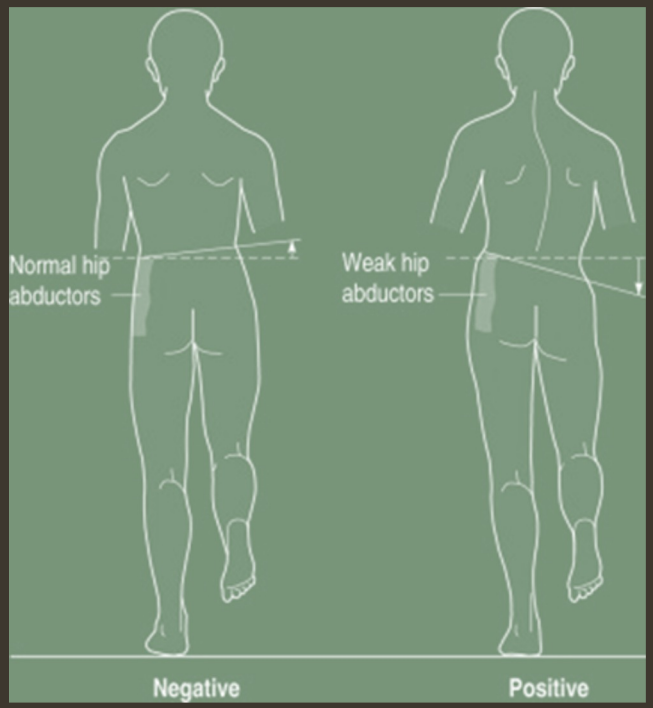
Pelvic Instability

- Gluteal weakness

vs

- Movement system impairment syndrome

Assess Pelvic Stability



Stand behind patient:

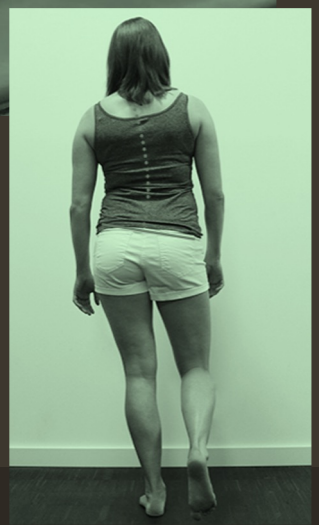
- "Stand on one leg"
- Assess PSIS and iliac crest motion/level
  - Esp. during the first moments of single leg stance
- Visual and tactile if necessary
- Uncompensated Trendelenburg = hip drop
- Compensated Trendelenburg = excessive hip hike
- Rate: good, fair or poor

Assess Pelvic Stability

Patient in side-lying:

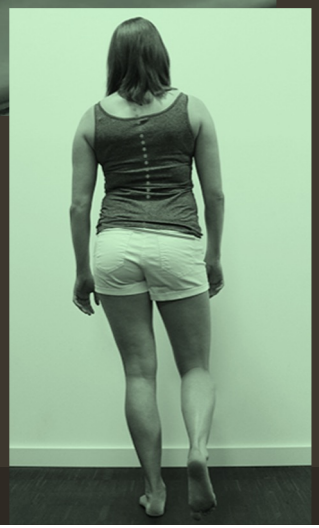
- Roll 10-15° toward prone to eliminate TFL
  - Block them from rolling back
- Assist them into position and see how they maintain
- Unable to maintain position = grade 3 or less
- If Grade 4
  - Full hand at ankle
  - 2 fingers at ankle
  - 2 fingers at knee
- Unable to overpower with full hand at ankle =5/5

Pelvic Instability



- Compensated or uncompensated Trendelenburg sign with weak hip abduction in side-lying =
  - **Weak gluteus medius.**
  - **Deconditioning, Tendinopathy, Tendon Tear, Radiculopathy,** plexopathy, peripheral nerve injury

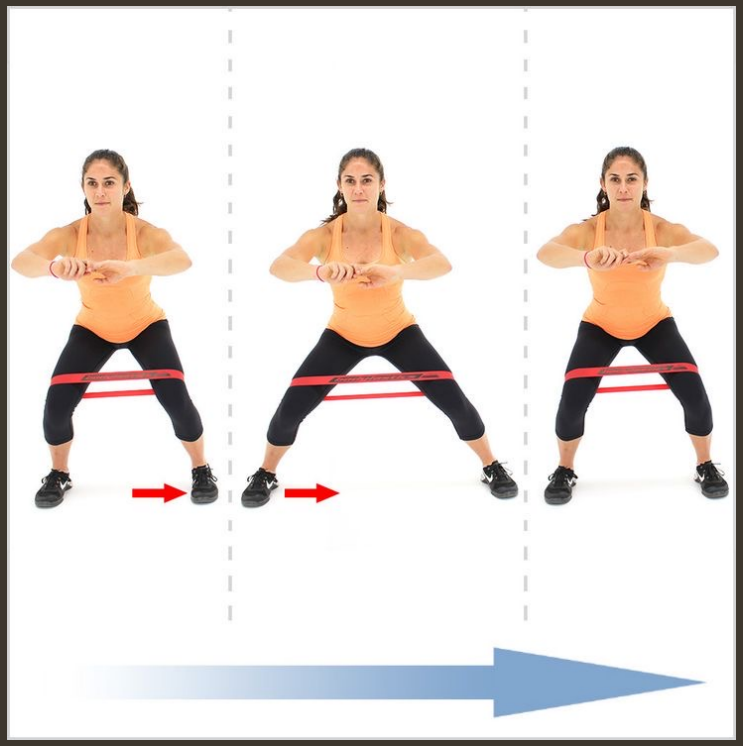
Pelvic Instability



- Compensated or uncompensated Trendelenburg sign with weak hip abduction in side-lying =
  - **Weak gluteus medius.**
  - **Deconditioning, Tendinopathy, Tendon Tear, Radiculopathy,** plexopathy, peripheral nerve injury
- Compensated or uncompensated Trendelenburg sign with strong hip abduction in side-lying =
  - **Movement System Impairment Syndrome -** impaired recruitment
  - **Pain inhibition** – intraarticular hip pain

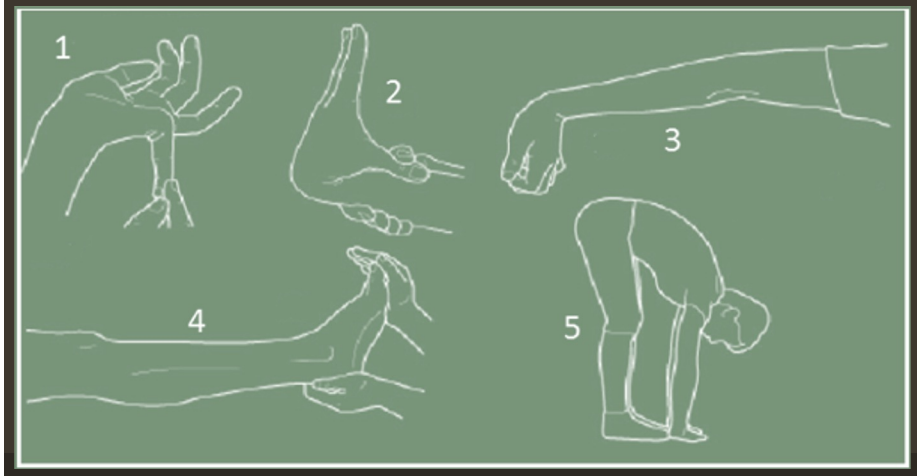
Pelvic Instability

- Deconditioning/disuse atrophy
  - → Strengthening (monster walk, Clam shell etc)
- Gluteal tendinopathy/partial thickness tendon tearing
  - → Isolated eccentrics, PRP
- Radiculopathy
  - → Check for ADF weakness, Consider EMG, lumbar decompression
  - → Single point cane in the contralateral hand
- Movement system impairment syndrome
  - → Specialized PT (Shirley Sahrmann/WashU trained), Surface EMG Biofeedback
- Pain inhibition
  - → Address underlying pain generator (IA hip injection)



Generalized Ligamentous Laxity

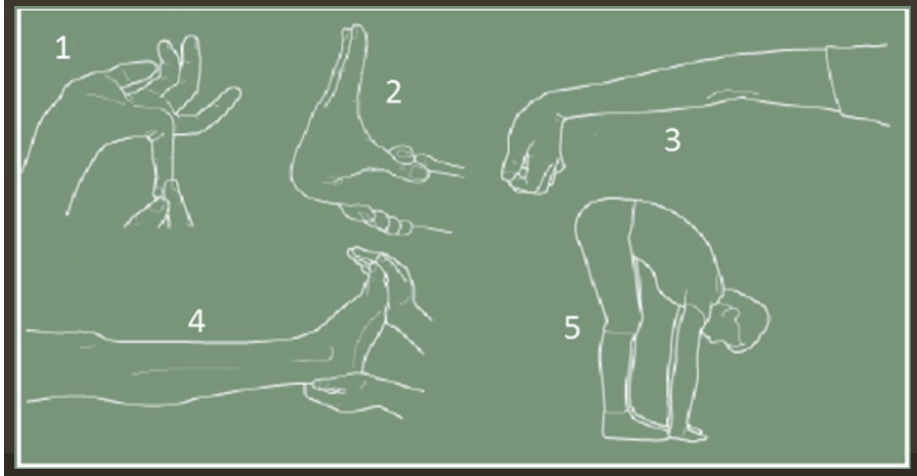
- aka “Benign” Hypermobility Syndrome
- Beighton Score
  - 0-3 = normal (0 = tight)
  - 4-8 = laxity
  - 9 = hyperlaxity



