A Comprehensive Guide for Low Back Pain with Conservative Care and Interventional Approaches to Restore Function

AMERICAN COLLEGE OF OCCUPATIONAL AND ENVIRONMENTAL MEDICINE

Kamal T. Patel, MD, MSPH

Yusef A. Sayeed,MD, MPH, MEng, CPH, CMRO, CME, RMSK, FACOEM, FAIUM

Disclaimer

Kamal T. Patel, MD, MSPH

Assistant Professor, College of Public Health at the University of South Florida

Assistant Professor, College of Medicine at University of South Florida

Attending Physician, NeuSpine Institute, Tampa, FL

Nothing to disclose

Disclaimer

Gizem Keles, MS

Lead Medical Assistant, Neuspine Institute, Tampa, FL

Nothing to disclose

Objectives

1. Initial Presentation of LBP and Physical Examination Pearls
2. Work Flow per ACOEM guidelines
3. Describe conservative and interventional approaches to return patients to work.

Initial Visit

1. What may I do for you today?
2. What are your symptoms?
    a. Pain or stiffness?
    b. Numbness or tingling?
    c. Was the area deformed? Blood loss? Open Wound?
    d. Pain predominantly in the back or legs?
    e. Pain or symptoms anywhere else?
    f. Loss of control of your bowels or bladders?
    g. Fever, night sweats, weight loss?
    h. When did these symptoms begin?
    i. What makes the pain better or worse?
    j. Do you have problem sleeping?
    k. Is there pain with coughing, sneezing, deep breathing, or laughing?
    l. How long can you sit, stand, walk, or bend?
    m. Can you lift?

Initial Visit

3. How did this condition develop?
    a. Any similar episodes in the past?
    b. Any previous treatments, testing?
4. Cause
    a. Work related?
5. Job Characteristics
    a. What is your job? What are the specific job duties?
    b. Do you have assistance from other people or lifting devices?
6. Non-occupational Activities
    a. What are your other hobbies?
    b. Any heavy lifting?
7. How do these symptoms limit you?
    a. Discuss ADLs.

Initial Visit

8. What other medical problems?

9. What are your expectations regarding your return to work and disability from this health problem?

10. What are your concerns about the potential for further injury to your low back as you recover?

11. How do you like your job?

12. What do you hope to accomplish at your visit today?

Physical Examination for LBP

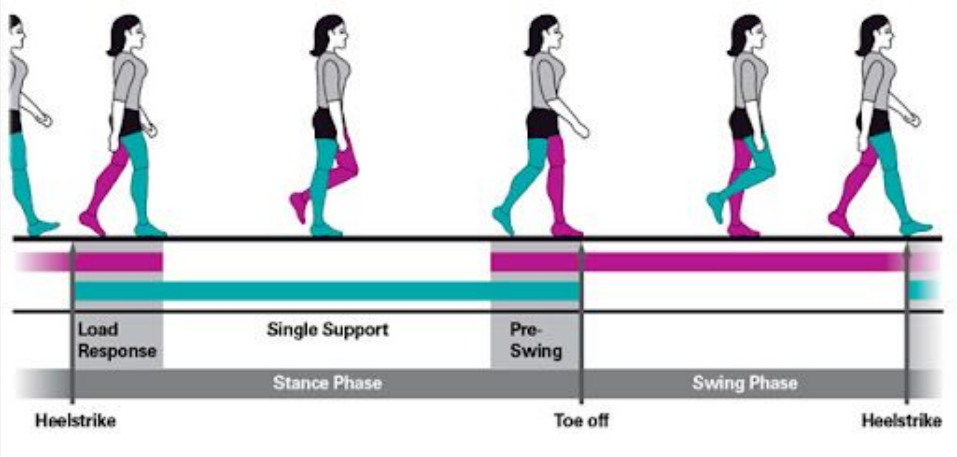
Pain Behaviors - General Appearance

- Grimace
- Groan
- Guarding
- Overreaction
- Inconsistencies
- Give-way weakness

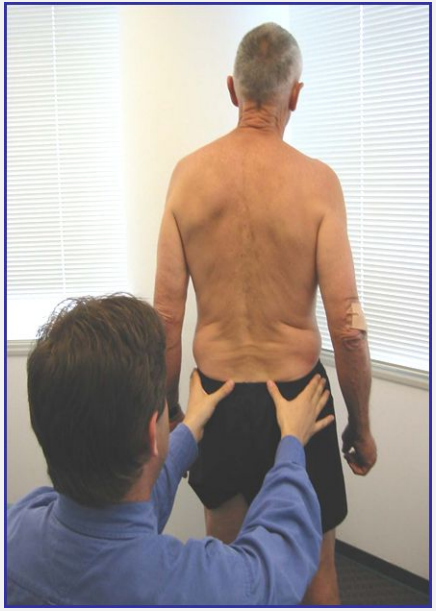
- Shaking
- Equipment
- Cane
- Ice-packs
- Heating pads
- Braces: collars

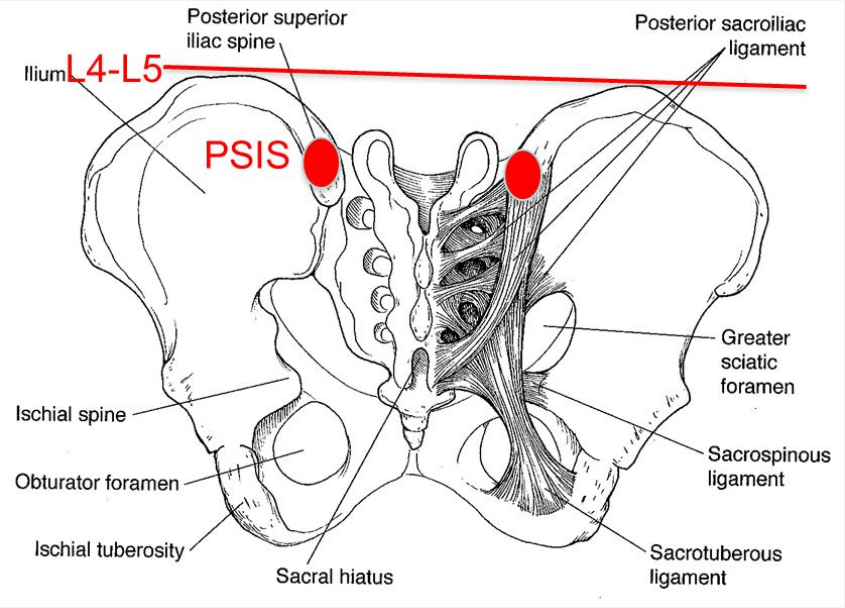
Gait

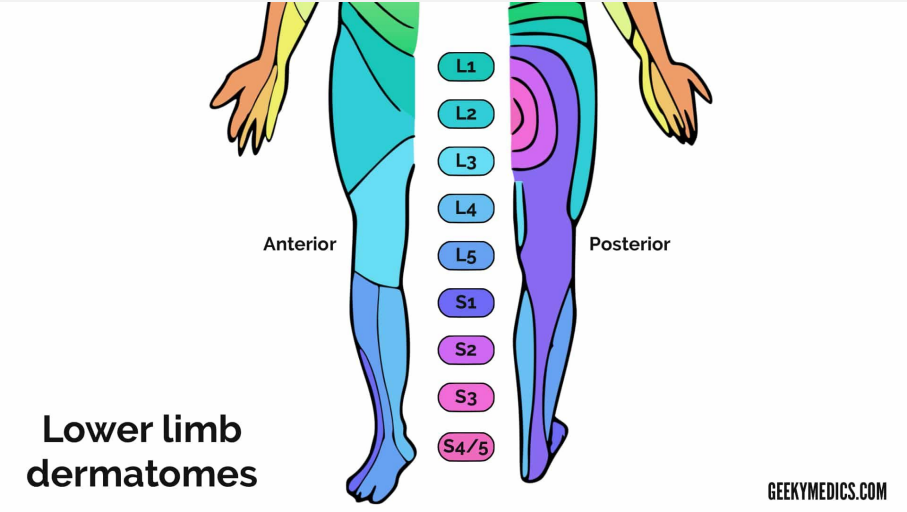
- Balance
- Base of support
- Arm swing/trunk and shoulder rotation
- Cadence
- Leg: circumduction, stance time, and position



