SCOREBUILDERS

SPOTLIGHT
Series

Need 2 Know: Lumbar Spine

Presented by
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Purpose

1. Identify areas of focus for your study plan.
2. Prepare you for lumbar spine content that could be encountered on NPTE.

NOT

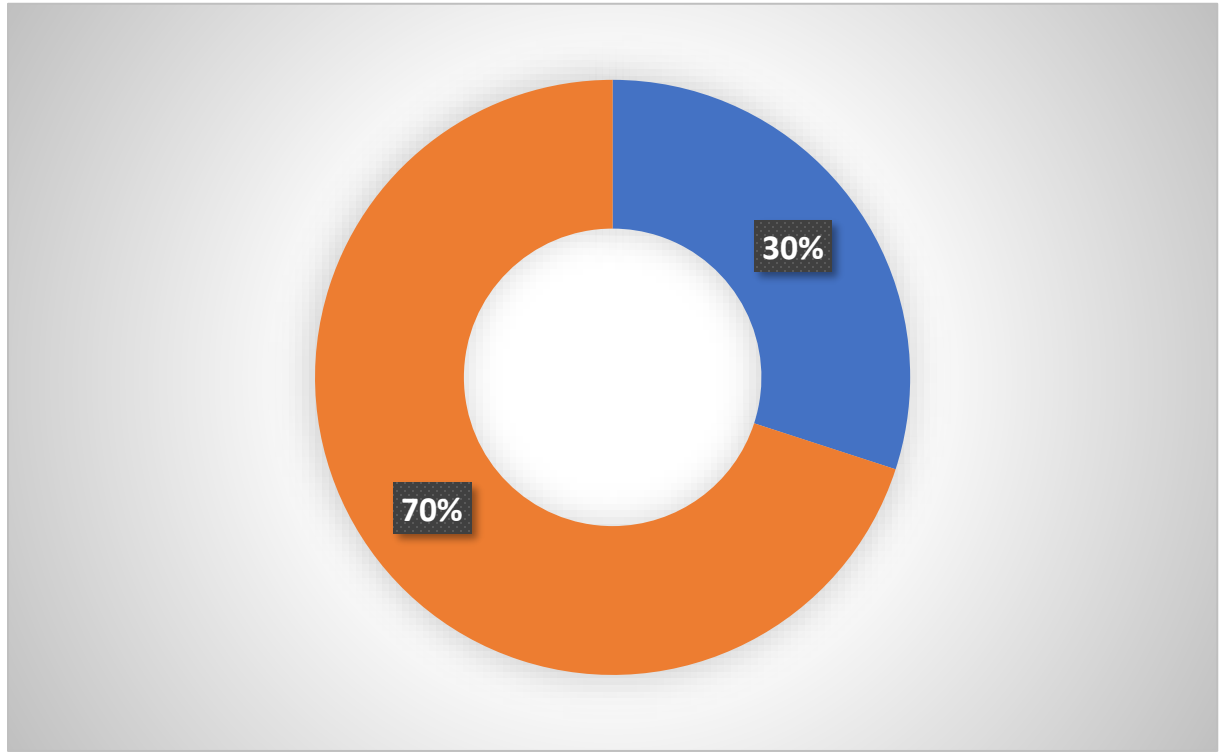
1. Comprehensive course on the lumbar spine (but covers a lot!).
2. Rehash of Scorebuilders book.