	Left	Right
1. Passive dorsiflexion and hyperextension of the fifth MCP joint beyond 90°	1	1
2. Passive apposition of the thumb to the flexor aspect of the forearm	1	1
3. Passive hyperextension of the elbow beyond 10°	1	1
4. Passive hyperextension of the knee beyond 10°	1	1
5. Active forward flexion of the trunk with the knees fully extended so that the palms of the hands rest flat on the floor	1	1

Generalized Ligamentous Laxity

- aka “Benign” Hypermobility Syndrome
- Beighton Score
  - Limited reliability for hypermobility beyond these joints



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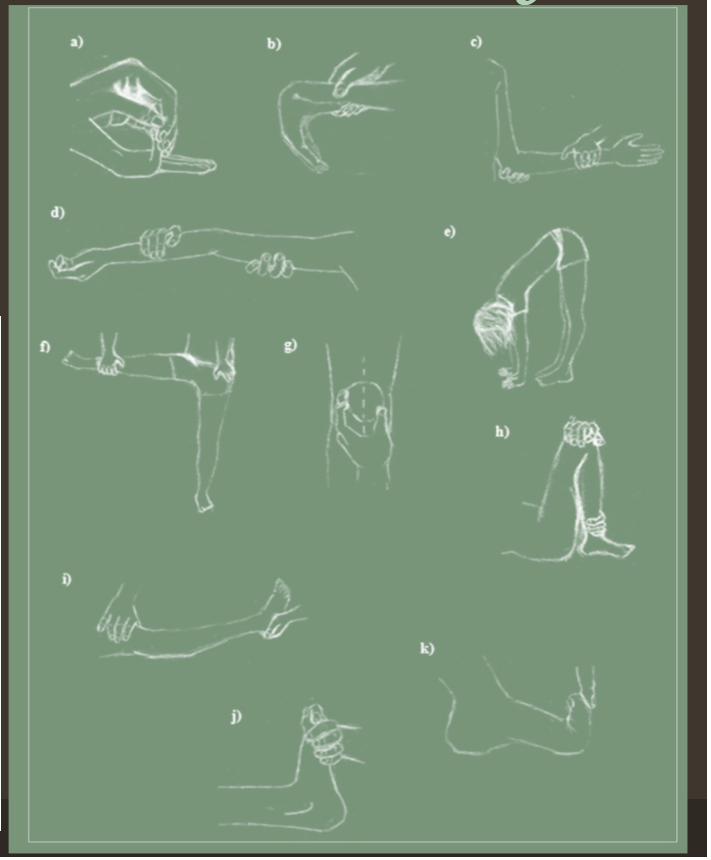
Generalized Ligamentous Laxity

- Hospital Del Mar Criteria
  - Expands on the Beighton Score

Hospital del Mar Criteria for the Clinical Assessment of Joint Hypermobility
Upper Extremities
1. Thumb: Passive apposition of the thumb to the flexor of the forearm at <21 mm.
2. Metacarpophalangeal: With the palm of the hand resting on the table, the passive dorsiflexion of the fifth finger is ≥90°.
3. Elbow hyperextension: The passive extension of the elbow is ≥ 10.
4. External shoulder rotation: With the upper arm touching the body and with the elbow at 90, the forearm is taken in external rotation ≥ 85 of the sagital plane (shoulder-to-shoulder line).
Lower Extremities, Supine Position
5. Hip abduction: The passive hip abduction can be taken to an angle of ≥ 85.
6. Patellar hypermobility: With one hand holding the proximal end of the tibia, the patella can be moved well to the sides with the other hand.
7. Ankle and feet hypermobility: An excess range of passive dorsiflexion of the ankle and eversion of the foot can be produced.
8. Metatarsophalangeal: Dorsal flexion of the toe of the foot over the diaphysis of the first metatarsal is ≥ 90.
Lower Extremities, Prone Position
9. Knee hyperflexion: Knee flexion allows the heel to make contact with the buttock.
Ecchymoses
10. Ecchymoses: Appearance of ecchymoses after hardly noticed, minimal traumatism.



Generalized Ligamentous Laxity

- Hospital Del Mar Criteria
- Consider signs and symptoms of hypermobility focally in the posterior pelvis
  - Clunking and shifting in the pelvis. Ability to self manipulate
    - Provokes or alleviates SIJ pain

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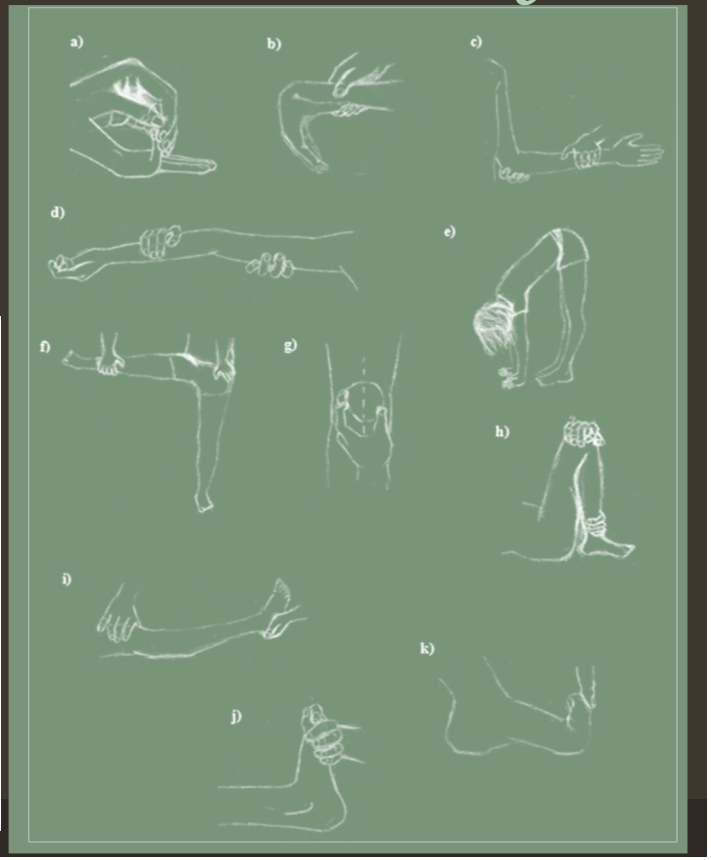

Generalized Ligamentous Laxity

- Ehlers Danlos Syndrome
  - Hypermobile Subtype
  - Based in part on the Beighton Score

Hypermobile Ehlers Danlos 2017 Diagnostic Criteria (Malfait et al, 2017)

Criteria: All 3 must be met

CRITERION 1: GJH
Must meet Beighton Score for age

Age	Beighton Score
Prepubescent or adolescent	≥6
Pubescent up until age 50	≥5
Over age 50	≥4
Patients with AJLs	BS 1 point under age requirements AND a positive 5PQ

CRITERION 2: At least 2 features must be present

Feature A: Systemic manifestations of CTD (need ≥5)

1. Unusually soft/velvety skin
2. Mild skin hyperextensibility
3. Unexplained striae distensae/rubrae
4. Bilateral piezogenic papules of heel
5. Recurrent/multiple abdominal hernia
6. Atrophic scaring in ≥2 sites
7. Pelvic floor, rectal, and/or uterine prolapse in children, men or nulliparous women
8. Dental crowding and high or narrow palate
9. Arachnodactyly
10. Arm span-to-height ≥1.05
11. Mitral valve prolapse
12. Aortic root dilatation with Zscore > +2

Feature B: Family history (1 or more first-degree relatives must meet criteria)

Feature C: MSK Complications (need ≥1)

1. MSK pain in ≥2 limbs, recurring daily for ≥3 months
2. Chronic widespread pain for ≥3 months
3. Recurrent joint dislocations or frank joint instability, in the absence of trauma (a or b)
   a. ≥3 atraumatic dislocations in same joint or ≥2 more atraumatic dislocations in two difference joints occurring at different times
   b. Medical confirmation of joint instability at two or more sites not related to trauma

CRITERION 3: All 3 prerequisites must be met

1. Absence of unusual skin fragility.
2. Exclusion of other heritable and acquired connective tissue disorders. In patients with an acquired connective tissue disorder, additional diagnosis of hEDS requires meeting both Features A and B of Criterion 2. Feature C of Criterion 2 cannot be counted in this situation.
3. Exclusion of alternative diagnoses that may also include joint hypermobility by means of hypotonia and/or connective tissue laxity.