Static Stance

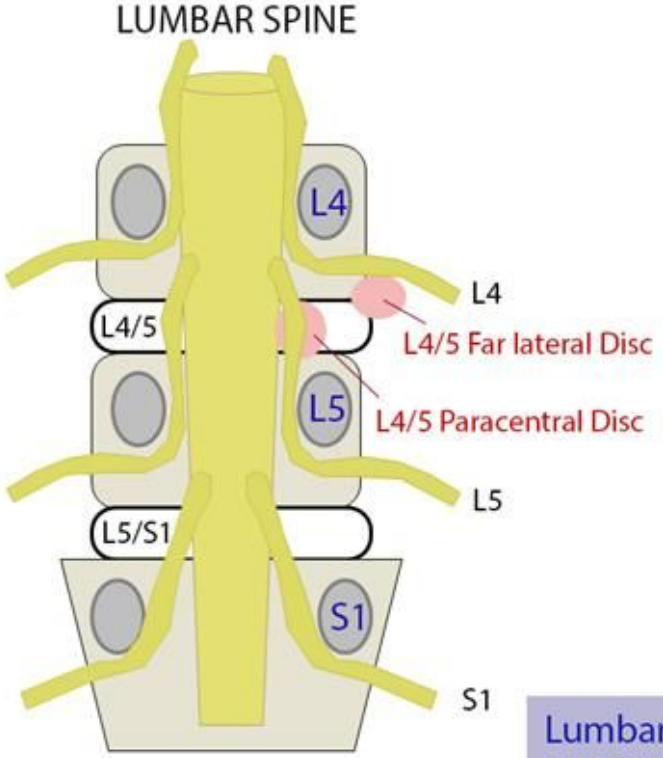


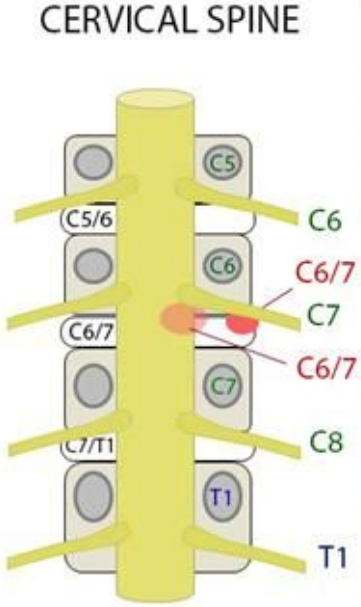




Root Level	Sensory Deficit
L1	Upper anterior thigh below inguinal ligament to groin
L2	Anterior mid-thigh – Level of L2-3 posterior
L3	Lower anterior thigh and inner knee
L4	Back, radiating to lateral thigh and front and medial leg
L5	Back, radiating to lateral leg and dorsal and lateral foot
S1	Back, radiating to back of thigh and lateral leg and foot

Root Level	Motor Weakness	Reflex
L1	Hip flexion – Iliopsoas	**Cremaster**
L2	Hip flexion and adduction; occasional knee extension	**Cremaster**
L3	Hip flexion and adduction; knee extension	Knee jerk*
L4	Hip adduction; knee extension; foot dorsiflexion	Knee jerk*
L5	Foot and great toe extension; hip abduction	Medial hamstring
S1	Knee flexion; plantar flexion	Ankle jerk





Both discs affect same nerve root in cervical spine, different than lumbar spine

C8 and above Pedicle / Nerve Root MISMATCH

"Extra C8 Nerve Root (without C8 pedicle) allows transition from MISMATCH to MATCH

T1 and below Pedicle / Nerve Root MATCH

Lumbar Spine Pedicle/nerve Root MATCH

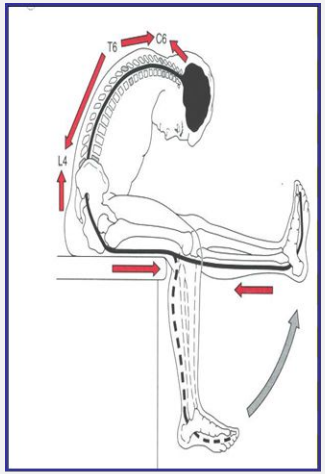
Herniated Disc[‡£]	Sciatica/radicular pain Dermatomal distribution Myotomal distribution Low back pain	History of sciatica for detection of a herniated disc[‡£] • Sensitivity = 85 to 99% • Specificity = 6 to 88% Ipsilateral straight-leg raising for detection of a herniated disc[‡] • Sensitivity = 80% • Specificity = 40% Crossed straight-leg raising for detection of a herniated disc[‡£] • Sensitivity = 23 to 25% • Specificity = 90 to 100% Ankle dorsiflexion weakness for detection of a herniated disc[‡] • Sensitivity = 35% • Specificity = 70% Great toe extensor weakness for detection of a herniated disc[‡] • Sensitivity = 50% • Specificity = 70% Impaired ankle reflex for detection of a herniated disc[‡£] • Sensitivity = 48 to 50% • Specificity = 60 to 89% Ankle plantar flexion weakness for detection of a herniated disc[‡] • Sensitivity = 6% • Specificity = 95%

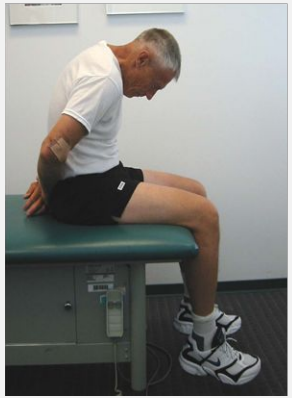
Muscle Stretch Reflexes

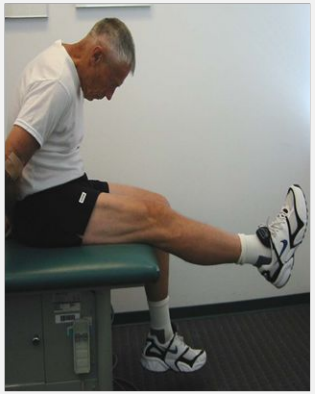
- 4 + = hyperactive with clonus
- 3 + = more brisk
- 2 + = normal response
- 1 + = decreased with facilitation
- 0 = no response