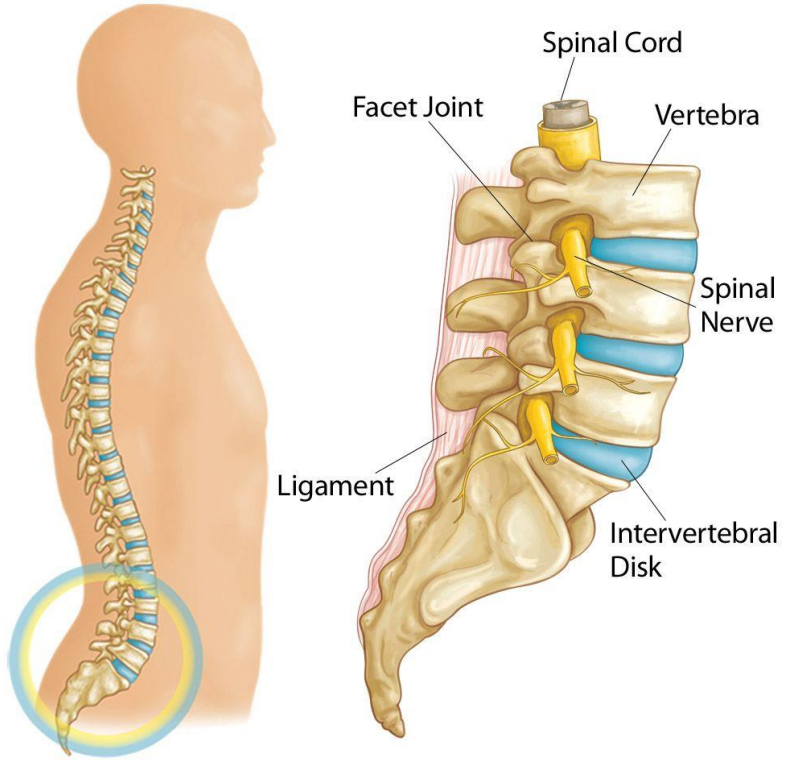
CPG's

- https://www.orthopt.org/content/practice/clinical-practice-guidelines/published-cpgs