GJH generalized joint hypermobility, AJL acquired joint limitations, BS Beighton Score, 5PQ Five-Point Questionnaire, CTD connective tissue disorder, MSK musculoskeletal, hEDS hypermobile EDS

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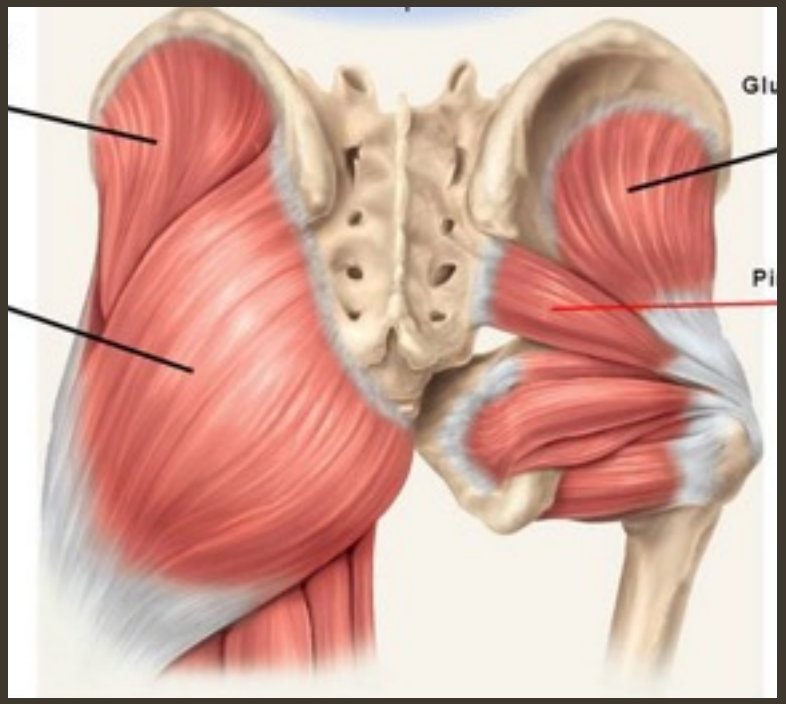
Generalized Ligamentous Laxity

- → Strengthen muscular stabilizers
  - Gluteus Maximus and Piriformis
  - 35 different muscle attach to the sacrum and span to the pelvis and/or lumbar spine



Generalized Ligamentous Laxity

- → Strengthen muscular stabilizers
  - Gluteus Maximus and Piriformis
  - 35 different muscle attach to the sacrum and span to the pelvis and/or lumbar spine
- → SIJ belt
  - Judicious use
- → Prolotherapy

Pregnancy and Peripartum

- Relaxin
  - Member of the insulin-like superfamily
  - Emanates from the corpus luteum and placenta
  - Wide range of activities
    - Hemodynamic changes - cardiac output, renal blood flow, and arterial compliance
    - Weakens the dorsal sacroiliac ligaments and pubic symphysis
      - Prominent in various animals but not well demonstrated experimentally in humans
    - Thought to play a role in the rate of ACL injury in females vs males

- Dehghan F, Haerian BS, Muniandy S, Yusof A, Dragoo JL, Salleh N. The effect of relaxin on the musculoskeletal system. Scand J Med Sci Sports. 2014 Aug;24(4):e220-9. doi: 10.1111/sms.12149. Epub 2013 Nov 28.
- Goldsmith LT, Weiss G, Steinetz BG. Relaxin and its role in pregnancy. Endocrinol Metab Clin North Am. 1995 Mar;24(1):171-86.

Pregnancy and Peripartum

- Sacroiliac dysfunction post-partum
  - Consider birthing complications/interventions
  - Size of baby
  - → Often self corrects
  - → Chiropractic manipulation
    - Non HVLA techniques initially
    - Muscle energy

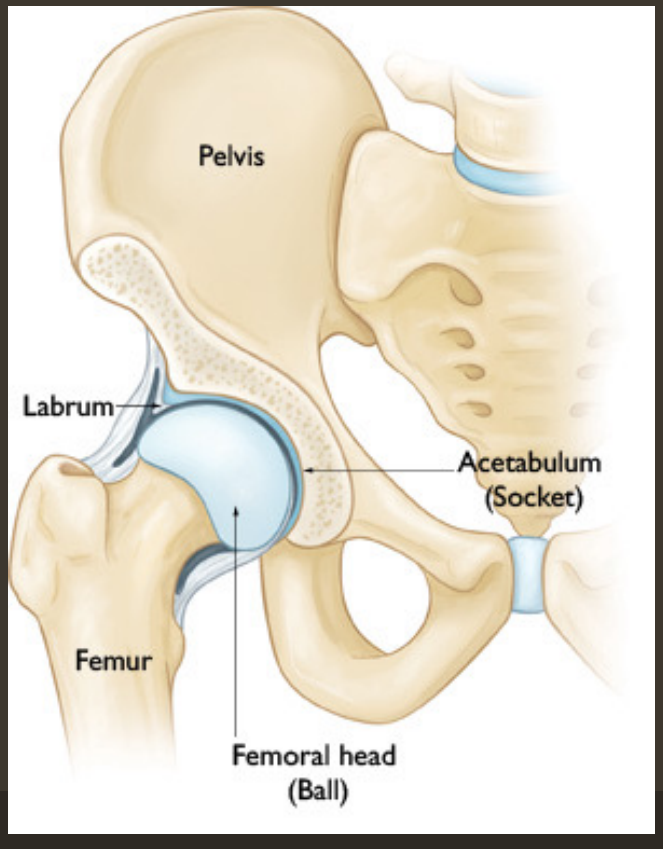
Hip-Spine Syndrome

- First described by Offierski and MacNab in 1983
  - Secondary hip-spine syndrome
    - "cases in which spine symptoms are aggravated by deformity of the hip"
  - "Symptoms from both sites gives a confusing clinical picture and may require ancillary investigations to diagnose the major source of disability."
  - "Failure to recognize concurrent disease at both the hip and spine may lead to misdiagnosis and possibly erroneous treatment."

Spine (Phila Pa 1976). 1983 Apr;8(3):316-21. Hip-spine syndrome. Offierski CM, MacNab I.

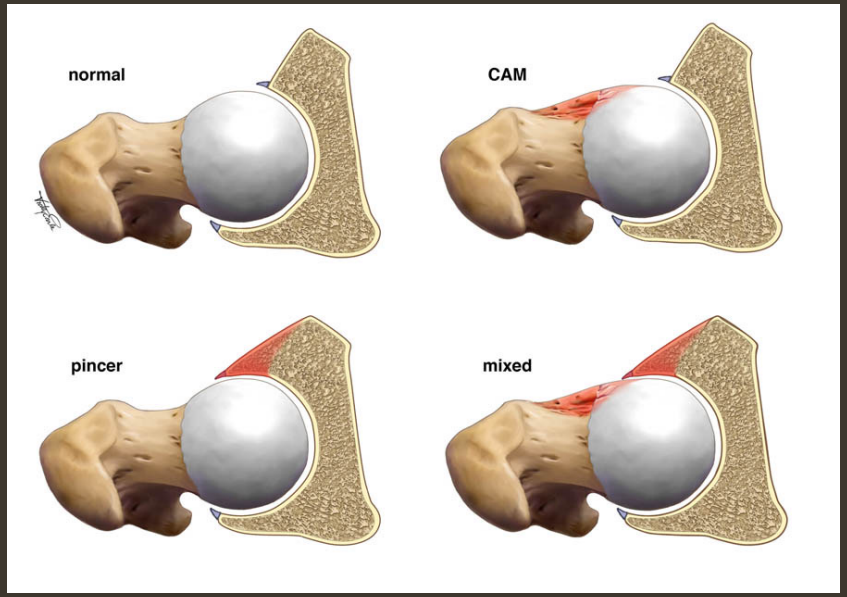
Hip-Spine Syndrome

- Femoroacetabular Impingement
- Hip Osteoarthritis



Hip-Spine Syndrome

- Femoroacetabular Impingement
  - Cam-type
    - Aspherocity of the femoral head
    - Decreased head-neck offset
  - Pincer-type
    - Acetabular over coverage
    - Acetabular retroversion
- Hip Osteoarthritis

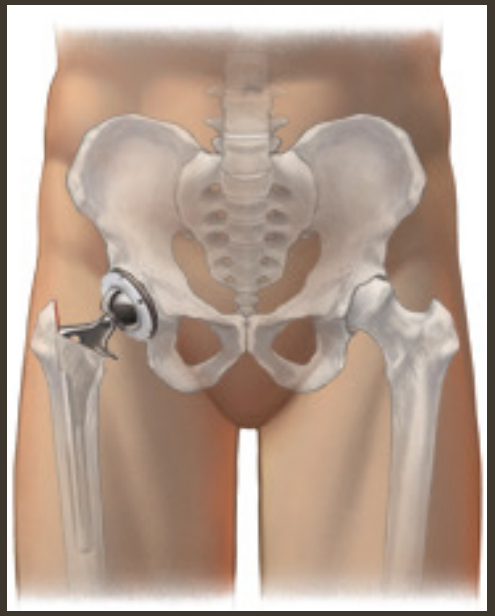


FAI is common in the "asymptomatic" population

- Systematic review of 26 studies which including imaging studies in "asymptomatic" volunteers
  - Some studies were meta-analyses
  - MRI, CT or Xray
  - Definition of FAI findings very heterogenous
  - CAM deformity: 37% (58% athletes and 23% general population)
  - Pincer deformity: 67% (no population breakdown)
  - Labral tear on noncontrast MRI 68% of hips (based on 7 studies)
- Conclusion: "FAI morphologic features and labral injuries are common in asymptomatic patients."
  - Asymptomatic meant no hip pain.
  - **We don't know how many individuals had low back pain.**

Frank JM, Harris JD, Erickson BJ, Slikker III W, Bush-Joseph CA, Salata MJ, Nho SJ. Prevalence of femoroacetabular impingement imaging findings in asymptomatic volunteers: a systematic review. Arthroscopy: The Journal of Arthroscopic & Related Surgery. 2015 Jun 1;31(6):1199-204.