Dural Tension Signs

- Straight Leg Raise (SLR)
- Slump Seated
- Femoral Nerve Stretch



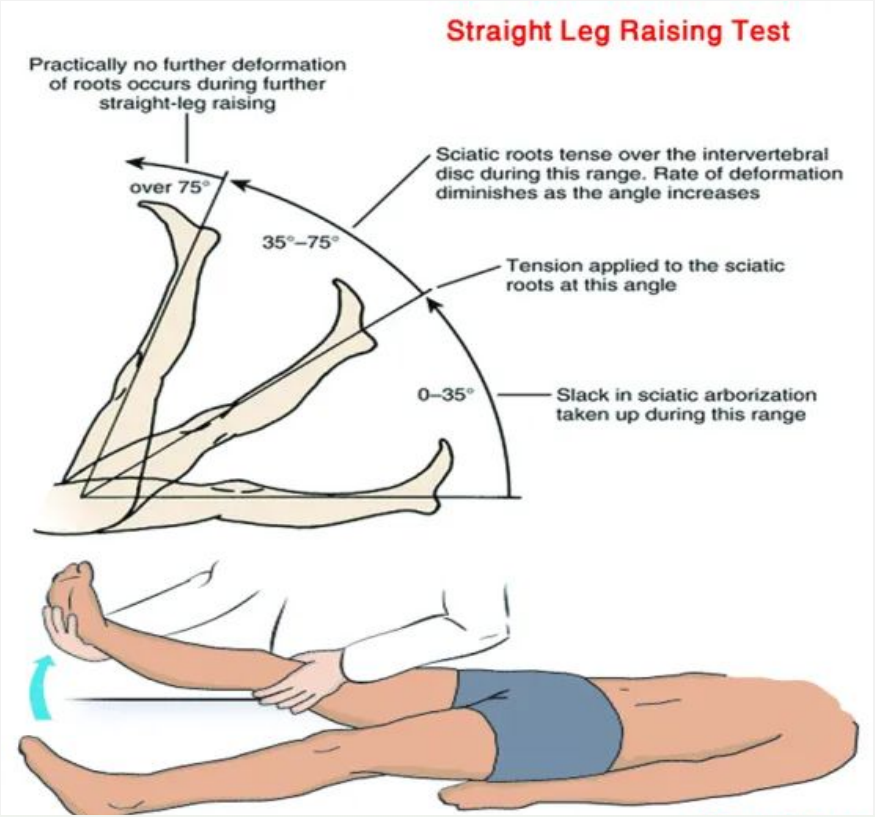




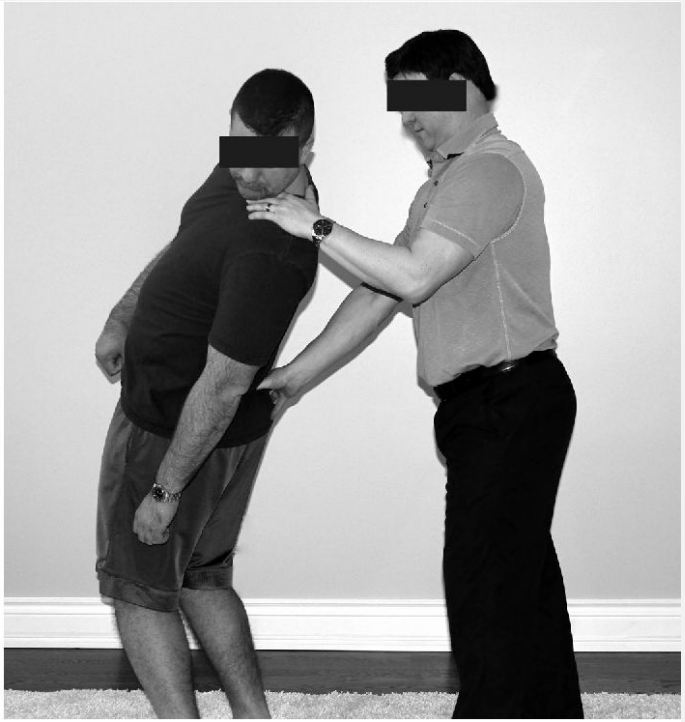
Straight Leg Raise

- Ipsilateral straight-leg raising for detection of a herniated disc
  - Sensitivity = 80%
  - Specificity = 40%

- Crossed straight-leg raising for detection of a herniated disc
  - Sensitivity = 23-25%
  - Specificity = 90-100%



Facet Loading Test - Kemp Test

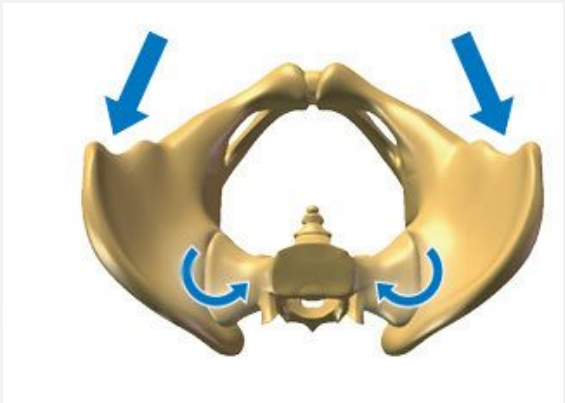


Distraction Test

Applies tensile forces on the anterior aspect of the SI joints:

The patient lies supine and is asked to place their forearm under their lower back to maintain lordosis and to support the lumbar spine. A pillow is placed under the patient's knees. The examiner places their hands on the anterior and medial aspects of the patient's left and right ASIS with arms crossed and elbows straight.

A slow and steady posterior force is applied by leaning down toward the patient.



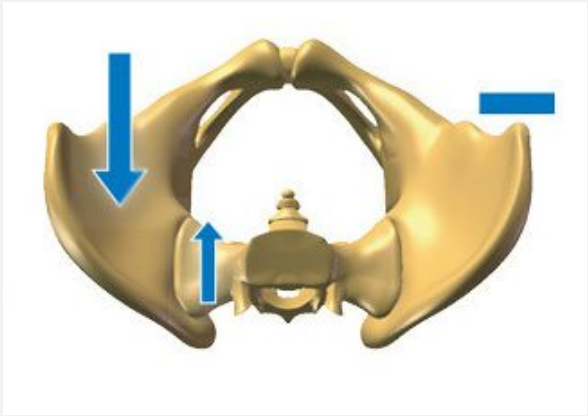
Disclaimer: From SI BONE Website

Thigh Thrust Test

Applies anteroposterior shear stress on the SI joint

The patient lies supine with affected side hip flexed to 90 degrees. The pelvis is stabilized at the opposite ASIS with the hand of the examiner.

The examiner stands on the same side as the flexed leg. The examiner provides steady increasing pressure through the axis of the femur.



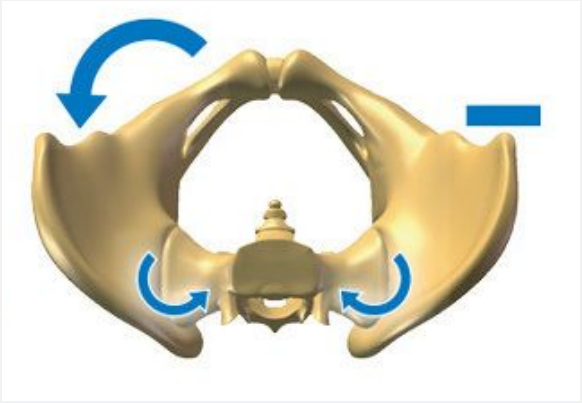
Disclaimer: From SI BONE Website

FABER Test

Applies tensile force on the anterior aspect of the SI joint on the side tested

The patient lies supine as the examiner crosses the affected-side foot over the opposite-side thigh. The pelvis is stabilized at the opposite ASIS with the hand of the examiner.