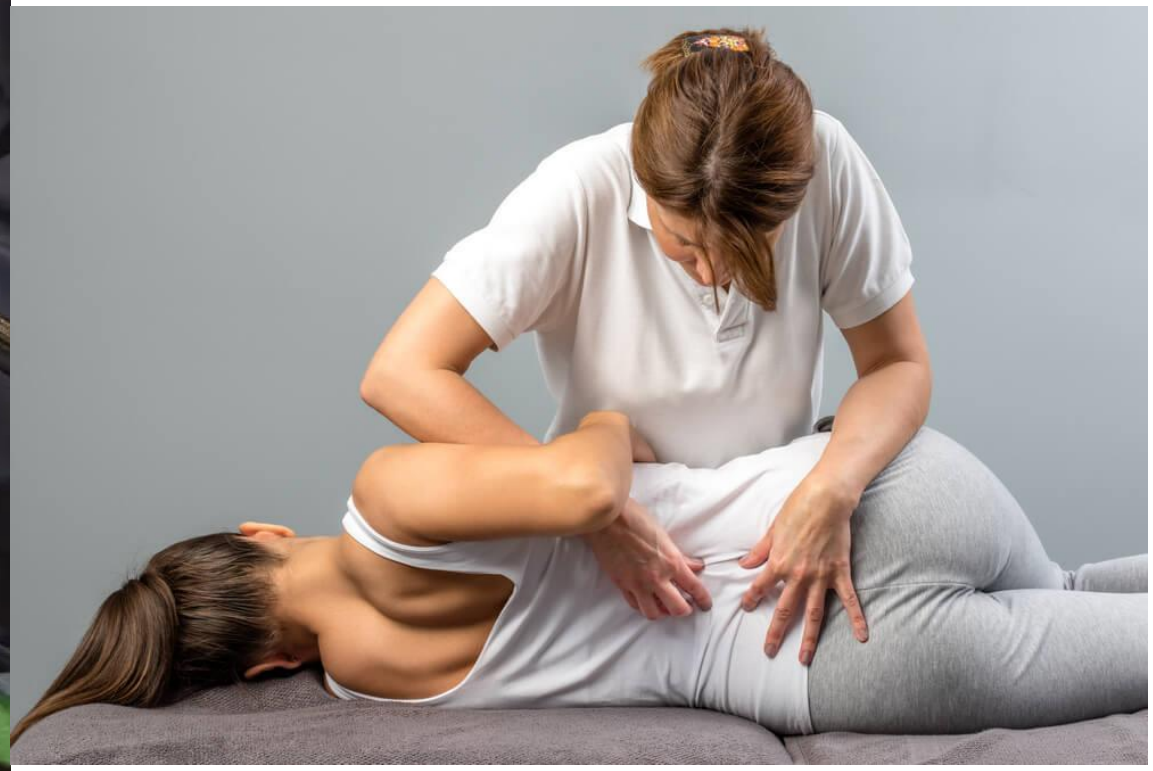
BIG PICTURE

- There are 51-60 items on the NTPTE specific to the MS system



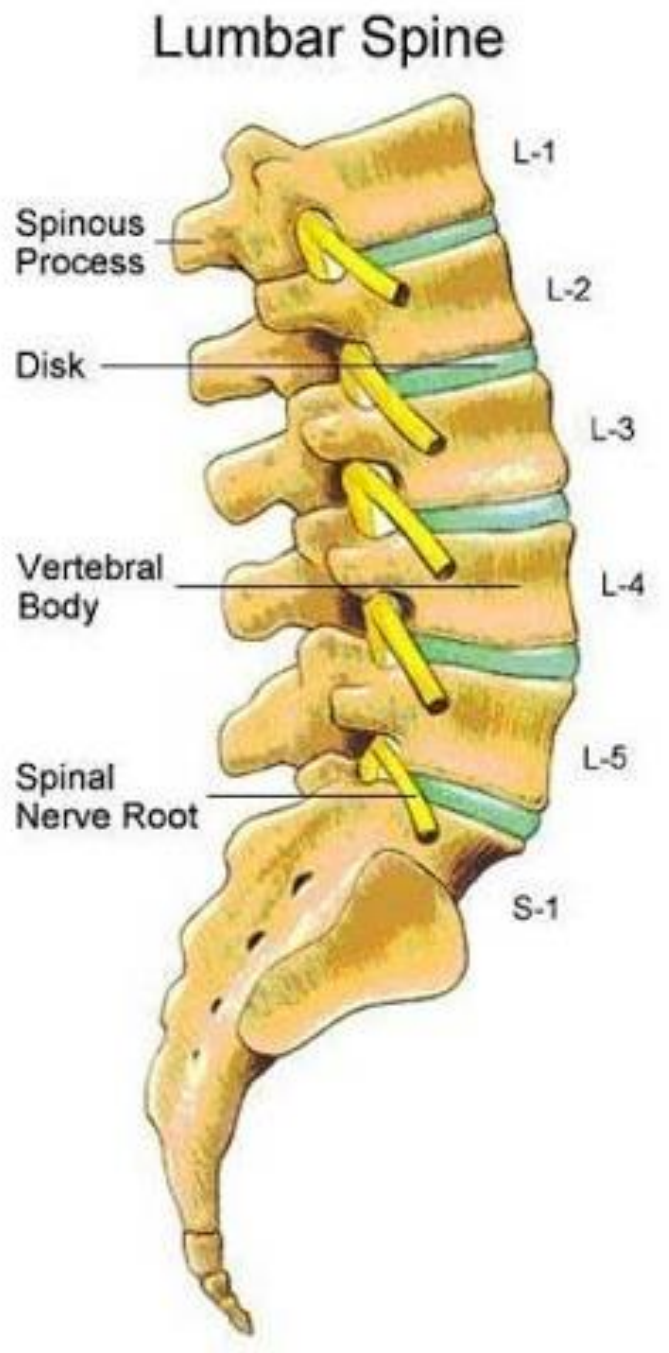


Who FSBPT is testing…

