Nonoperative Evaluation and Management of Low Back Pain in the Athlete

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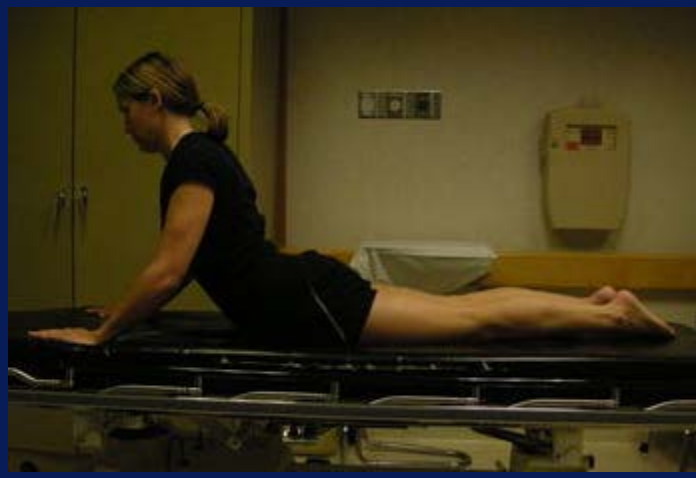
Case #1: 46 yo investment advisor with acute LBP

- 8 day h/o acute LBP after an awkward twist while golfing
- No significant PMH/PSH
- Exclusively axial, bilateral, L>R.
- Worse with sitting, driving, bowel movements. Minimal relieve with high dose ibuprofen
- Wants to play in upcoming golf tournament in 2 weeks



Case #1: What is the diagnosis?

- 1. Acute lumbar strain
- 2. Acute sacroiliac sprain
- 3. Acute annular tear
- 4. Stress reaction to difficult economy

Case #1:

- Review of pathophysiology and expected findings

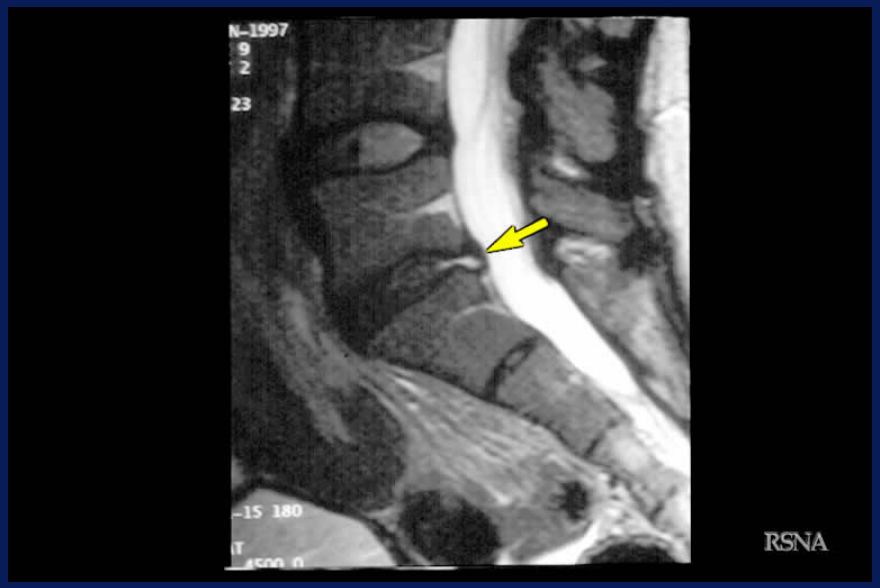
Case #1: Does this patient need imaging/lab testing?

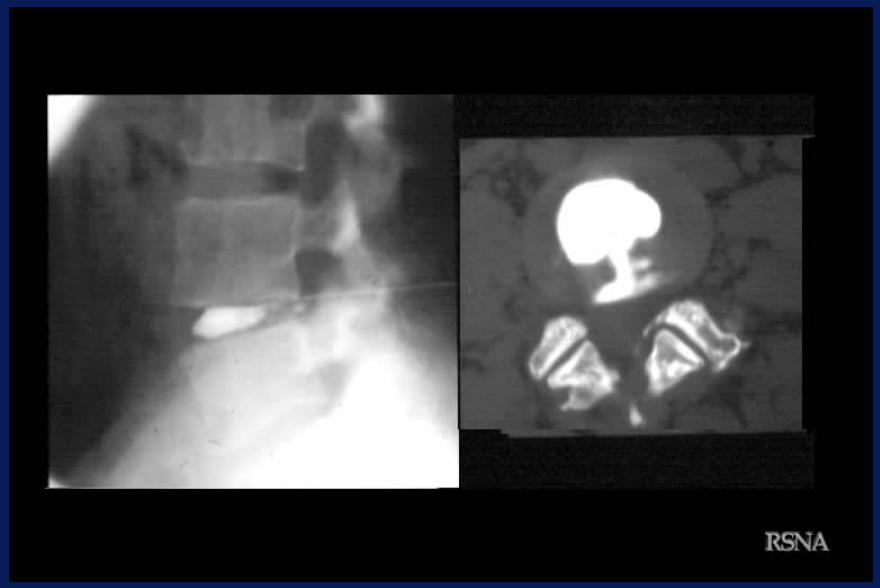
- Lumbar x-rays?
- Spect bone-scan?
- CBC/ESR?
- Lumbar MRI?
- None indicated?

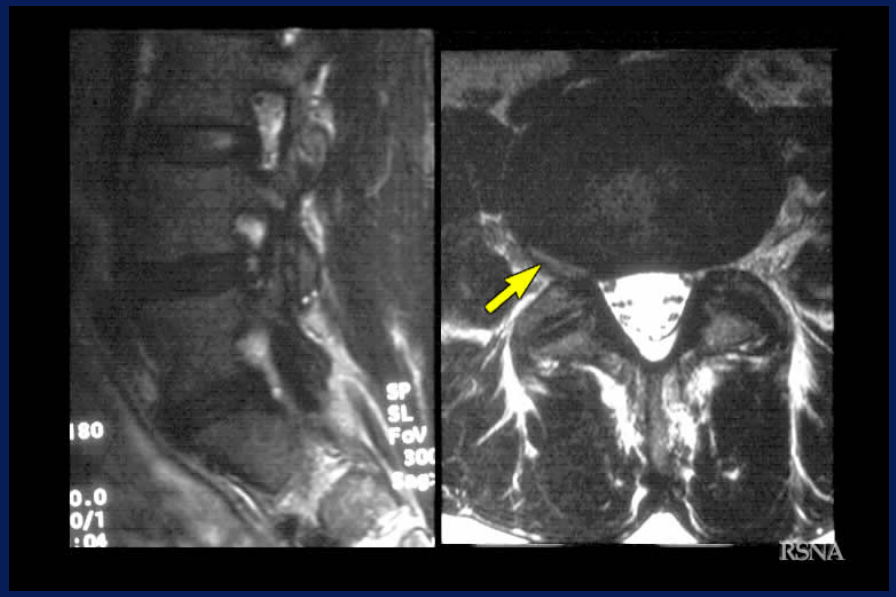
Case #1: What evidence based treatment would you prescribe?