A gentle downward force is applied to the affected-side knee of the patient and is steadily increased, exaggerating the motion of hip flexion, abduction, and external rotation.



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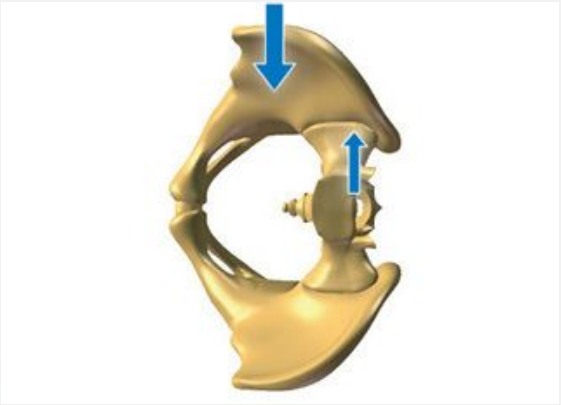
Compression Test

Applies compression force across the SI joints

The patient is placed in a side-lying position, with the affected side up, facing away from the examiner, with a pillow between the knees.

The examiner places a steady downward pressure through the anterior aspect of the lateral ilium, between the greater trochanter and iliac crest.



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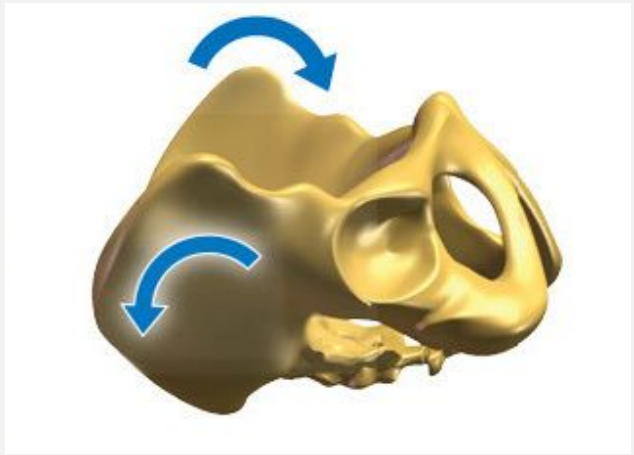
Gaenslen's Test

Applies torsional stress on the SI joints

The patient lies supine with the affected side leg near the edge of the table. For safety, the patient's shoulders are positioned toward the middle of the table.

The patient then draws the non-affected side leg into full flexion and holds the flexed knee. The examiner stabilizes the leg with their hand placed over the patient's hand. This action keeps the ilium on the non-tested side in a slightly posterior and stable position during the maneuver.



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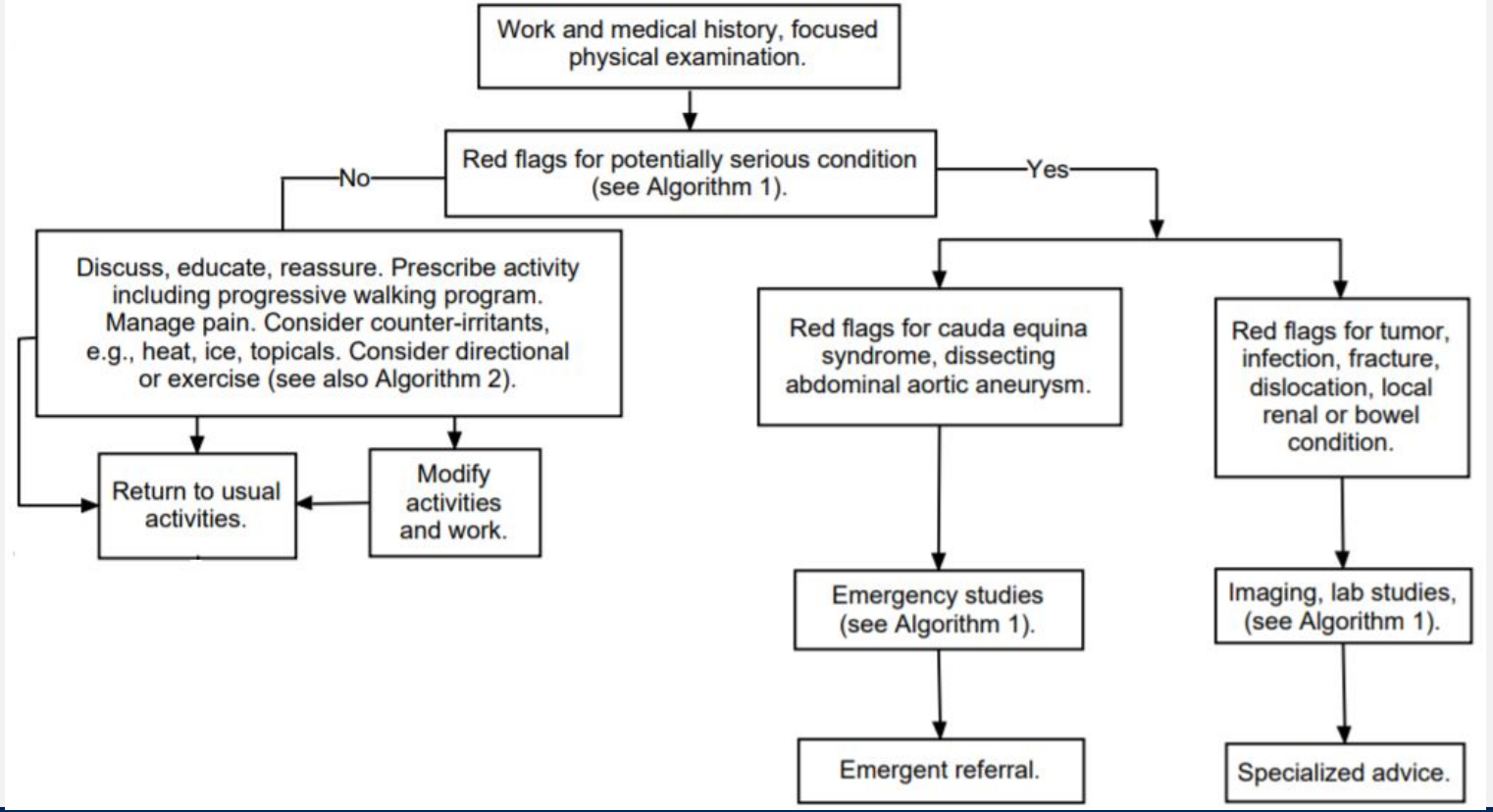
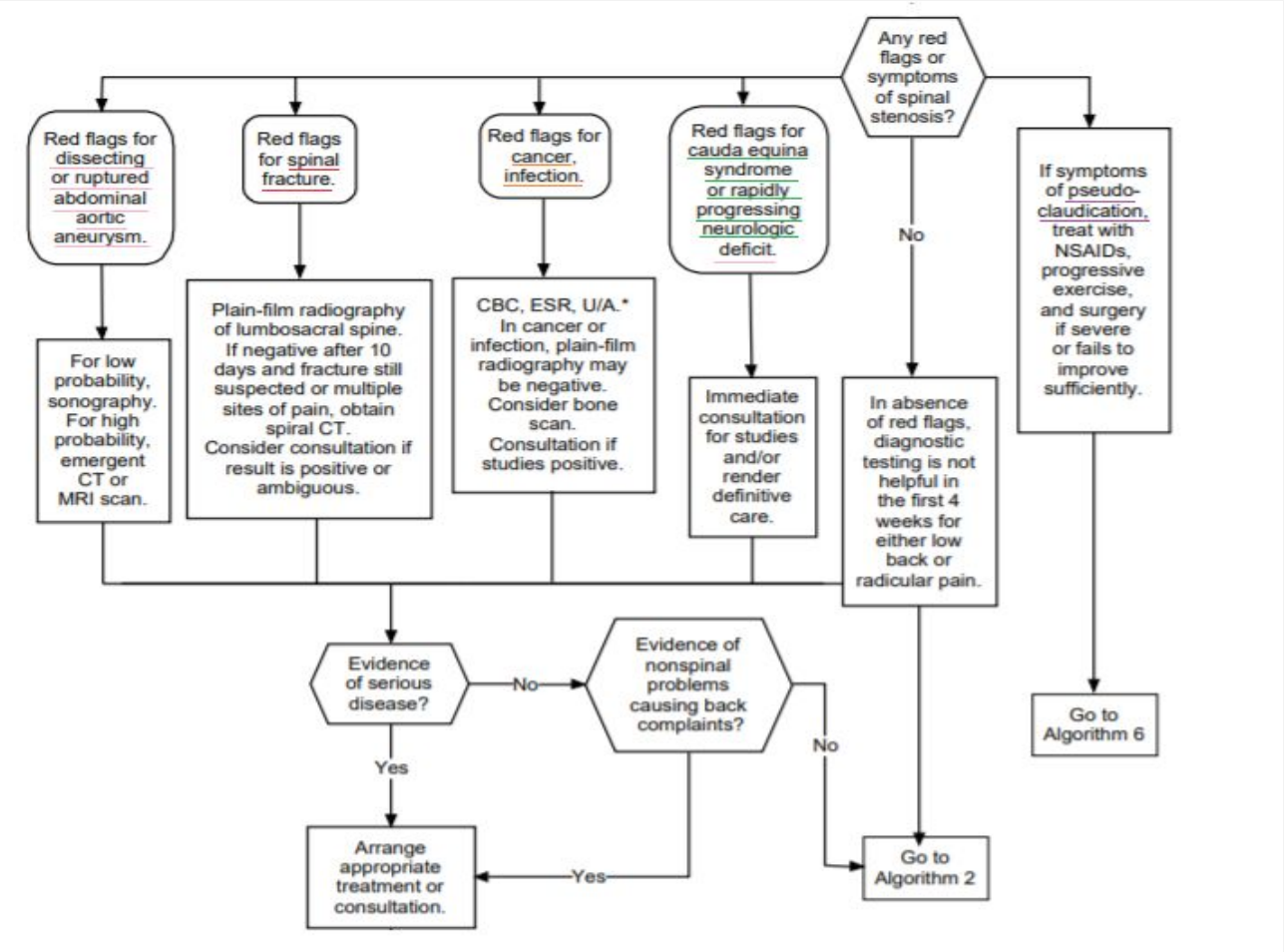
Primary Distribution of LBP