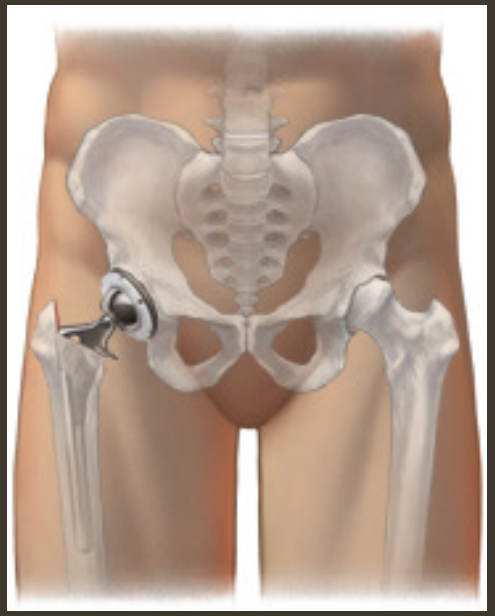
Hip-Spine Syndrome

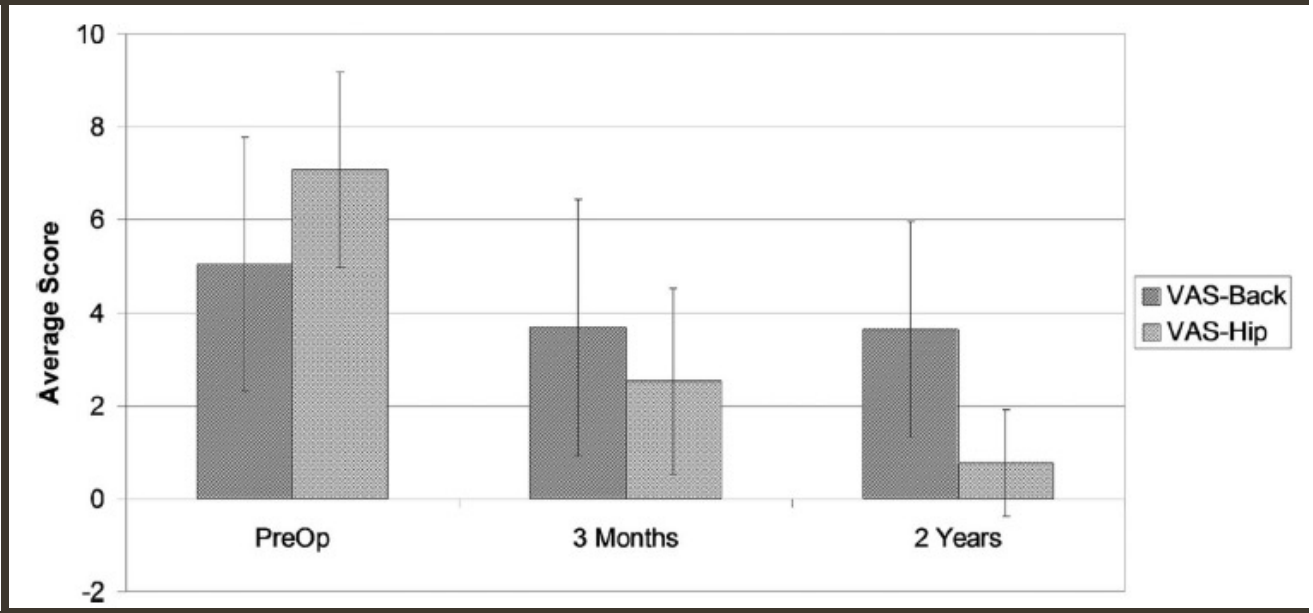


- "Hip-spine syndrome: the effect of total hip replacement surgery on low back pain in severe osteoarthritis of the hip"
- Cohort study
- 25 consecutive patients with severe hip OA and low back pain
  - Underwent THA
- Statistically significant decrease in ODI and LBP following THA

Spine. 2007 Sep 1;32(19):2099-102. Hip-spine syndrome: the effect of total hip replacement surgery on low back pain in severe osteoarthritis of the hip. Ben-Galim P, Ben-Galim T, Rand N, Haim A, Hipp J, Dekel S, Floman Y.

Hip-Spine Syndrome





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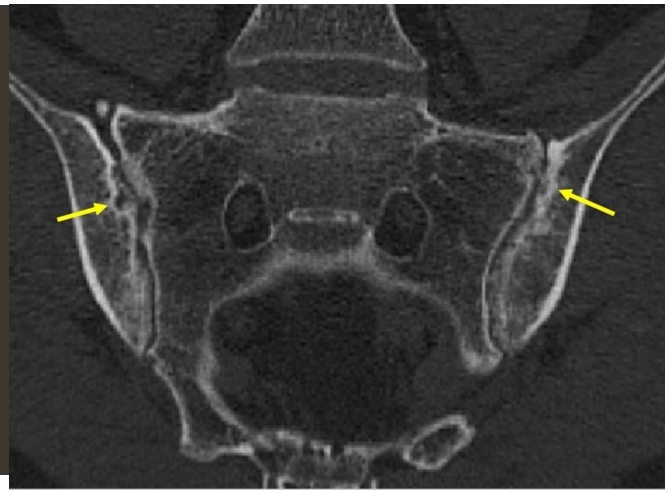
Hip-Spine Syndrome

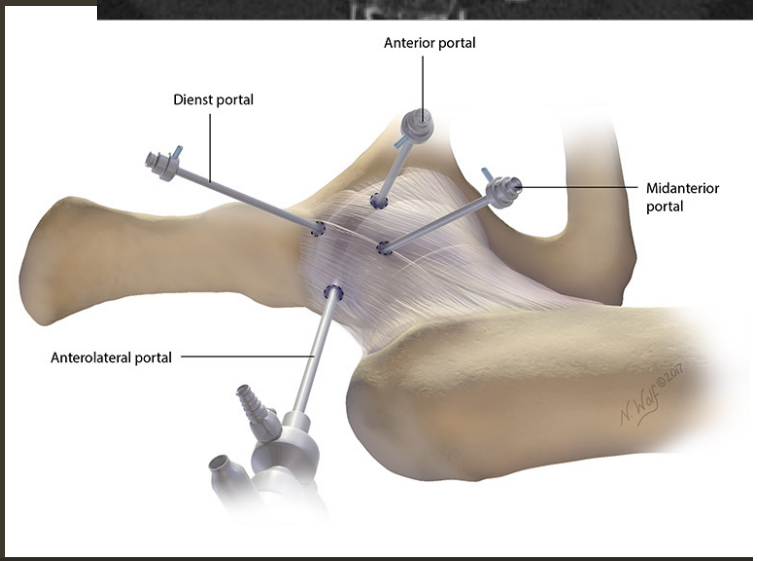
- 33 patients with SIJ pain
  - Confirmed by 2 sequential diagnostic SIJ blocks with >50% relief
  - AP pelvis assessed:
- *42% (4/33) - OA Tönnis grade 2 or greater*
- *21% (7/33) – retroversion*
- *12% (4/33) -lateral centre edge angle >40° with 3% >45°*
- *27% (9/33) - Tönnis angle was <0°*
- *47% (17/33) Coxa profunda and 3% (1/33) acetabuli protrusion*
- *33% (11/33) - cam impingement*
- *Overall, <u>76% (25/33) had at least one abnormality hip x-ray</u>*
- *No control. These findings may also be prevalent in the asymptomatic population*

- Hip Int. 2013 Mar-Apr;23(2):212-7. Epub 2013 Feb 12. Symptomatic sacroiliac joint disease and radiographic evidence of femoroacetabular impingement. Morgan PM, Anderson AW, Swiontkowski MF.

Hip-Spine Syndrome



- 743 patients undergoing hip arthroscopy for FAI
  - Retrospective cohort - No control group
  - Excluded patients undergoing bilateral FAI surgery??
  - SIJs assessed by CT, MRI and X-ray
    - Modified NY Criteria for Spondyloarthropathy
    - Also joint space loss, adjacent marrow edema, bone bridging intra-articular or adjacent enhancement
  - Functional outcomes measures:
    - Hip outcome score-ADL, Hip outcome score-sports, modified Harris Hip score, VAS-pain and VAS-satisfaction



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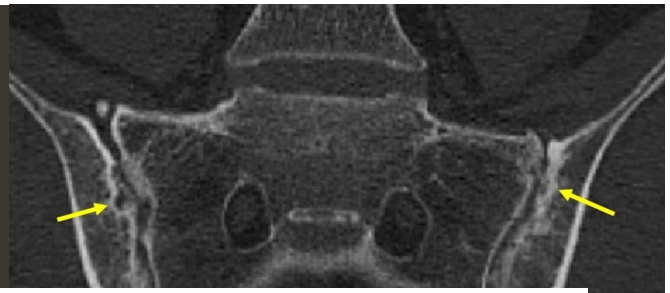
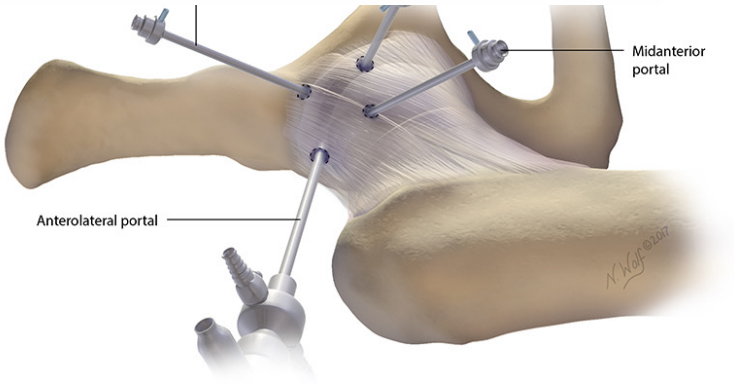
Hip-Spine Syndrome



- 743 patients undergoing hip arthroscopy for FAI
  - Retrospective cohort - No control group
  - Excluded patients undergoing bilateral FAI surgery??
  - SIJs assessed by CT, MRI and X-ray
    - Modified NY Criteria for Spondyloarthropathy
    - Also joint space loss, adjacent marrow edema, bone bridging intra-articular or adjacent enhancement
  - Functional outcomes measures:
    - Hip outcome score-ADL, Hip outcome score-sports, modified Harris Hip score, VAS-pain and VAS-satisfaction