- NSAID? Muscle relaxant:?
  - Tizanidine, cyclobenzaprine
- Directional preference exercise?
- Activity modification?
- Manipulation?
- All of the above??

Annular Tears

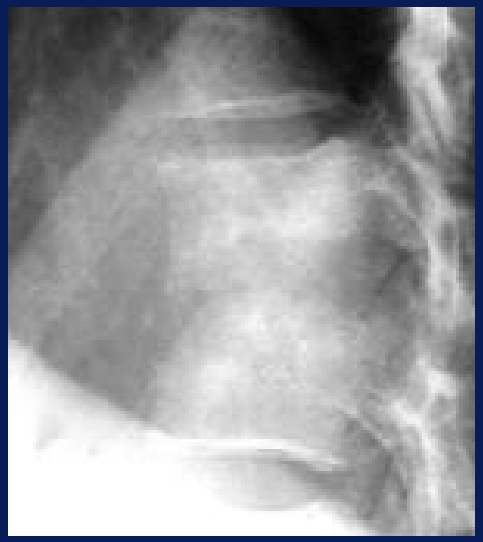


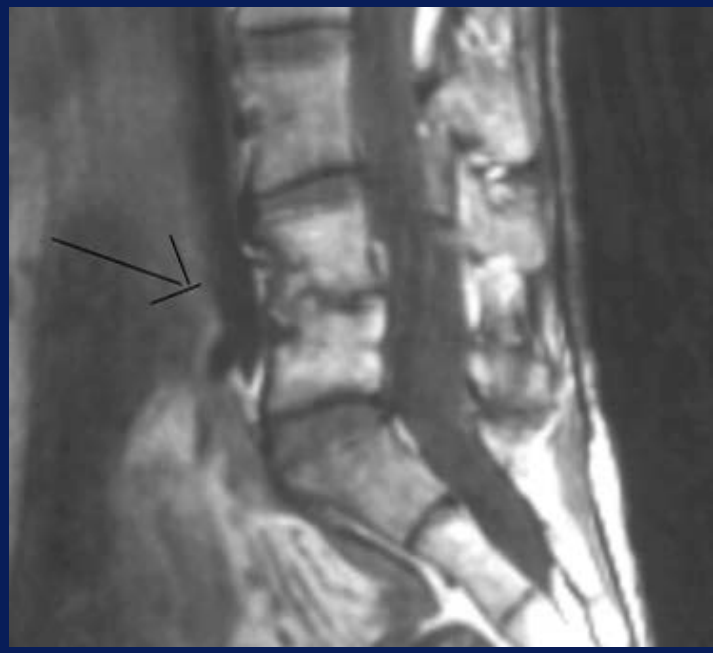




Differential Diagnosis of Acute Low Back Pain

- Back strain
- Acute disc herniation
- Osteoarthritis or spinal stenosis
- Spondylolisthesis
- Ankylosing spondylitis
- Infection
- Malignancy
- Referred visceral pain





Case #1: Patient care talking points

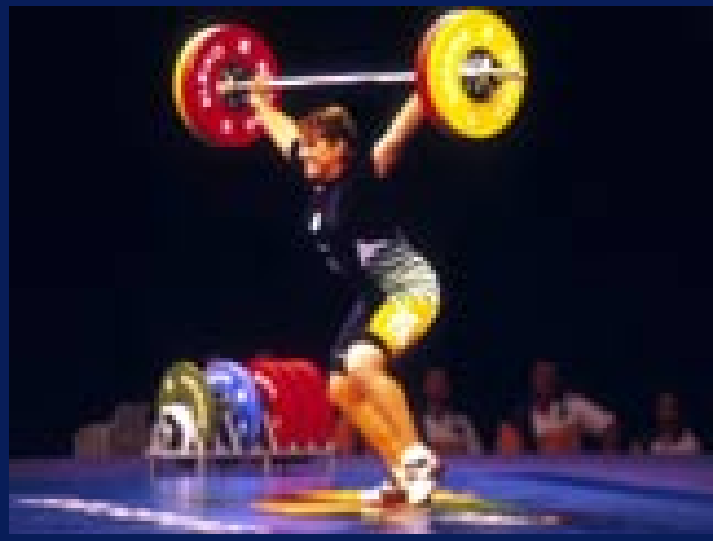
- Severe acute low back pain with associated “lumbar shift” is often disc related
- Encourage activity
- Set appropriate expectations
- Evaluate for position of preference that reduces pain and educate patient

Case #1: Patient care talking points

- Symptomatic treatment may include
  - Nsaids
  - Muscle relaxants
  - Topicals: lidoderm, capsicum, low level heat wrap
  - Manual therapy
- Return to activity/sport as tolerated and when full pain free range of motion, reduction of postural shift and normal strength

Case #2: 42 yo female professor of exercise physiology /weightlifter with acute low back pain

- 1 week h/o severe R LBP with ipsilateral gluteal and postero-lateral thigh/LE radiation and paresthesias after a "twist" injury during a lift. National competition in 4 days.
- PMH
  - Spondyloarthropathy on enbrel
  - Acute lumbar disc herniation in 1985
  - Chronic L5/S1 radiculopathy L leg
  - Completed 11 marathons



Case #2 continued

- PMH cont:
  - Bilateral ankle sprains with R fibula fx
  - S/P shoulder surgery for labral tear and RTC repair

Case 2: What is the diagnosis?

- 1. Acute lumbar strain?
- 2. Acute sacroiliac strain?
- 3. Exacerbation of spondyloarthropathy?
- 4. Acute lumbar disc protrusion with radiculopathy?
- 5. Performance anxiety?

Case 2:

- Review of pathophysiology and expected findings

Case #2: Clinical Diagnoses

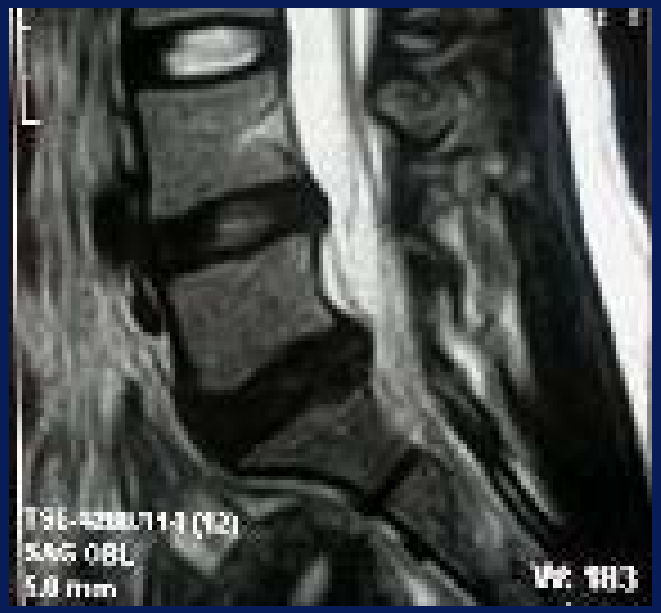
- Acute severe right lower back pain with R lumbar (L5) radiculitis with mild decreased strength and absent L5 reflex
- Chronic intermittent back pain, likely discogenic with prior L L5/S1 radiculopathy
- Spondyloarthropathy with excellent improvement on Enbrel.