1. Those localized to the back musculoskeletal system (e.g., **most commonly LBP of unknown anatomic cause** or muscles, tendons, ligaments, or nerves).
2. Those referred to the back (e.g., from internal organs such as kidney, uterus, or abdominal aneurysm).
3. Those referred to the extremities in a dermatomal or myotomal distribution and likely include neurogenic involvement.

Initial Visit

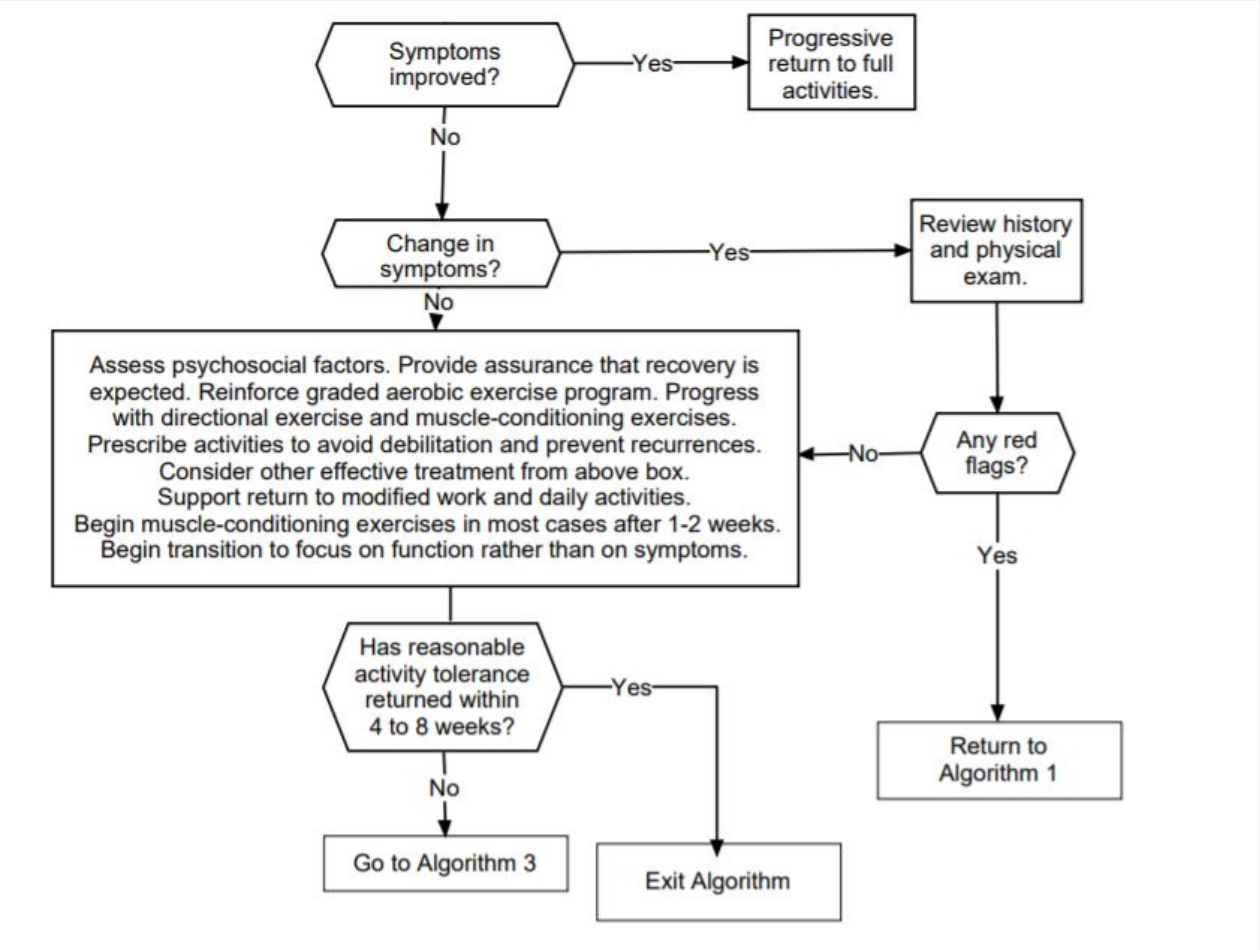