Appendix Table 1. New York Criteria for Sacroiliitis Grading

Classification	Description
Grade 0	Normal
Grade I	Some blurring of joint margin
Grade II	Minimal sclerosis
Grade III	Definite sclerosis on both sides of joint or severe erosion with widening of joint space with or without ankylosis
Grade IV	Complete ankylosis



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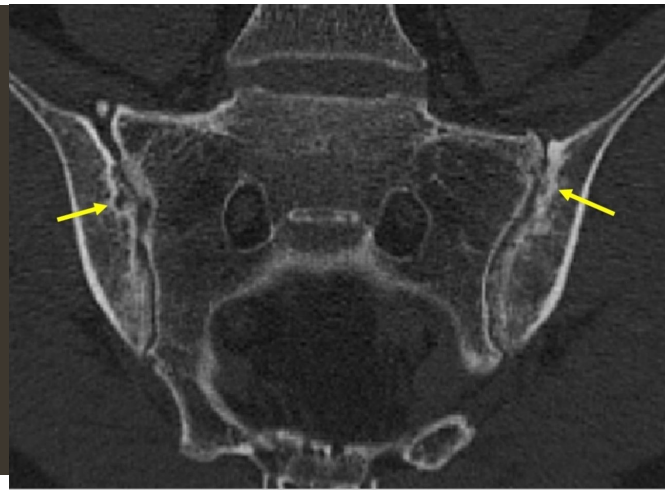
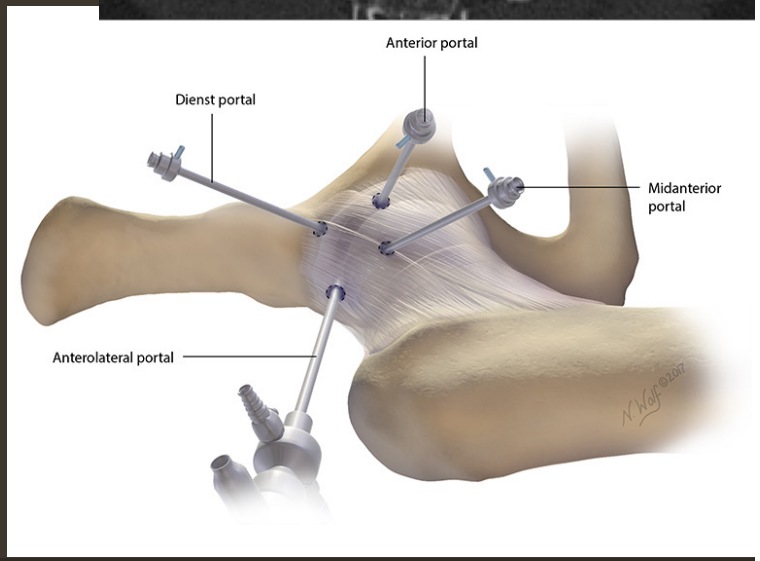
Hip-Spine Syndrome

- 743 patients undergoing hip arthroscopy for FAI
  - 187 (25.2%) had SIJ changes on one or more of the imaging studies
    - Conclusion: “A high prevalence” but there was not control group.
      - The prevalence of these findings in the asymptomatic population is high
  - Compared to patients without SIJ changes this group had significantly worse outcome scores across all measures (except VAS-satisfaction)
    - at 34.1 +/- 9.7 months





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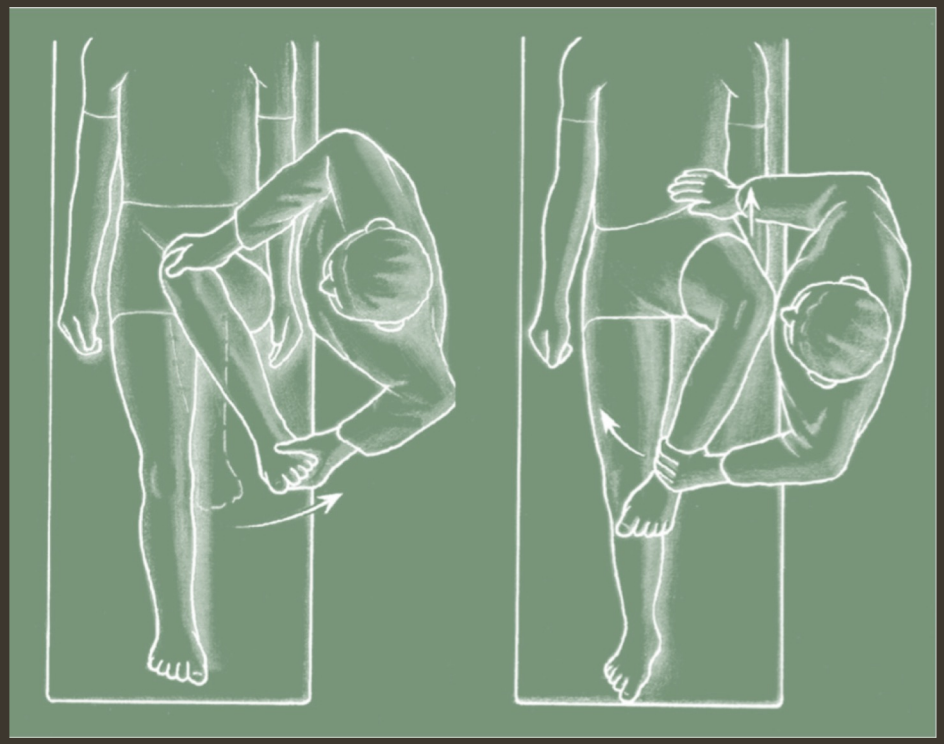
Assess Hip Range of Motion

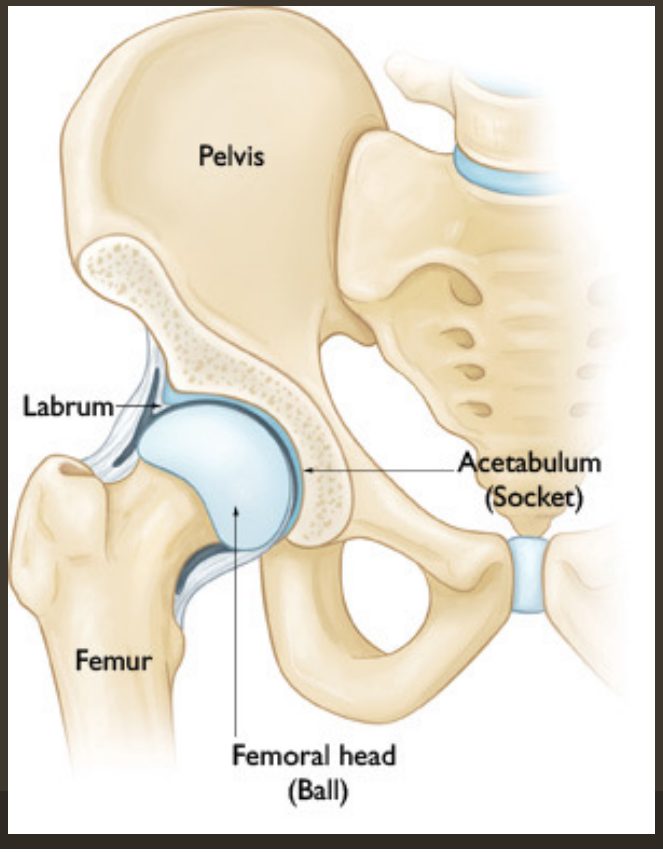


Test in supine

- Hip Flexion (HF)
  - Normal >95-100°
- Internal Rotation at 90°of hip flexion (IRf)
  - Normal >10-15°
- External Rotation at 90°of hip flexion (ERf)
  - Normal > 25-30°

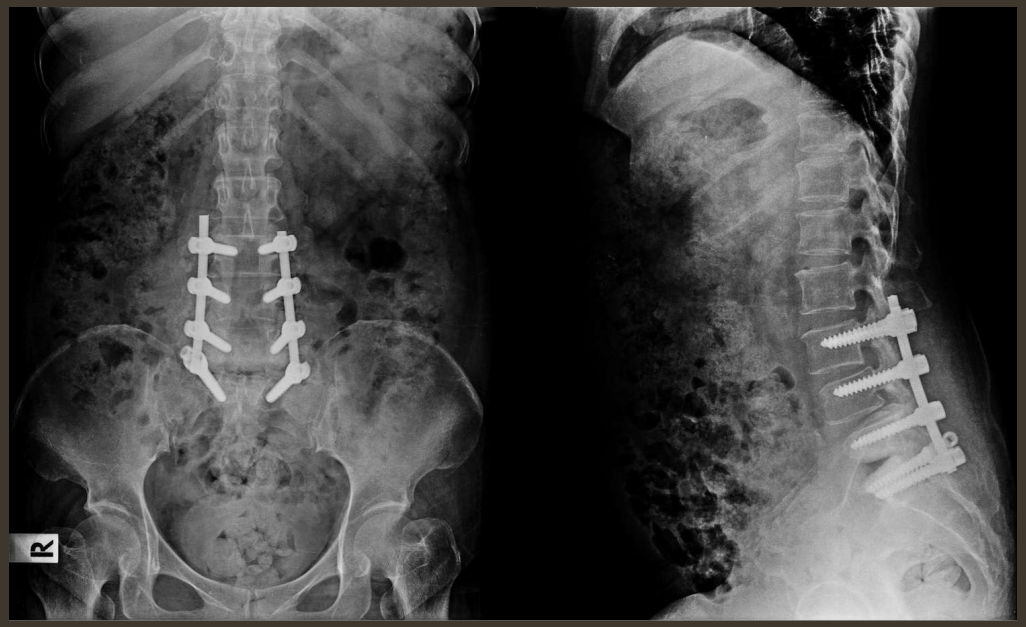
Hip-Spine Syndrome

- → Education
- → Activity modification
  - Decrease acetabular rotation under femoral load
  - Avoid squatting beyond available hip flexion
- → Optimize available hip range of motion
  - Stretching of soft tissues
  - Posterior capsular stretching