Clinical Scenarios

- **Acute
  - Axial lumbar pain
  - Lumbar/lumbosacral radiculopathy
- Chronic
  - Axial lumbar pain
  - Lumbar/lumbosacral radiculopathy

Case #2: MRI findings

- Small R paracentral disc protrusion L5/S1
- Mild disc bulge L4/L5
- Deg disc disease L4/L5 and L5/S1
- Mild facet arthropathy L4/L5
- X-rays: minimal SI arthritis



**Gold medal Pan American masters 2007 (and 2006)

Walker, M. *Boston Globe*. July 29, 2007
www.boston.com/news/local/massachusetts/

Case #2: Patient care talking points

- Acute lumbar radiculopathy may vary in intensity and duration
- Encourage acitivity: ADL, standing, walking, semi-recumbent, then sitting
- Return to play/sport when full pain free range of motion and symmetric strength
- Set patient expectations: 50% improvement of leg pain in 6 weeks.

Acute Axial Lumbar Pain

- Types
  - Zanaflex – alpha 2 agonist, monitor LFTs
  - Flexeril – related to TCA, anticholinergic side effects, 5mg probably as effective as 10mg
  - Robaxin – mechanism unknown
  - Skelaxin - metaxalone
  - ? Soma
    - Addictive
    - CNS depressant

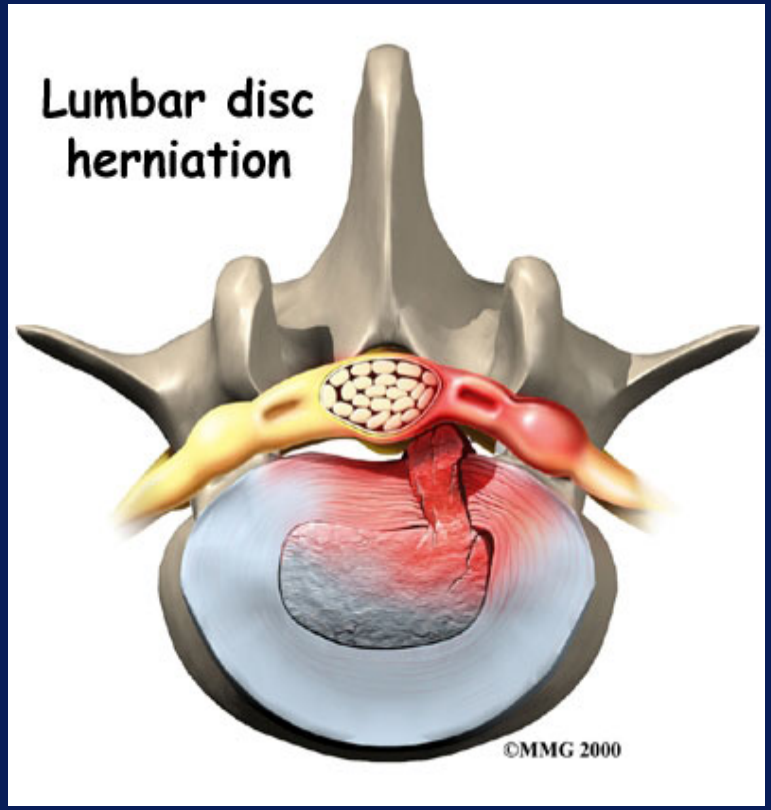
Toth PP, Urtis J. Commonly used muscle relaxant therapies for acute low back pain: a review of carisoprodol, cyclobenzaprine and metaxalone. *Clin Ther*. 2004 Sep;26(9):1355-67

Acute Axial Lumbar Pain

- Sleep Disturbance
  - Sedating muscle relaxant at night
  - Low dose tricyclic antidepressant
    - Elavil 10-30 mg
    - Doxepin 10-30mg
  - Ambien

Acute Lumbosacral Radiculopathy

- Pathophysiology
  - Inflammatory
  - Neuropathic
  - Myogenic (reactive muscle spasm)



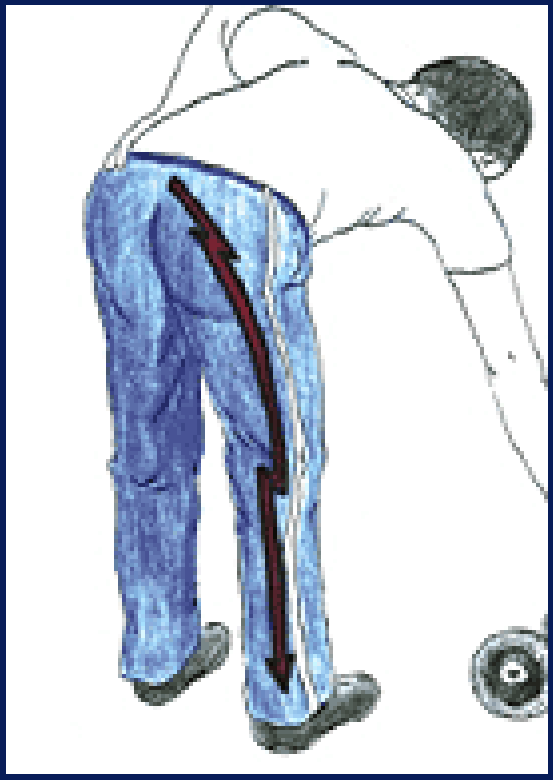
Kobayashi et al. Pathology of lumbar nerve root compression. Part 1: Intraradicular inflammatory changes induced by mechanical compression. *J Orthop Res*. 2004 Jan;22(1):170-9.

Acute Lumbosacral Radiculopathy

- Inflammatory
  - NSAIDS
    - » Around the clock
  - Steroid taper
    - » Medrol Dosepak
      - ? Too low
      - ? Too short
    - » Prednisone taper
      - 60 mg taper over 1-2 weeks
    - » Side effects
      - Glycemic, water retention, euphoria, dysphoria, flushing, avascular necrosis
  - Epidural steroid injection

Acute Lumbosacral Radiculopathy

- Neuropathic
  - Gabapentin (Neurontin)
    - » Start at night 100-300mg
    - » Titrate per effect or side effect
      - Up to 1200 mg tid
  - TCAs – amitriptyline, nortriptyline
    - » Start at night 10-25 mg
    - » Titrate per effect or side effect
      - Up to 150 mg qhs
    - » Avoid in
      - Cardiac disease – proarrhythmic effect
      - h/o glaucoma
      - Urinary retention
  - Consider: Zonisamide, Levetiracetam, Topiramate, Gabitril



Schnitzer et.al. A comprehensive review of clinical trials on the efficacy and safety of drugs for the treatment of low back pain. *J Pain Symptom Manage*. 2004 Jul;28(1):72-95

