Determining Lumbar vs SIJ Origin of Low Back Pain

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Pain: Low Back vs SIJ vs Hip

Identification of specific pain generators
Pt ability to localize the pain
- Referred pain
- Higher 2-point discrimination threshold in LB vs face/hands

Imaging
25% of LBP may have significant contribution from SIJ or hip
- SIJ: 14.5% Sembrano 2008
- SIJ: 18.5% Maigne et al 1996
- SIJ: 30% Schwarzer et al 1995

Figure 5. Venn diagram showing the distribution of pain generators (spine, hip joint, and SI joint) being responsible for symptoms in 200 patients complaining of low back pain, after diagnostic workup.

Sembrano et al 2008
Lumbopelvic Hip Examination

Subjective

Objective
- Sit/stand posture
- Functional testing
- AROM (PROM prn)
  - MMT/Goniometry
- Repeated Movement (McKenzie)
- Accessory motions

Movement testing
- Neuro scan

Special Tests
- Non-MSK, MSK with referral, no referral needed
- Origin of pain
- Intervention
Subjective

Subjective
- Age
- Bowel/bladder
- Sleep? AM pain?
- Pain Cough/sneeze/bowel mvmt
- Occupation
- Off work? Due to LBP?
- Onset (trauma vs insidious)
- Specific location (leg)
- Sit vs walk vs stand
Posture

Sitting – with/without Lumbar roll

Posture –
- Degree of lordosis
- Step deformity
- Pelvic position
- Lateral shift
- Leg length discrepancy

Functional Testing
- Single leg stance
- Squat
A/PROM: Quantitative and Qualitative

Flexion, extension, SB, Rot
- Smooth curve
- Flat areas of spine
- Hinged areas of spine

Timing: flex - back vs hip

Timing: return from flex - back vs hip

Combined movements prn

PROM (OP) – prn

Resisted isometric tests for trunk mid range - prn
# Repeated Movements: McKenzie

**ORDER OF REPEATED MOVEMENTS**

- Flexion in standing
- Extension in standing
- Side Glide
- Flexion in lying
- Extension in lying

**PAIN BEHAVIOR**

- Increase/decrease intensity
- Centralize/peripheralize
- Produce/abolish
- Pain during motion vs pain end range

10X unless pattern established
Accessory Motions:

PAIVM – assess and treat
- Central PA’s
- Unilateral PA’s

PPIVM - assessment

https://www.csuchico.edu/~sbarker/spine/spinealt/page9.html

Physiopedia.com

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Movement Testing

Shirley Sahrmann
- Supine Knee to chest
- Bent knee fall out
- Prone knee bend
- Prone hip extension
- Quadruped rock back
Neuro Scan

Myotomes
Dermatomes
Reflexes
SLR
SLUMP
Babinski – UMN
Saddle sensation – CES
Femoral nerve stretch – upper lumbar lesion
Neural tension provocation – peripheral vs central nerve

https://musculoskeletalk.com/lumbar-disc-herniations/
Special Tests

Stand or sit ext/rot test

Instability
- Prone or Side lying rotation PIVM
- Prone instability test

Hip
- FADIR (with/without compression
- Passive hip IR at 90 Flex
- FABER
- Other tests

https://www.csuchico.edu/~sbarker/spine/spinealt/page9.html

Special Tests

SIJ
- Compression
- Distraction
- Sacral thrust
- Thigh thrust
- Gaenslen
- Active mobility testing
- Directional preference
- Positional testing

Laslett 2003, 2008
- Improved specificity for SIJ Diagnosis
  - Non-centralization (McKenzie exam)
  - 3 or more (+) SIJ provocation tests

Poor specificity for SIJ diagnosis
- Centralization (McKenzie exam)
- 3 or more (+) provocation tests
Other

MMT hips
MMT trunk prn
Abdominals: Sahrmann progression
Origin of Pain?
Non-Musculoskeletal Causes of LBP: Hx/Subj

s/s non-mechanical (Jefferson 2008)