Red Flags



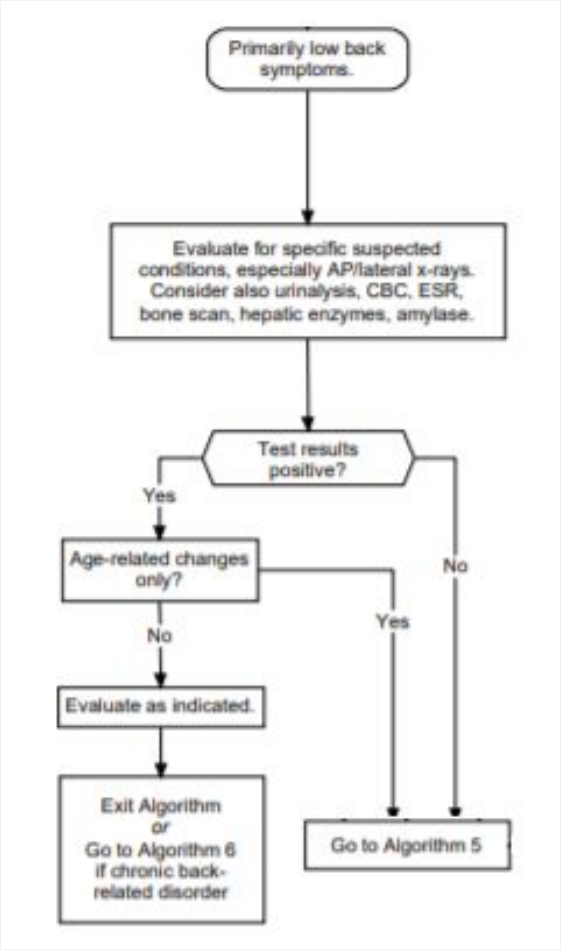
(Modified Algorithm 1)

Follow-up Visit



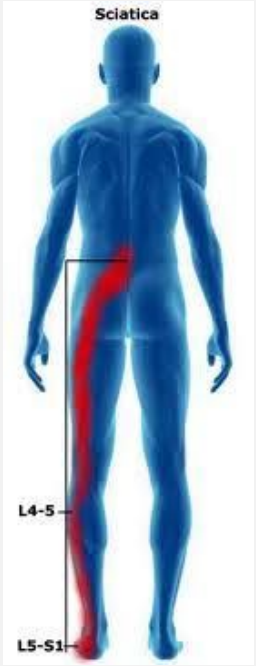
(Modified Algorithm 2)

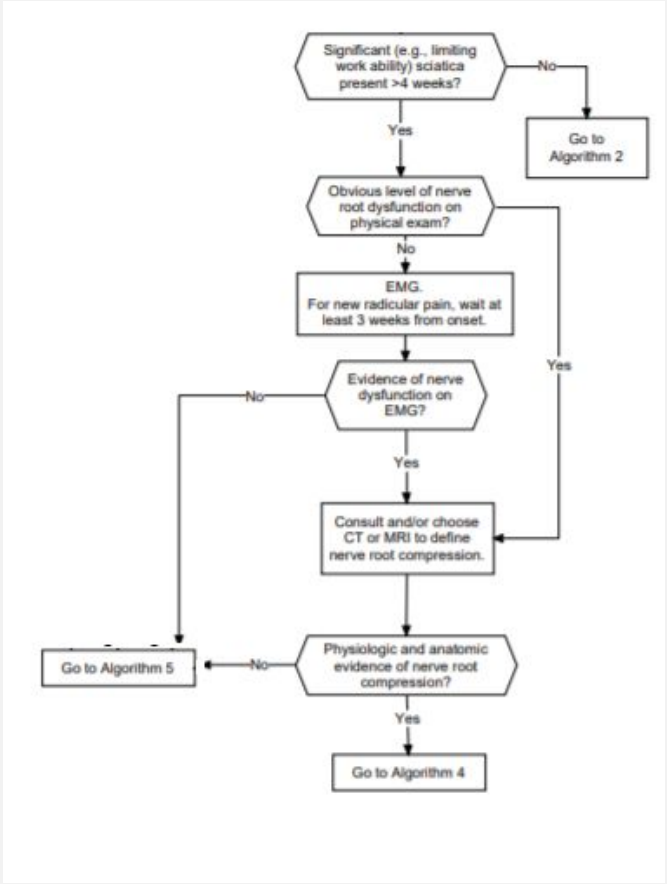
No improvement w/ axial symptoms during follow-up



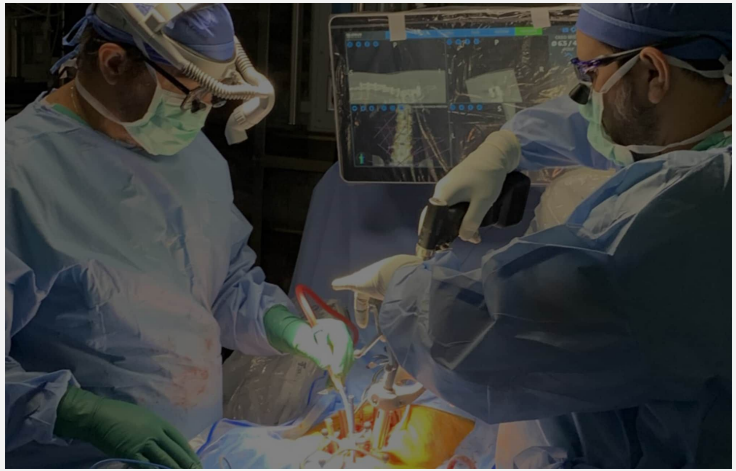
Modified Algorithm 3a: Axial pain without improvement

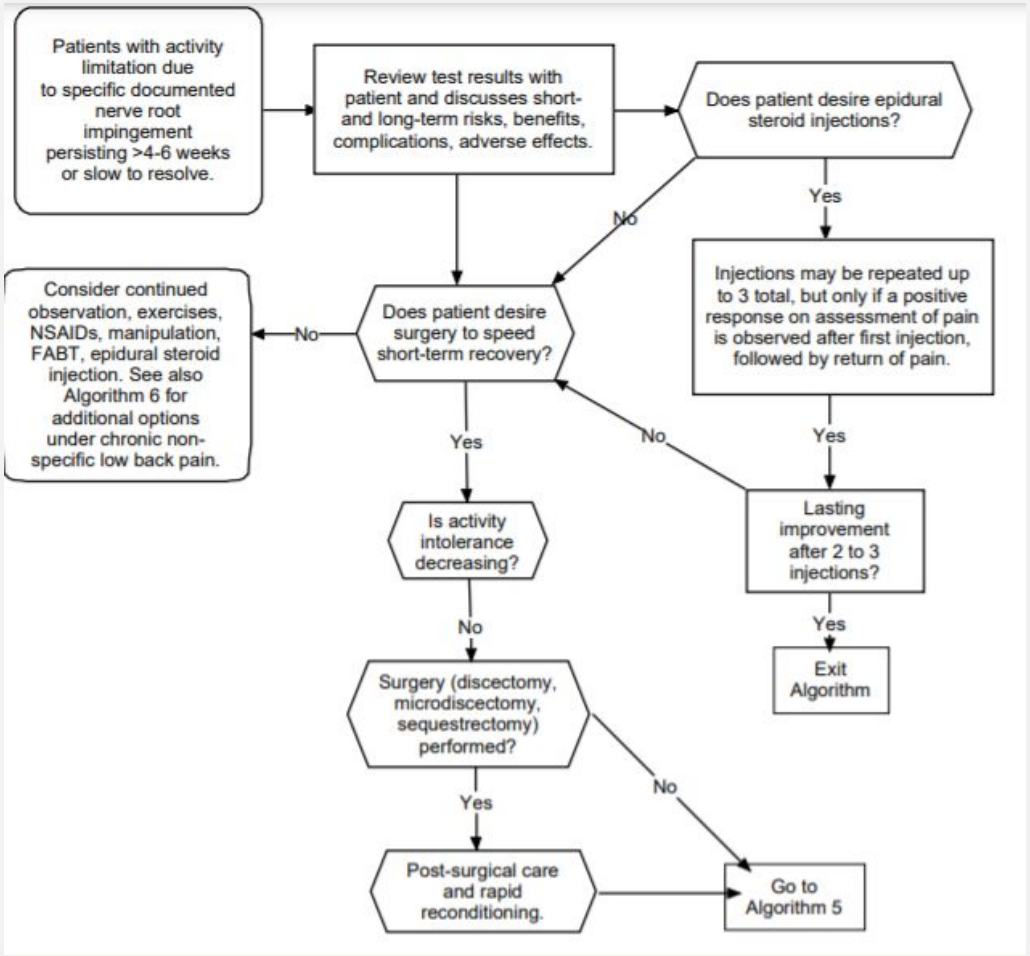
No improvement follow up - w/ neurological symptoms