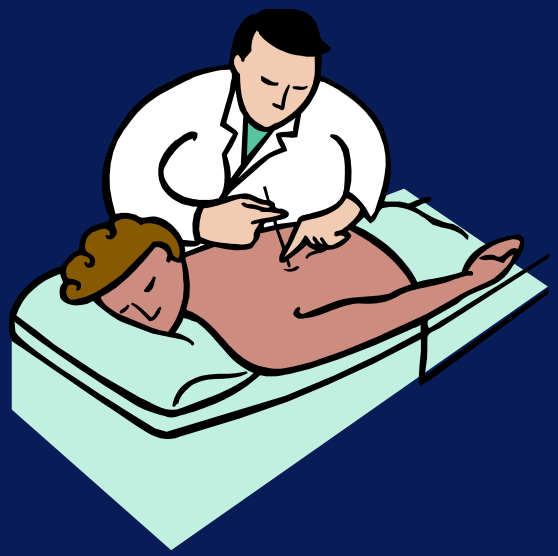
Acute Lumbosacral Radiculopathy

- Opioids
  - Not as effective, but should be considered

Acute Lumbosacral Radiculopathy

- Myogenic (muscle spasm)
  - Muscle relaxants
    - » Zanaflex
      - Helps with muscle spasm and neuropathic pain
    - » Flexeril
      - Similar to TCA
      - Do not use with TCA
    - » Klonopin
      - Muscle spasm
      - Neuropathic pain

Physical therapeutics and LBP

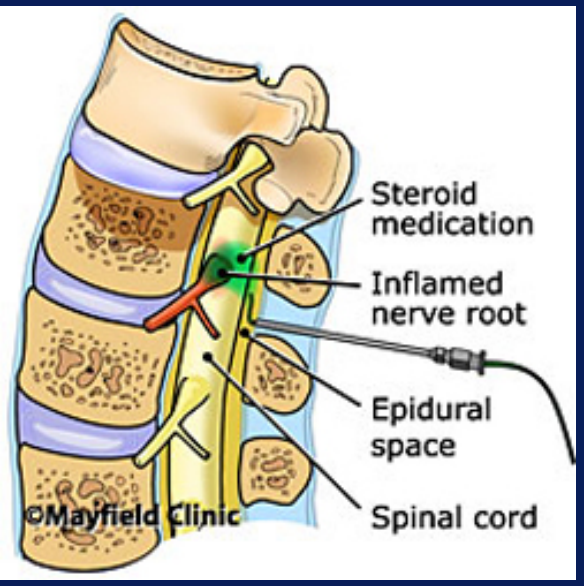


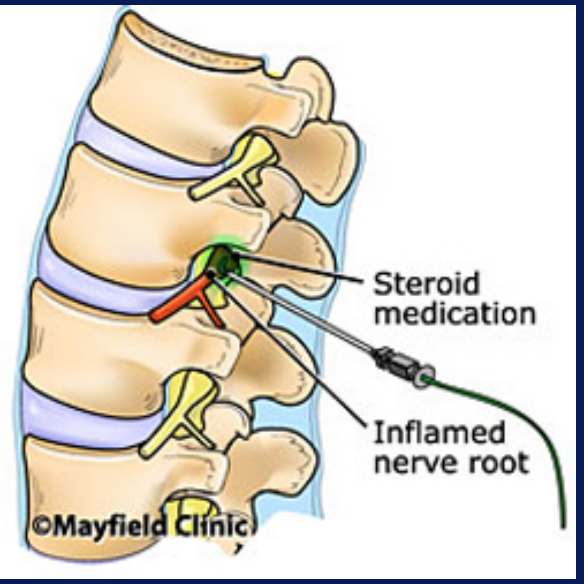
- Modalities: ice/heat
- Low level continous heat wrap
- Manual therapies
  - Manipulation: moderate evidence in acute & chronic LBP
  - Massage: moderate evidence in chronic LBP
- Acupuncture
  - Good evidence for chronic LBP
- Exercise
  - Good evidence for subacute and chronic LBP.
  - Probable directional bias exercise of benefit for acute LBP

Walach. Efficacy of massage therapy in chronic pain. *J Altern Compl Med*. 2003

Bronfort etal. Efficacy of spinal manipulation and mobilization for low back and neck pain. *Spine J*. 2004

Manheimer et al. Meta Analysis: acupuncture for low back pain. *Ann Intern Med* 2005





Spinal Injections

- Epidural steroid injections
  - Translaminar
  - Transforaminal
  - Selective nerve root block
  - Fluoroscopic guidance
  - Indicated for radicular pain
- Moderate evidence in support of TFESIs as a safe and minimally invasive adjunct treatment for lumbar radicular symtoms

DePalma MJ, Bhargava A, Slipman CW. A critical appraisal of the evidence for selective nerve root injection in the treatment of lumbosacral radiculopathy. *Arch Phys Med Rehabil*. 2005. Jul;86(7):1477-83.

Schaufele MK et al. *Pain Physician*. 2006 Oct;9(4):361-6.

Less common…..
Case #3: Acute LBP in elder woman

- 82 yo retired school teacher lives in retirement community admitted to NWH with 4 day h/o intractable new onset “low back pain”
- Pain increased with ambulation and transitional movments. No referred symptoms.
- PMH: osteoporosis, HTN
- Meds: actonel, HCTZ

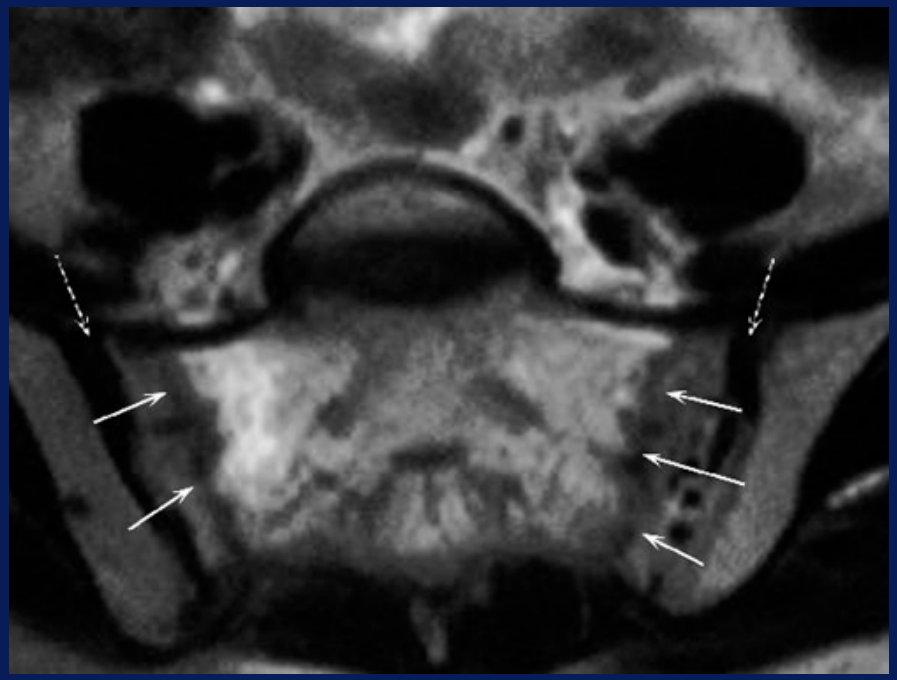
Case #3: What is the diagnosis?