- Age <20 or over 50
- Hx injection drug use (ie diabetes)
- Immunocompromised condition (corticosteroid, autoimmune disease)
- Recent infection
- Unexplained wt loss

Pain not relieved by recumbency
Severe nighttime pain
Thoracic or abdominal pain with LBP
Bowel/bladder dysfunction
Perianal numbness
Constitutional symptoms
GI or GU complaints
Bilateral symptoms
Non-Musculoskeletal Causes of LBP: Objective

Skin Rash
Splints toward side of pain
Hyper-reflexia
Saddle sensation
B conduction deficits
Painless weakness proximal mm
Balance and coordination problems
Failure 4-6 wks of conservative care
Musculoskeletal: Referral

Claudication B sx
- Vascular – vascular s/s, better with rest, no neuro s/s
- Neuro – better with lumbar flexion, non-my/o/derm s/s

Ankylosing Spondylitis
- Cluster of 4:
  - Age <40
  - Am stiffness >30 min
  - Better with ex not with rest
  - Wake due to LBP 2nd half of night
  - Alternating buttock pain

Fracture
- CES
  - B S1 myotome/dermatome
  - Saddle anesthesia
  - Bowel/bladder changes
Lumbar: Disc?

**Rule out (High Sn)** – Donelson 1990
- No Centralize/peripheralize

**Rule in (High Sp)** – Laslett 2006
- Centralization
- Recurrent episodes
- Sig loss of extension
- Vulnerable mid range

**Other**
- Worse sitting, better walking
- Valsalva worse
- Worse fwd flex and return from flex
- Not relieved by recumbent position

http://spinenevada.com/education/back_exercises.html
Lumbar: Instability? - Significant vs Mild

**Rule out (highly Sn)**
- none

**Rule in (Highly Sp)**
- (+) PPIVM flex/ext, PAIVM (Abbott 2005)
- <37 y/o (Fritz 2005)

**Other:**
- Painful arc flex and return
- (+) prone instability
- Step deformity standing, disappear prone
- Transverse muscle guarding, may be gone in prone

- Localized mm twitch when wt shift side to side
- Lack of smooth forward bend
- Static loading
- Give away/catching with sudden movement
- Transient neuro signs and symptoms (spondylolisthesis)

**Mild Instability— movement assessment**
- Pelvic rotation, post/ant pelvic tilt, too much flex/ext lumbar
- Hip rotation, flex, ext
- other
Lumbar: Facet?

RULE OUT (HIGHLY SN)

- Probably not SIJ if:
  - Laslett 2006
  - Centralize
  - Ext/rot test (-)
- Revel 1998
  - No pain coughing
  - Pain worse rising from flex
  - Pain not relieved with recumbency

RULE IN (HIGHLY SP)

Probably SIJ if:
- At least 3 of the following (Laslett 2006)
  - >50
  - Best walking and sitting
  - Localized paraspinal pain
  - (+) ext/rot test

- Other: hx trauma (younger), no worse with flex or rise from flex, worse static position, repeated movements not impact
Sacroiliac Joint?

**RULE OUT (SN)**

Probably not SIJ if:
- No pain below L5
- Not at least one provocation (+)
- Not have at least 3 prov (+) in a non centralizer
- (-) thigh thrust
- (-) sacral sulcus testing

**RULE IN (SP)**

Probably SIJ if:
- Broadhurst 1998
- (+) thigh thrust
- (+) FABER
- Laslett 2003, 2008
- At least 3 (+) provocation test in a non centralizer
Is the Origin SIJ?

Trauma or overuse combined with aberrant movement

Pain includes SIJ

Does not cross midline

Pain with transitional movement
  - Sit to stand, roll in bed

Pain with unilateral activity ie walk, stairs sometimes more prolonged

No distal pain with PA’s above L5