Lumbosacral Fusion

- 26-32% of patients after LS fusion have SIJ pain
- S2 alar iliac screw – better or worse?
  - Altered mechanics and cartilage disruption often without fusion.
  - Unoki et al – SIJ pain to the sacrum was 26.1% and dropped to 4.2% with an S2 alar iliac screw



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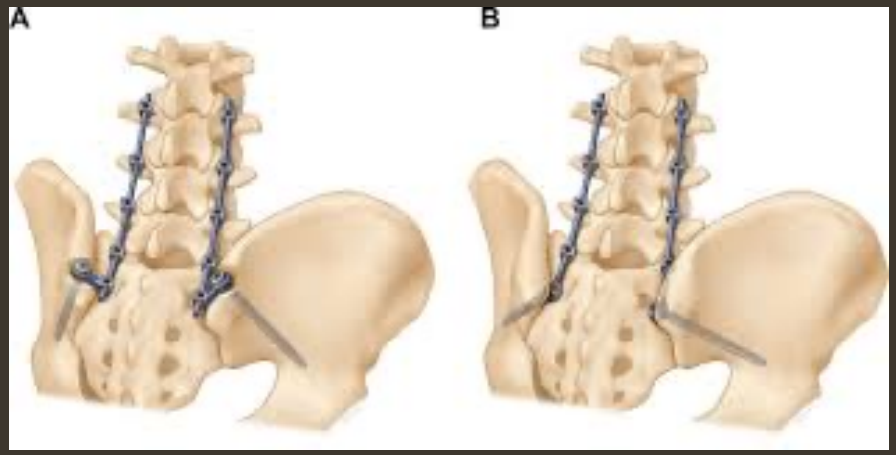

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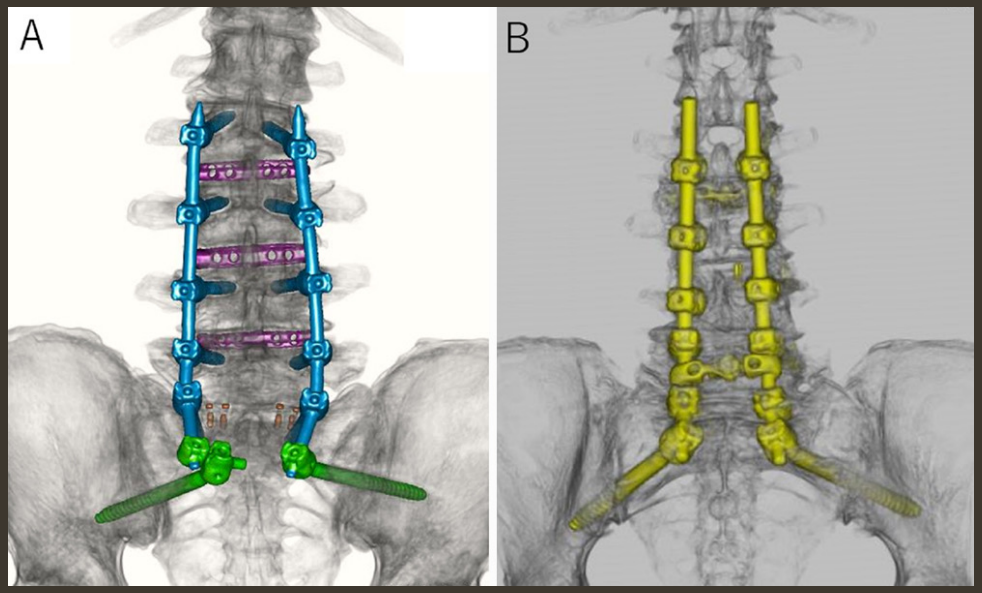

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Seronegative Spondyloarthropathy

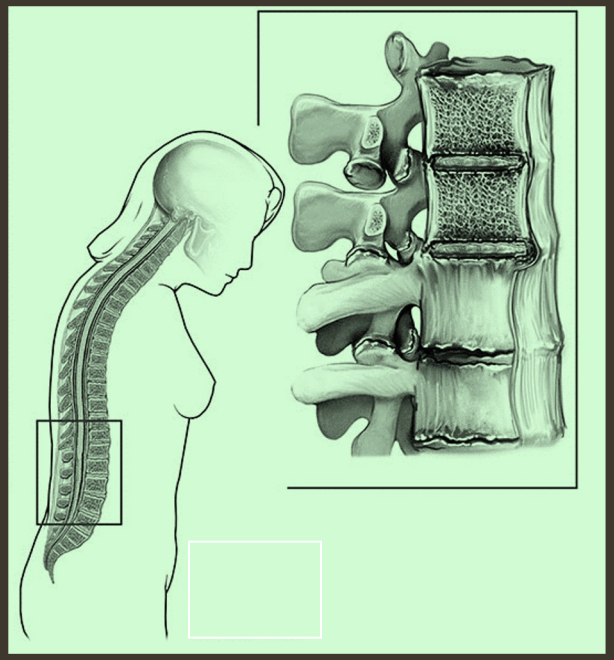
- Group of autoimmune/inflammatory arthropathies
  - Characterized by negative RF
- Commonly attack the SIJ
- Often asymmetrical
- A mean delay of 10 years from 1st symptom to diagnosis

- Feldtkeller E, Bruckel J, Khan MA. Scientific contributions of ankylosing spondylitis patient advocacy groups. Current opinion in rheumatology. 2000 Jul 1;12(4):239-47.
- Feldtkeller E, Khan M, Van Der Heijde D, Van Der Linden S, Braun J. Age at disease onset and diagnosis delay in HLA-B27 negative vs. positive patients with ankylosing spondylitis. Rheumatology international. 2003 Mar;23:61-6.

Seronegative Spondyloarthropathy

- Ankylosing spondylitis
- Psoriatic arthritis
- Enteropathic arthritis
- Reactive arthritis (formally Reiter Syndrome)
- Undifferentiated spondyloarthropathy

Seronegative Spondyloarthropathy



- Ankylosing spondylitis
  - Younger men
  - Significant morning stiffness
  - Pain improves with activity
  - Other joints involved
    - Ribs – pain with deep breaths
    - Shoulders, knees, feet
  - Vision changes, fatigue, weight loss

Seronegative Spondyloarthropathy

- Psoriatic arthritis
  - Check for skin lesions
  - Ask about psoriasis
  - Some patients think they have eczema

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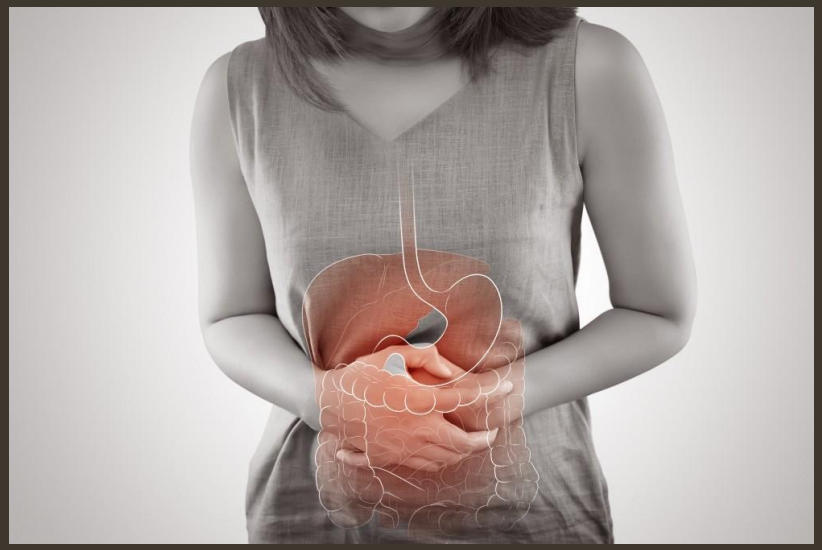
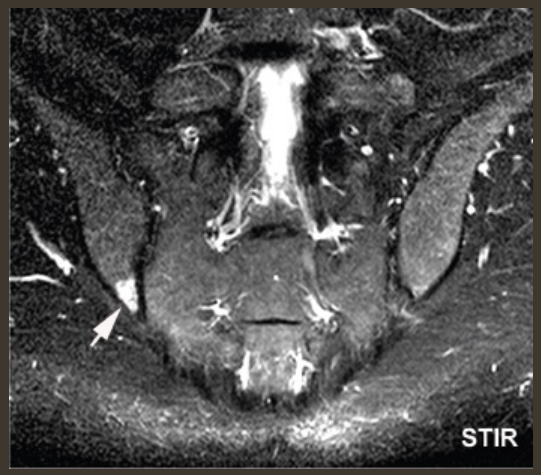


- Enteropathic arthritis
  - Inflammatory Bowel Disease associated
  - Ask about ulcerative colitis and Crohn's
- Reactive arthritis (formally Reiter Syndrome)
  - Triggered by infection; usually GU or GI
  - Joints - knees, ankles or feet
    - Can affect SIJ
  - Conjunctivitis
  - "Can't see, can't pee, can't climb a tree"