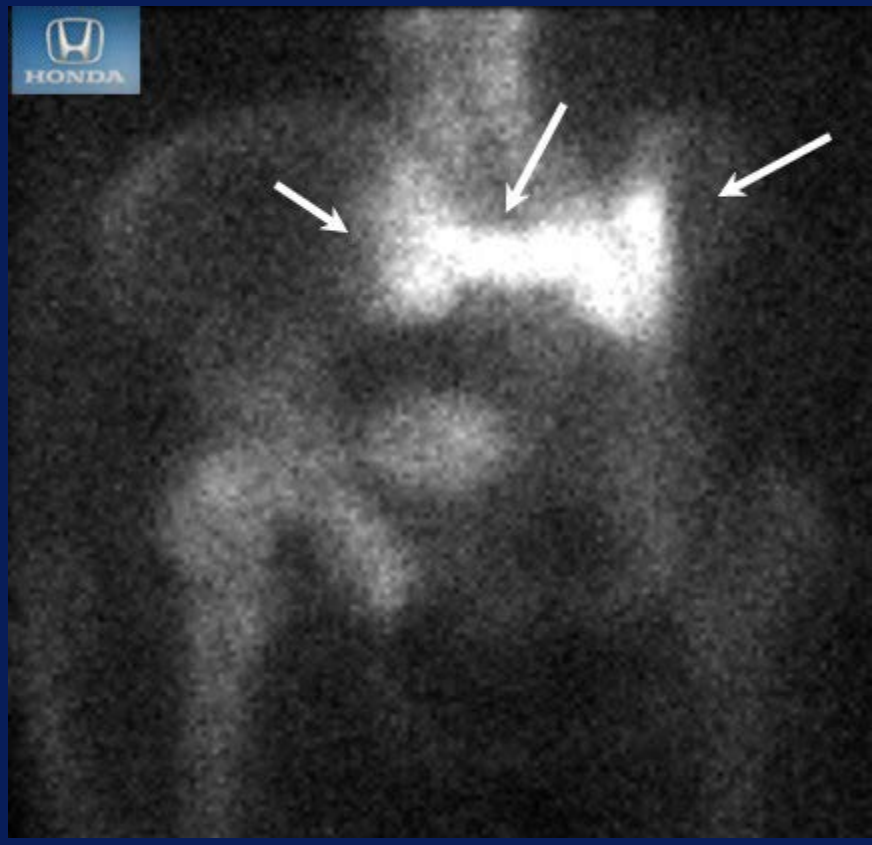
- 1. Lumbar facet pain?
- 2. Acute lumbar disc herniation?
- 3. Sacroiliac arthritis?
- 4. Sacral insufficiency fracture?

Case #3:

- Review of pathophysiology and expected findings

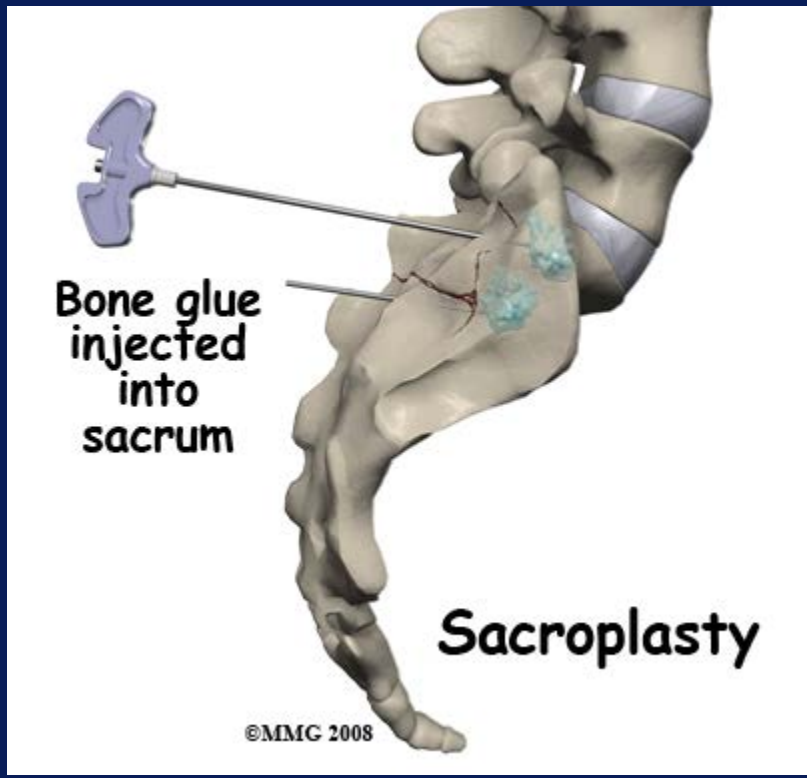
Sacral Insufficiency Fracture





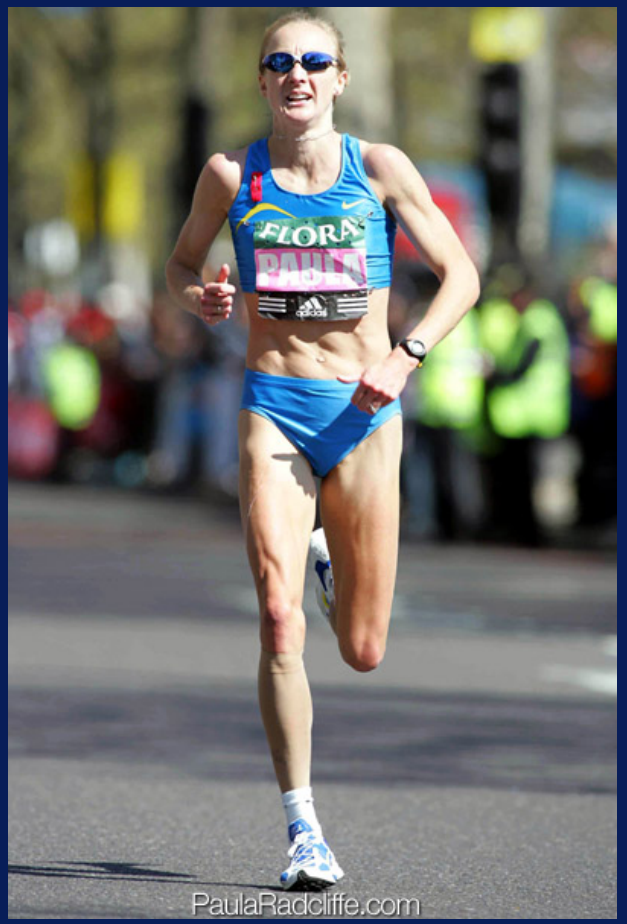
Case #3: Treatment Options

- Time: 6 weeks
- Analgesics
- Walker
- WBAT
- Sarcoplasty?
- Treatment of osteoporosis
- Check possible associated pelvis or hip fractures