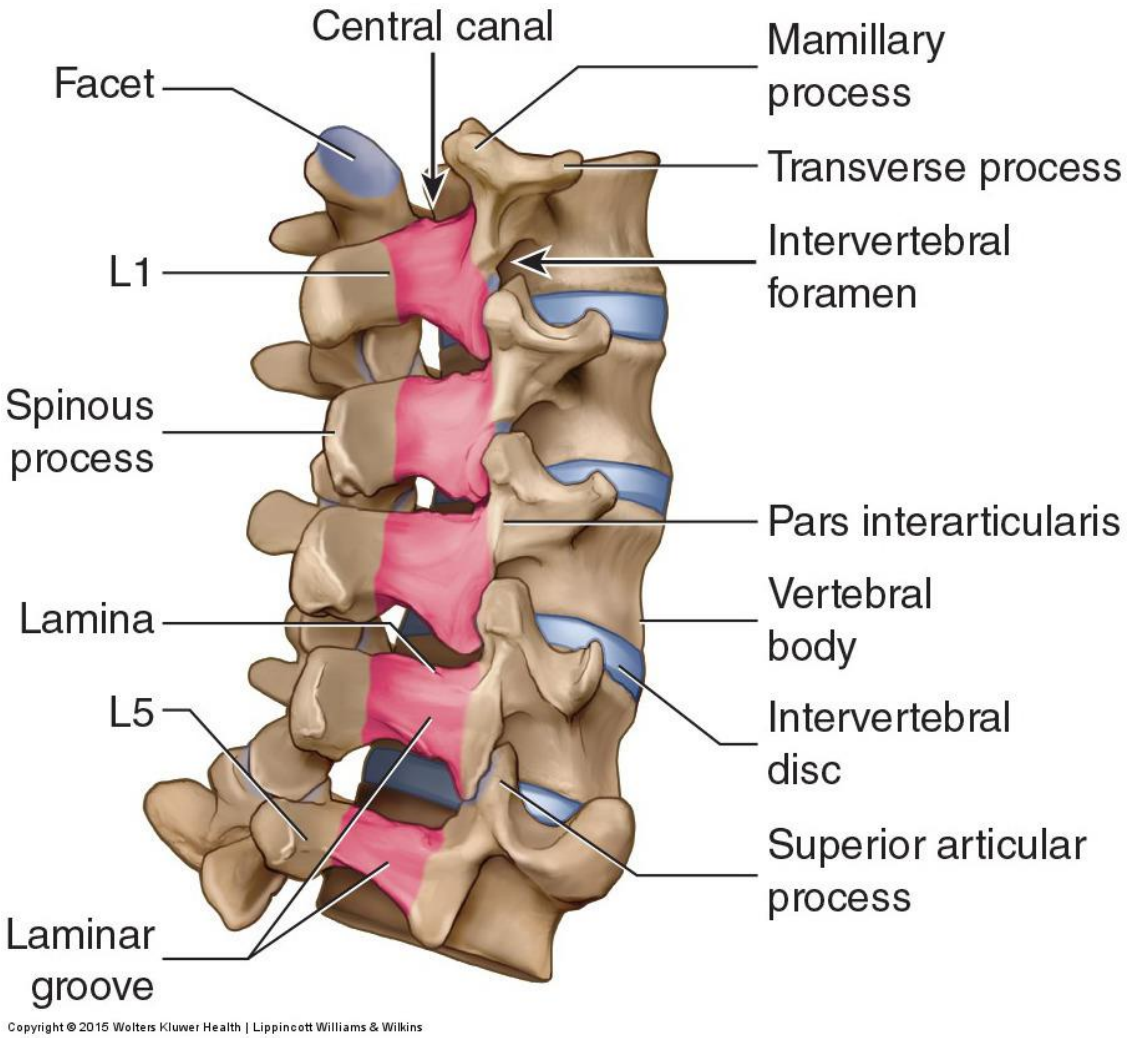


Likely Questions

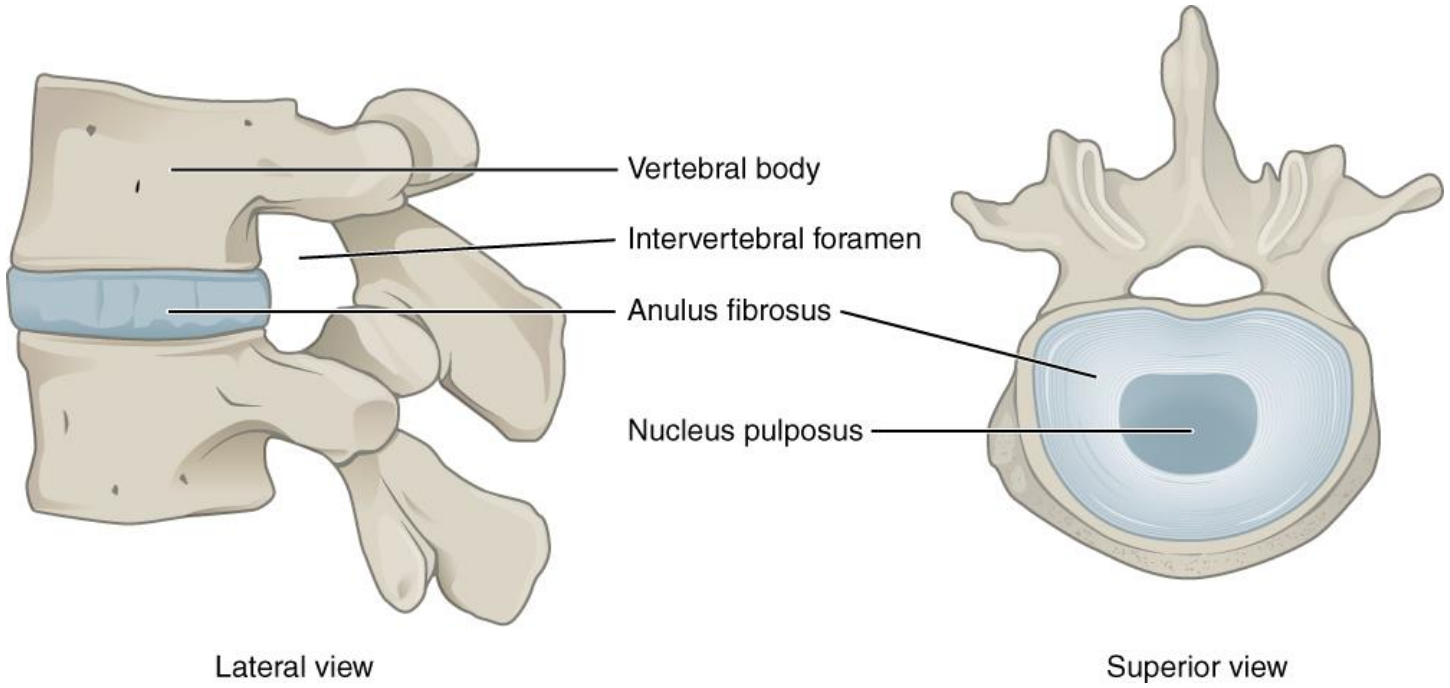
- Anatomy of the L/s
- Kinesiology of the L/s
- Basic assessment
- Pathologies of the L/s
- Differential diagnosis