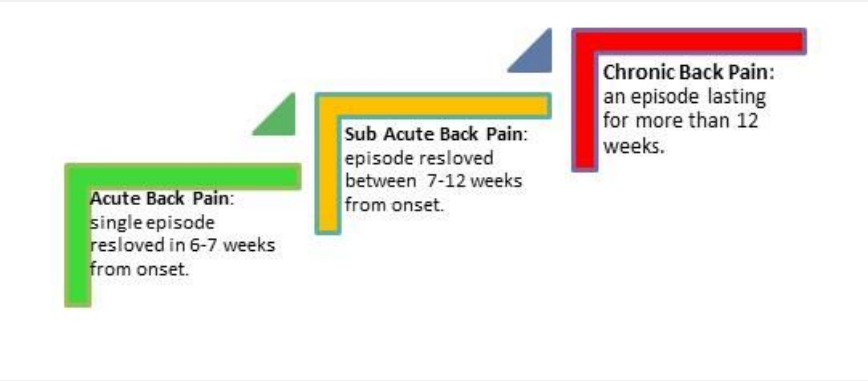


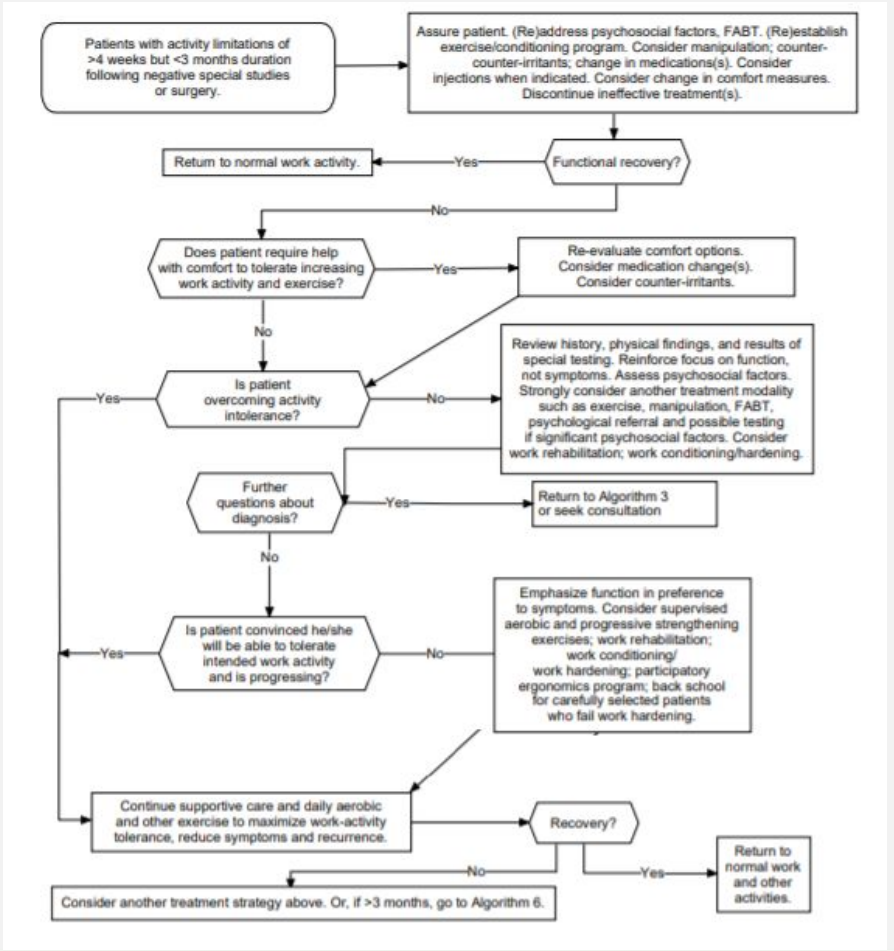
Modified Algorithm 3b: Radicular pain without improvement