Case #3: Patient care talking points

- Not all “low back pain” is lumbar
- Think sacrum
- Palpate, percuss, hop (if able)
- Think sacrum in elderly, young female endurance sport athletes and peri-partum women.
- Reassurance
- Time: 6 weeks



Case #4: Recurrent R leg pain 4 mos after discectomy

- 42 yo engineer and competitive recreational cyclist 4 mos after successful discectomy for L5/S1 disc herniation and radiculopathy presents with recurrent R inferior buttock, posterior thigh and leg pain.
- Repeat lumbar MRI demonstrates granulation tissue. No infection. No recurrent disc herniation.
- Pain increased with sitting and transitional movements.
- Neuro exam WNL

Case #4:

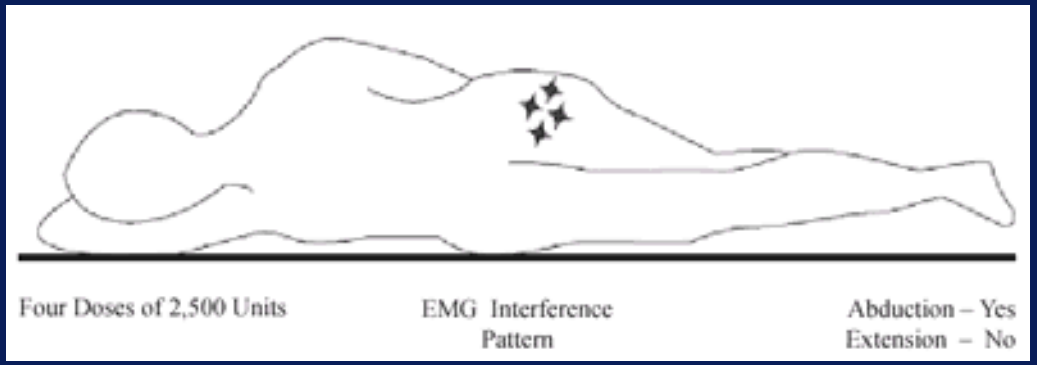
- Review of pathophysiology and expected findings

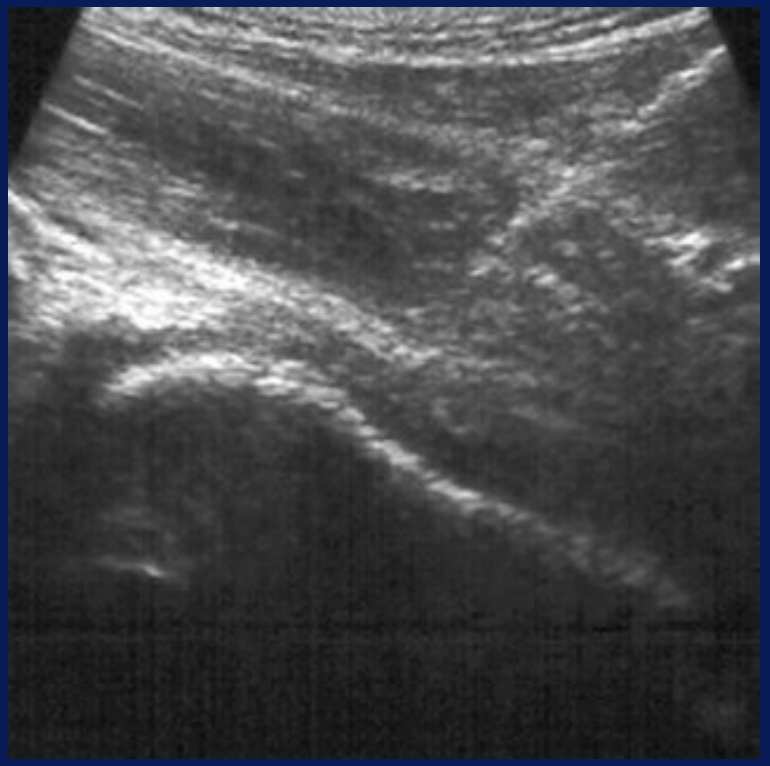
Case #4: Imaging: Pelvis

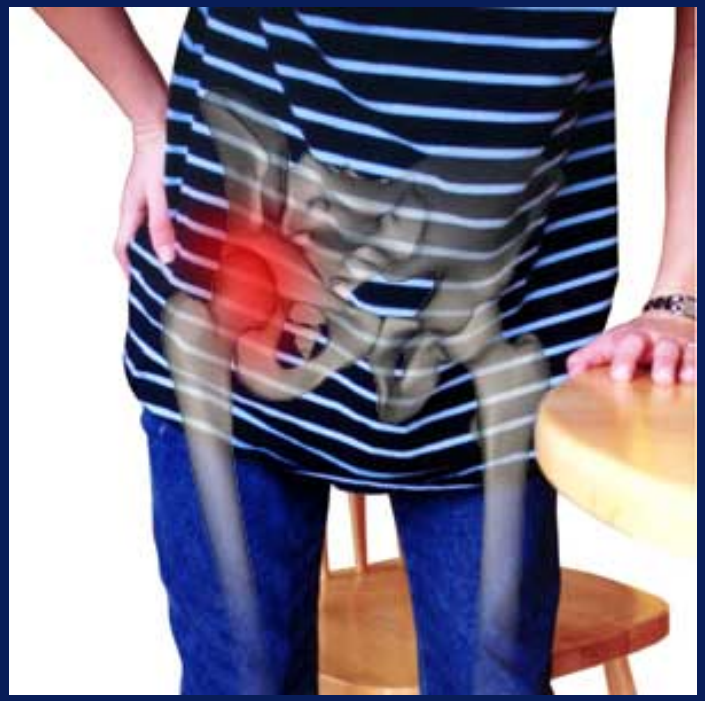
- No significant abnormalities in the piriformis muscle
- R hip synovitis and mild -moderate OA

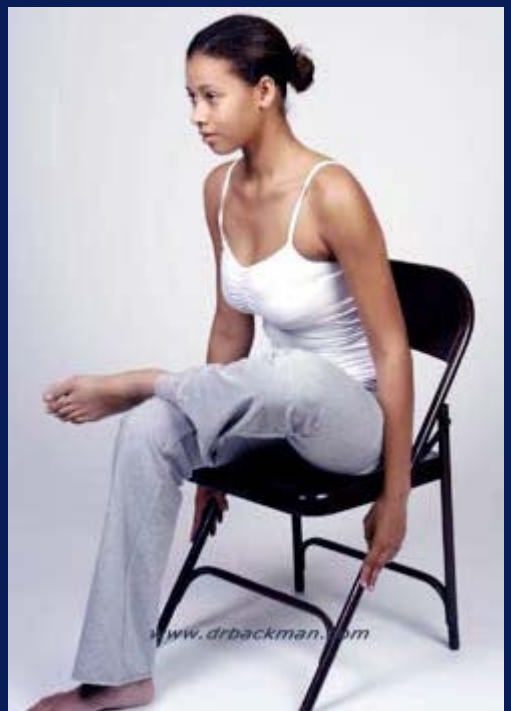
Case #4: Piriformis syndrome and hip arthritis