Seronegative Spondyloarthropathy

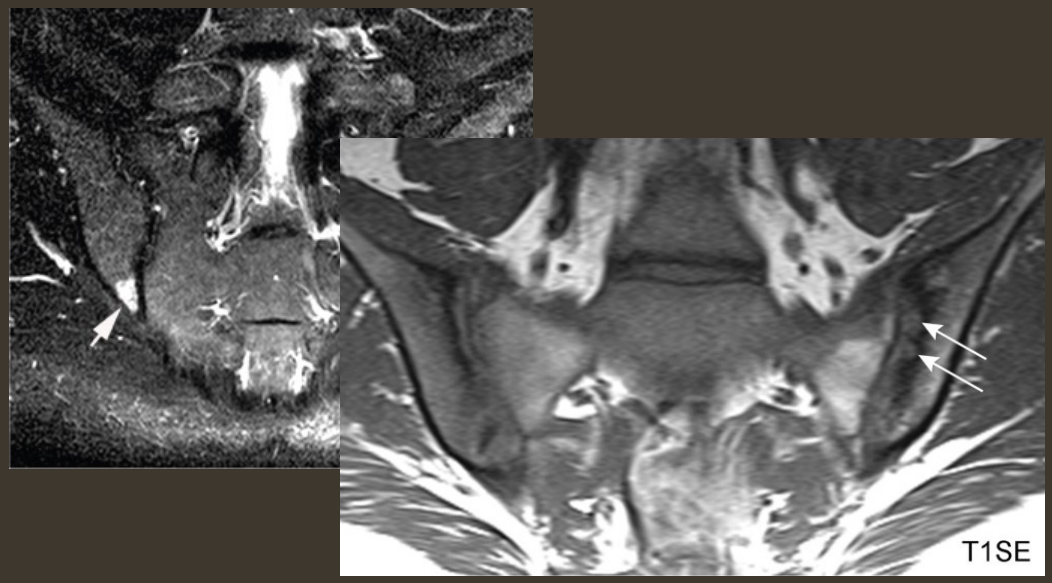
- Imaging
  - Acute findings
    - Periarticular edema
    - Synovitis capsulitis
    - Enthesitis



- Canella C, Schau B, Ribeiro E, Sbaffi B, Marchiori E. MRI in seronegative spondyloarthritis: imaging features and differential diagnosis in the spine and sacroiliac joints. American Journal of Roentgenology. 2013 Jan;200(1):149-57.

Seronegative Spondyloarthropathy

- Imaging
  - Acute findings
    - Periarticular edema
    - Synovitis capsulitis
    - Enthesitis
  - Chronic findings
    - Erosive changes
    - Ankylosis
    - Subchondral sclerosis
    - Fat deposition



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Seronegative Spondyloarthropathy

- Labs:
  - HLA-B27 – ~91% specificity. sensitivity varies
    - Low sensitivity for Psoriatic arthritis
  - ESR, CRP – sensitive but not specific

Table 1 The seronegative spondyloarthropathy complex: disorders, common disease manifestations, and frequencies of HLA-B27

Disorders	*%*
Ankylosing spondylitis	90–95
Reiter's disease	70–85
Reactive arthritis	36–100
Psoriatic arthritis	54
Arthritis in inflammatory bowel diseases	50

- Gran JT, Husby G. HLA-B27 and spondyloarthropathy: value for early diagnosis?. Journal of medical genetics. 1995 Jul;32(7):497.

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Seronegative Spondyloarthropathy

- Treatment
  - → NSAIDs – typically very responsive
  - → Steroid injections – also typically very responsive
  - → Rheumatology referral
    - Monitor for extra-articular manifestations
    - Biologic agents – Enbrel, Remicade, Humira
    - Sulfasalazine
      - – for peripheral joint inflammation
      - – not helpful for the SIJ
    - Methotrexate – inconsistent results

- Clegg DO. Treatment of ankylosing spondylitis. The Journal of Rheumatology Supplement. 2006 Sep 1;78:24-31.
- Moon KH, Kim YT. Medical treatment of ankylosing spondylitis. Hip & pelvis. 2014 Sep 1;26(3):129-35.

Altered Gait

- CAM Walker boot
- Antalgic Gait
- Foot drop
  - Commonly associated with glut med weakness → pelvic stability

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- Optimize biomechanics
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Scoliosis

- Idiopathic
  - Most common
  - Develops during adolescence
  - Occasionally early childhood
- Congenital
  - Present at birth
  - Rare
- Degenerative
  - Uneven settling
- Neuromuscular
  - Cerebral palsy, muscular dystrophy

Scoliosis

- Asymmetric forces and shear stress through the SIJ
- Sarcevic et. al .
  - 98 adolescent athletes with IS vs 98 controls
  - SIJ dysfunction
  - Strong positive associate between scoliosis and SIJ dysfunction
- Wang et. al.
  - Pelvic rotation in 265 patients with IS
  - 60-76% had significant pelvic rotation
    - Same direction as the curve

- Šarčević Z, Tepavčević A. Association between adolescent idiopathic scoliosis and sacroiliac joint dysfunction in young athletes: A case control study. Medicine (Baltimore). 2019 Apr;98(15):e15161.
- Wang ZW, Wang WJ, Sun MH, Liu Z, Zhu ZZ, Zhu F, Qiu XS, Qian BP, Wang SF, Qiu Y. Characteristics of the pelvic axial rotation in adolescent idiopathic scoliosis: a comparison between major thoracic curve and major thoracolumbar/lumbar curve. Spine J. 2014 Sep 1;14(9):1873-8. doi: 10.1016/j.spinee.2013.10.036. Epub 2013 Nov 12.

Scoliosis

- → Traditional treatment approaches
  - Identify and minimize other contributing biomechanical factors
  - Therapy for core strengthening and pelvic stabilization
  - NSAIDs
  - Corticosteroid injections
  - RFA
  - SIJ Fusion

Scoliosis

- Functional Scoliosis
  - Short leg induced
  - 3-15% of the population has a leg-length discrepancy
  - Check leg length
  - Obtain leg length series x-rays
    - Supine medial malleolar alignment
  - → Shoe lift 50% of discrepancy
    - Corrects the scoliosis in 85% of patients

- True Scoliosis
  - Will cause the appearance of a short leg
  - No actual leg length discrepancy on x-rays
  - Shoe lift on the "shorter side" would worsen the scoliosis

- Raczkowski JW, Daniszewska B, Zolynski K. Functional scoliosis caused by leg length discrepancy. Arch Med Sci. 2010 Jun 30;6(3):393-8.

SIJ Sprain/Strain

- Fall onto buttocks or sacrum
- Motor vehicle collision
  - Complex multi-impact
  - Unrestrained
- Often no abnormal imaging findings
  - Clinical diagnosis

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- Fall onto buttocks or sacrum
- Motor vehicle collision
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- Often no abnormal imaging findings
  - Clinical diagnosis
- Self-limited. Most respond to conservative care.
  - PT
  - Chiropractic

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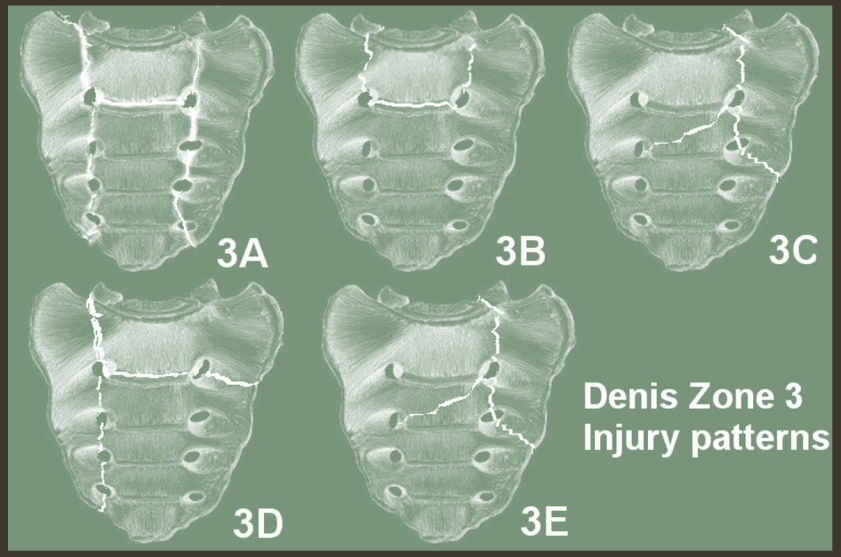
Miscellaneous

- Sacral fracture
  - Denis and Isler classifications
  - Stable nondisplaced fractures with no neurologic deficits are managed nonoperatively
  - Touchdown weightbearing x 8 weeks vs weightbearing as tolerated



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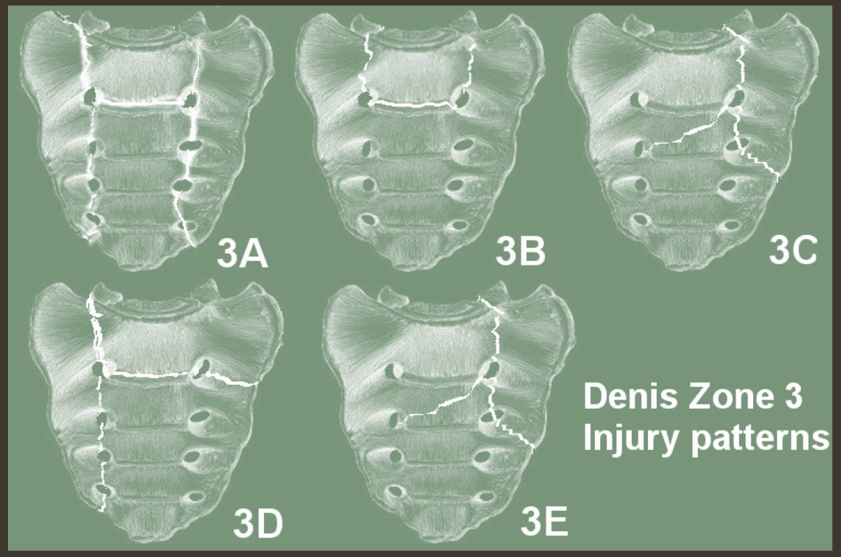