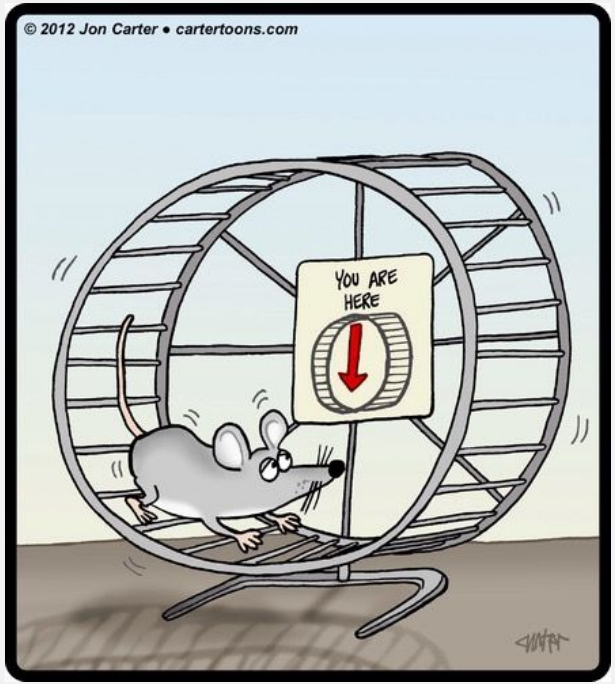


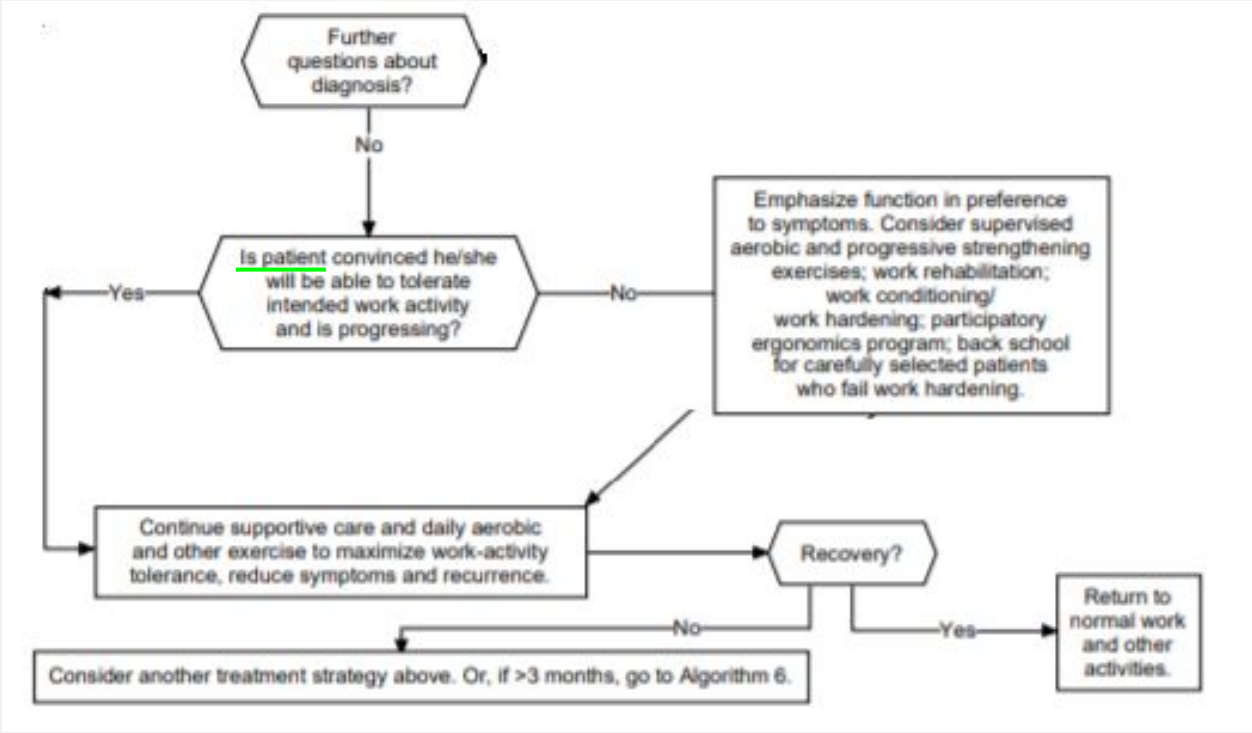
Modified Algorithm 4: Surgical Consideration



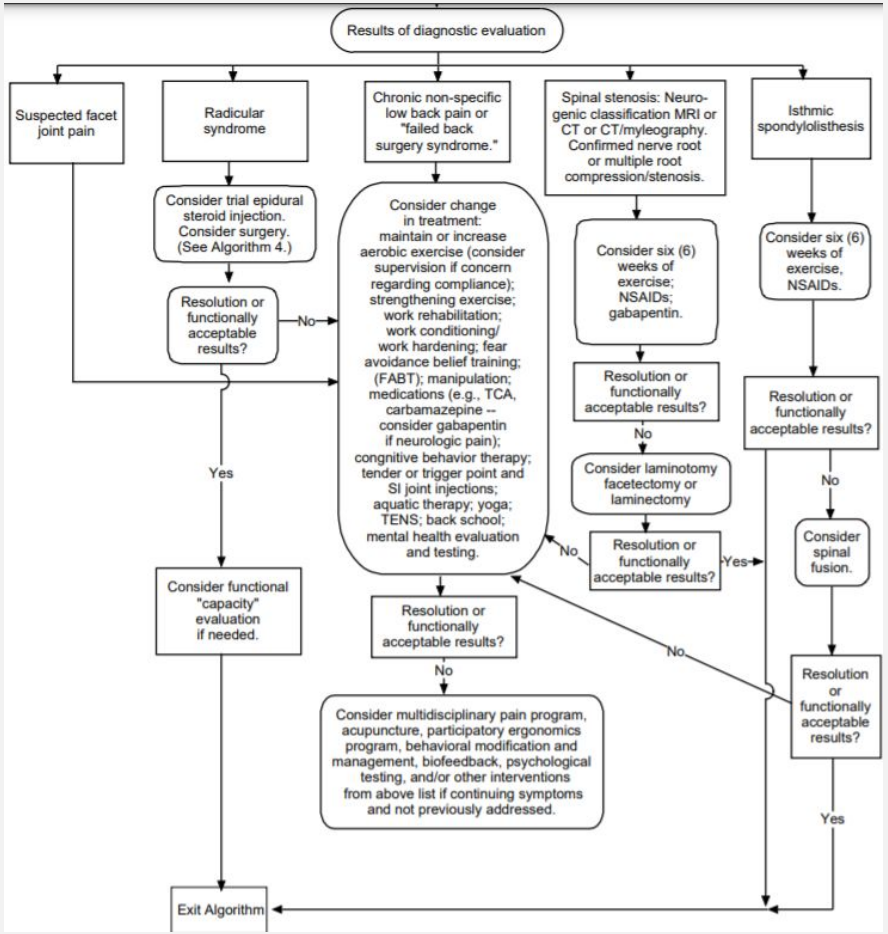


Modified Algorithm 5: Further Management of LBP





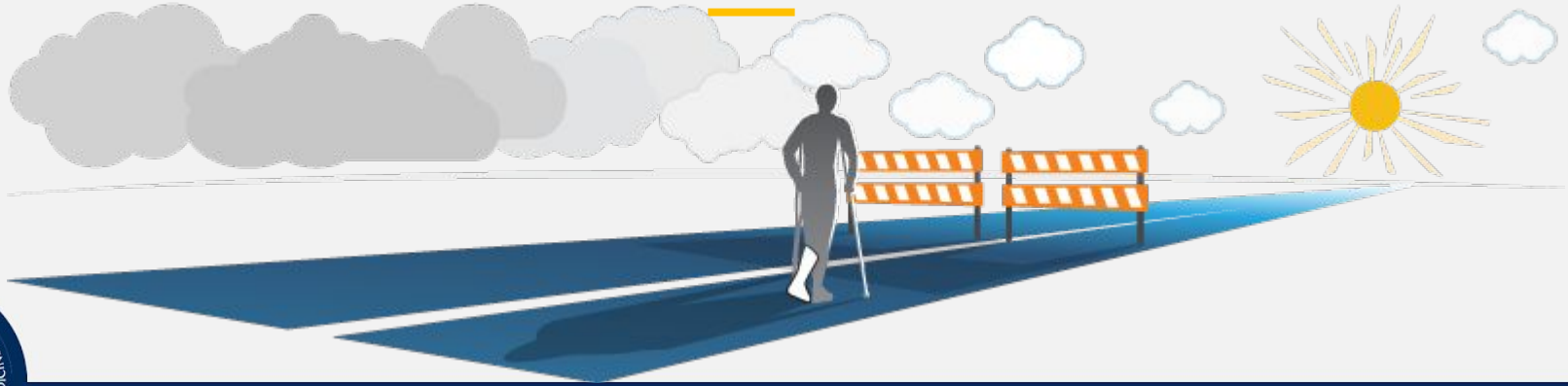
Modified Algorithm 5b: Road block



Modified Algorithm 6: Management of chronic LBP

Consider multidisciplinary pain program, acupuncture, participatory ergonomics program, behavioral modification and management, biofeedback, psychological testing, and/or other interventions from above list if continuing symptoms and not previously addressed.

Yusef Sayeed



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Kamal T. Patel, MD, MSPH
Occupational Medicine Attending Physician, Neuspine Institute
Assistant Professor, University of South Florida
Tampa, FL