- Treatment
  - Physical therapy
  - Piriformis injection reduced leg pain
  - MSK ultrasound guided hip injection
- Outcome
  - Dramatic improvement of symptoms









Mimickers of LBP

- Hip pathology
  - Labral tears
  - osteoarthritis
- Pelvic pathology
  - Osteitis pubis
  - Sacroiliac
  - Uterine/ovarian
- Soft tissue
  - Bursitis: gluteal, trochanter, ichial
  - Iliotibial band tendonopathy
  - Piriformis syndrome
  - Iliopsoas

Case #4: Patient care talking points

- Not all low back pain is lumbar
- Think of the lumbo-pelvic-hip girdle
- Examine the hip
- Utilize supplemental imaging and diagnostic injection to confirm, categorize and treat

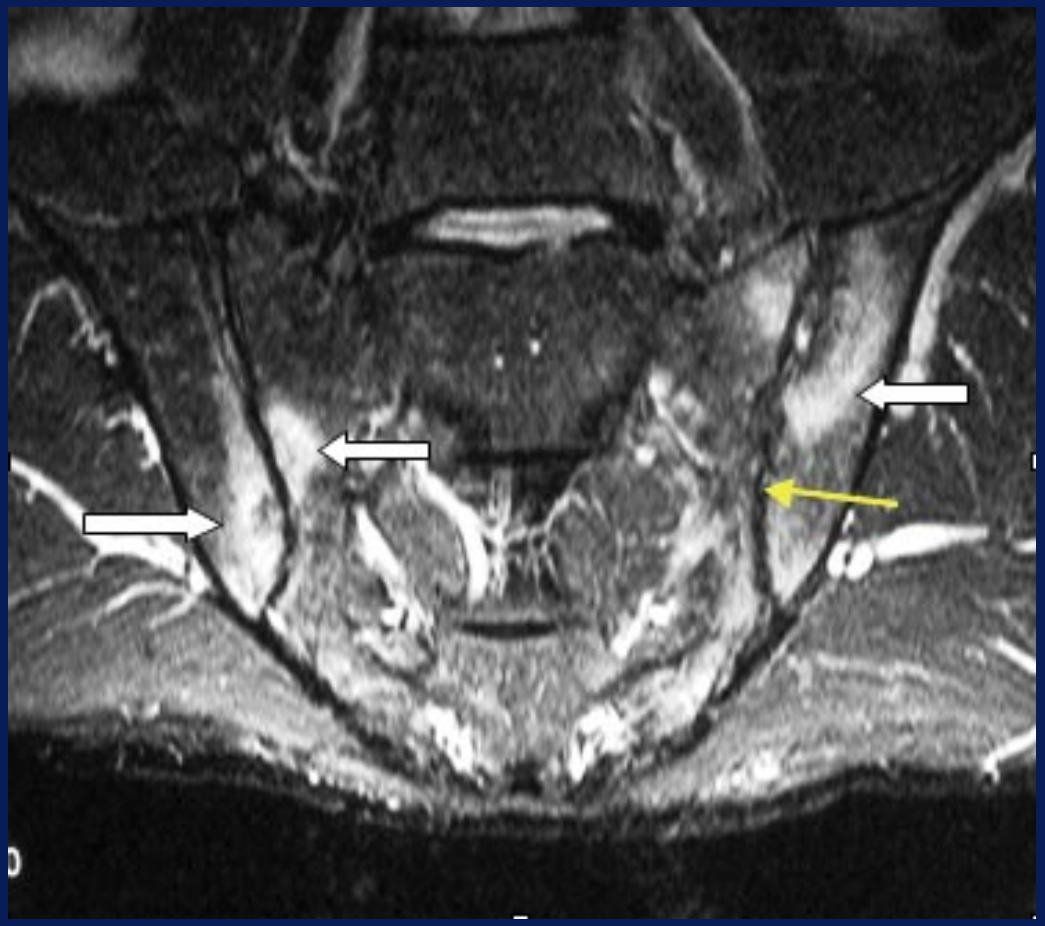
Case #5: Chronic back pain non-responsive to prior treatment

- 37 yo software engineer and part time soccer referee and player presents with 2 year h/o non-relenting lower back/bilateral buttock pain
- Prior treatments included: Chiro, PT, ibuprofen (helped), epidural steroid injections for "discogenic LBP" (no sustained relief)
- PMH: Crohn's disease. Mild hypothyroidism euthyroid on synthroid

Case #5:

- Review of pathophysiology and expected findings

Case #5: Spondyloarthropathy associated with inflammatory bowel disease

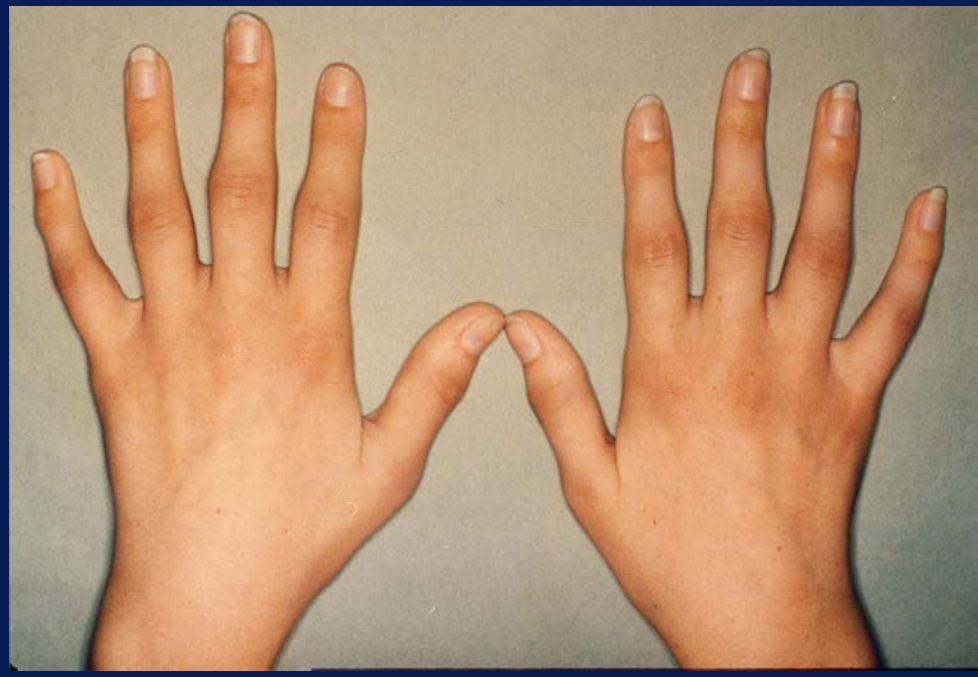


Case #5: Treatment

- Rheumatology referral
- TNF agent
- Marked clinical improvement

Case #5: Patient care talking points

- Not all low back pain is degenerative
- Consider inflammatory and autoimmune processes
- Full screening joint examination: especially the hip
- Look for peripheral joint synovitis