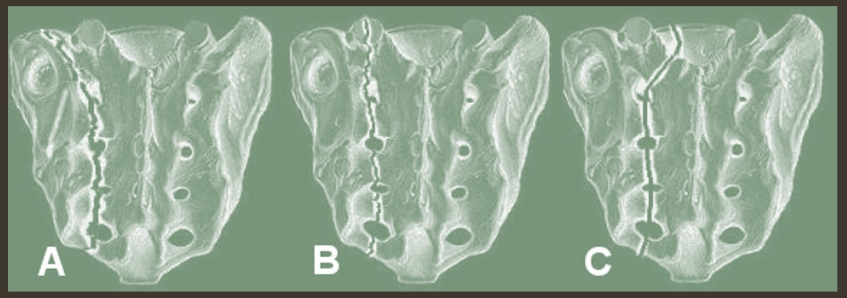

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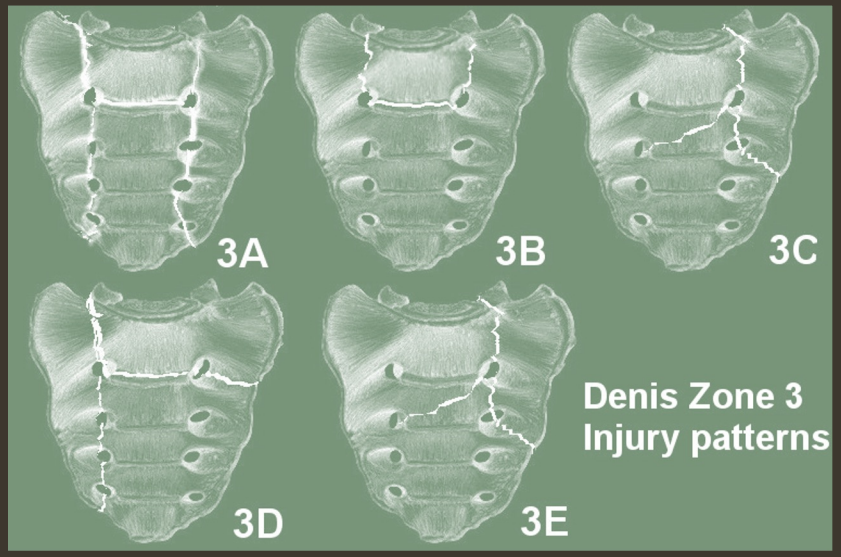
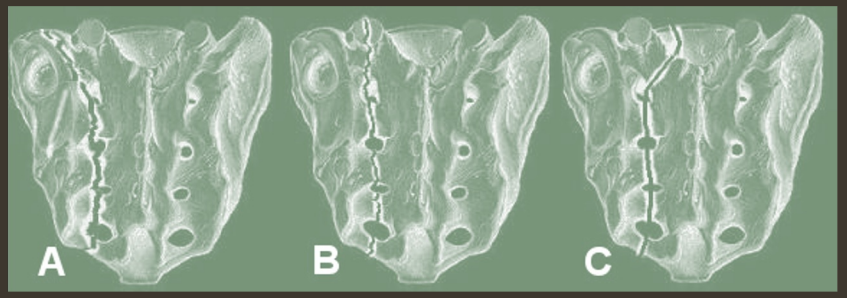
- SIJ infection
  - Prior interventions
- Sacral osteomyelitis
  - Stasis ulcers
- Sacral tumors/metastasis





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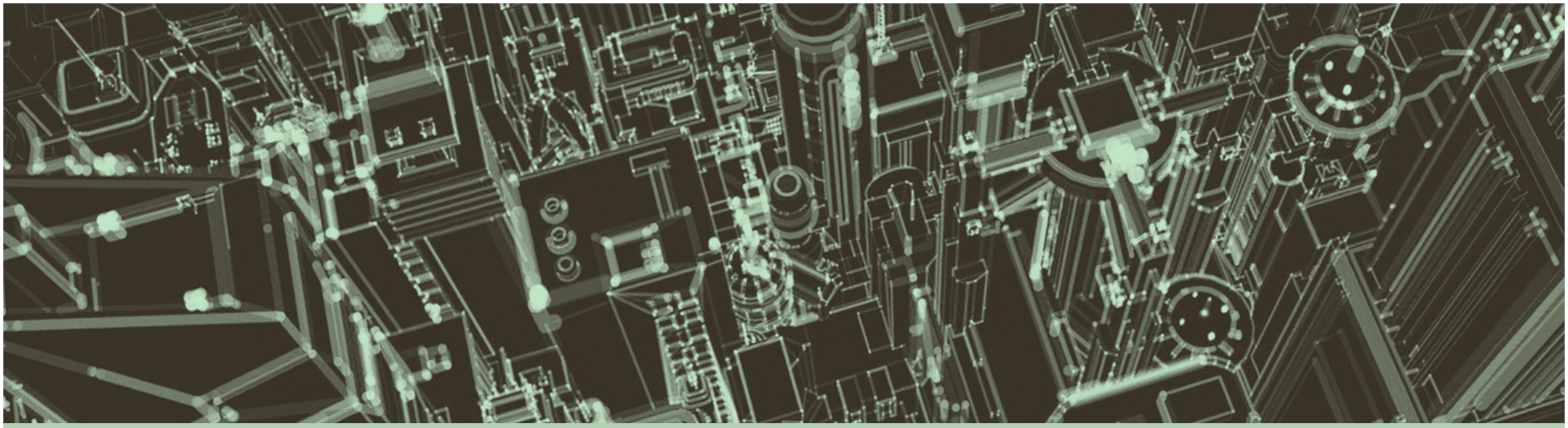
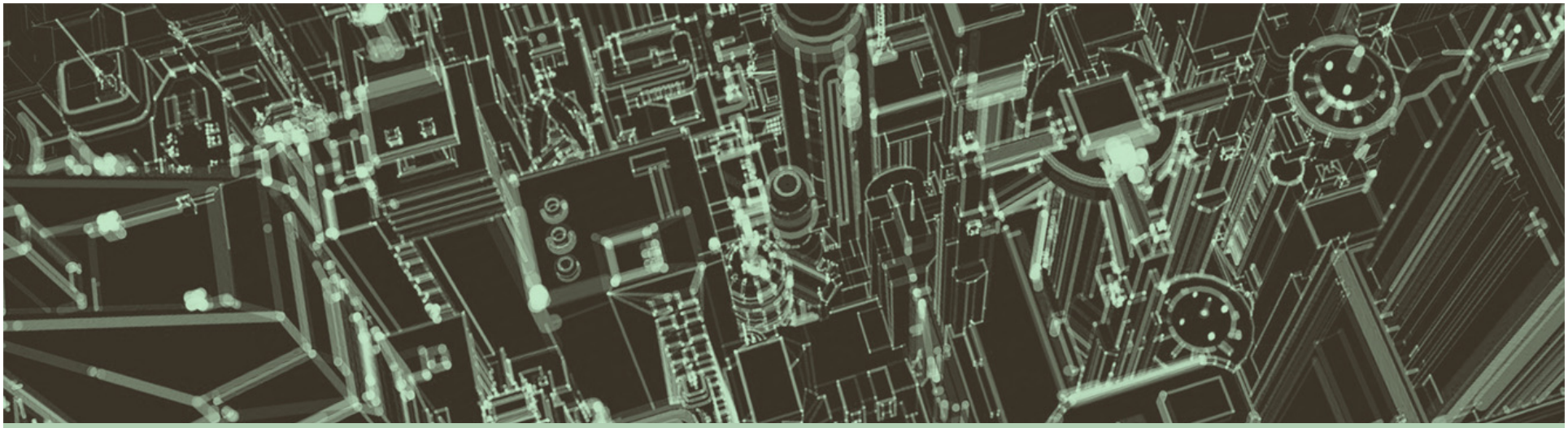


You find only what you look for.
You look for only what you know.



Questions?
Comments.

Musculoskeletal Assessment

- A list of ICD-10 codes is not an assessment
- A good MSK assessment consists of, where applicable:
  - Pain generator(s)
  - Differential diagnosis
  - Relevant anatomy
  - Causality
  - Timeline (acute, subacute, chronic, recurrent, time since injury)
  - Contributing biomechanical factors
  - Contributing psychosocial factors
  - Response to treatment

Musculoskeletal Assessment

- M54.17 – Radiculopathy lumbosacral region
- M51.26 – Other intervertebral disc displacement, lumbar region
- M21.37 – Foot drop (acquired)

Musculoskeletal Assessment

- 48-year-old male with subacute left S1 radiculopathy due to a left L5-S1 paracentral disc extrusion with caudal migration compressing the traversing left S1 nerve root since a lift and twist injury on (date). He has subtle ADF weakness that is stable and improving.

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- He has highly limited passive hip range of motion suspicious for underlying FAI anatomy though no intraarticular hip pain at this time. (This will significantly increase stress forces through the lumbosacral spine during bending/stooping/lifting activity.) Keele start back screening tool score is 9,5 consistent with the highest risk category of ongoing disability and indicating multiple dysfunctional pain cognitions. Indeed, he seems to be coping quite poorly with his pain and loss of function and was tearful at times during the encounter discussing resultant anxiety and depression. Pain has not improved at all so far despite PT, NSAIDs and relative rest.