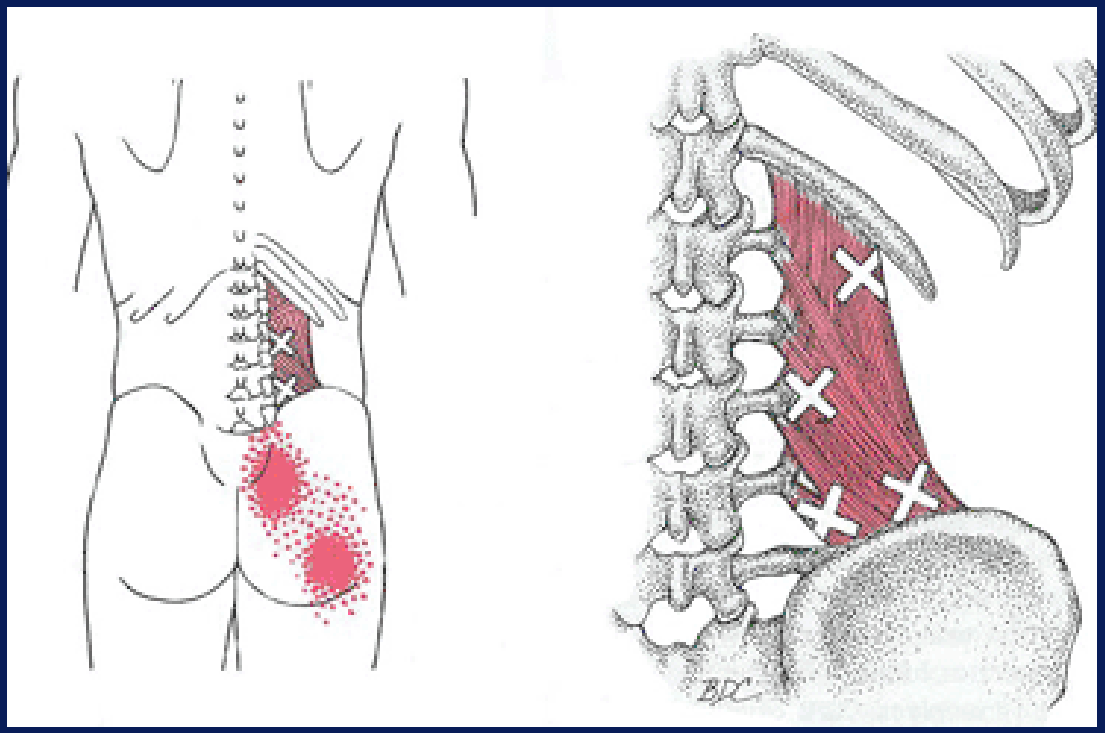
Case #6: Back pain after knee injury

- 28 yo competitive tennis player develops L sided paralumbar pain after being placed in a knee immobilizer for treatment of grade 2 MCL sprain.
- No radicular symptoms
- Pain worse with transitional movements and swimming
- Chiro/PT/ and massage temporary relief only
- PE: limited R lumbar side bending
- Lumbar MRI essentially WNL

Case #6:

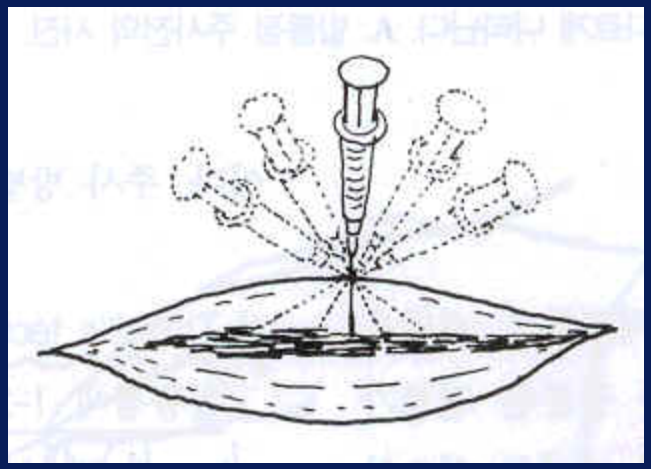
- Review of pathophysiology and expected findings

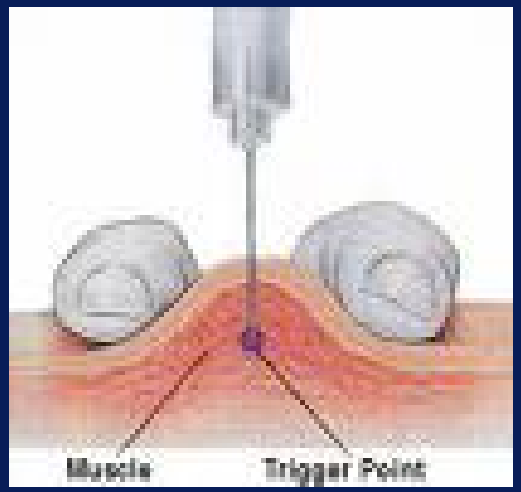
Case #6: Myofascial pain: Quadratus lumborum



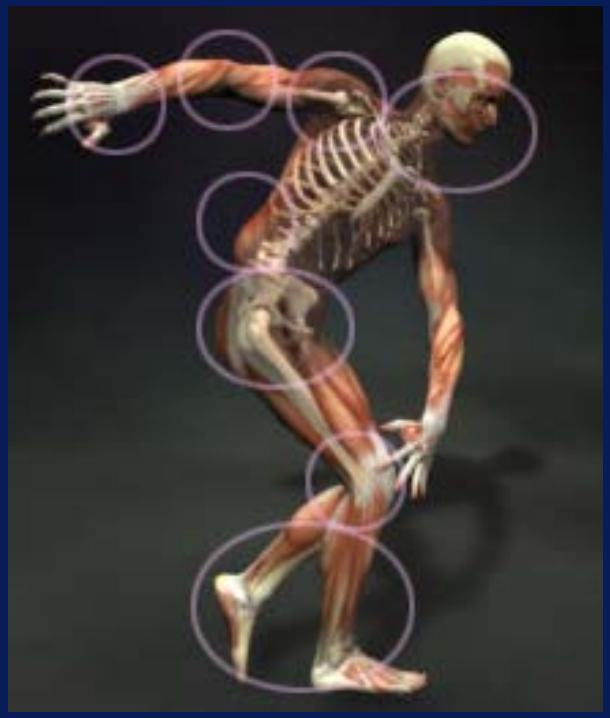
Case #6: Treatment

- Trigger point injections
- Stretching
- Strengthening
- Sports specific training





Case #6: Patient care talking points



- The low back is part of a kinetic chain
- Examine and palpate the soft tissues

Summary: take home pearls

- Acute axial low back pain: ***look for shift***
- Acute lumbar radiculopathy
- Sacral fracture: ***percuss and palpate the bones***
- Mimickers: ***Hip***
- Spondyloarthropathy: think ***stiff*** and examine other joints
- Mechanical and myofascial determinants are important: ***think of the kinetic chain and palpate the soft tissues***

Thank you


SPORTS
MEDICINE
CLINIC
"It appears to be a hamstring problem."