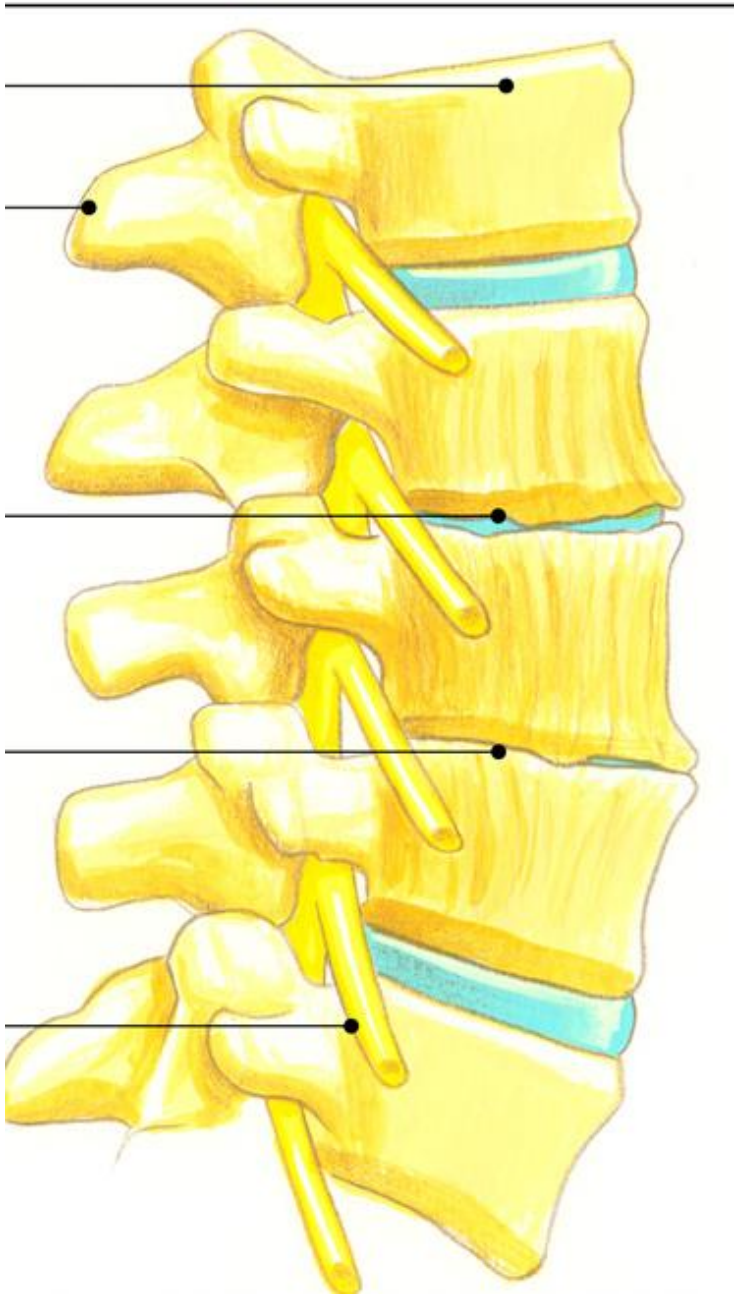


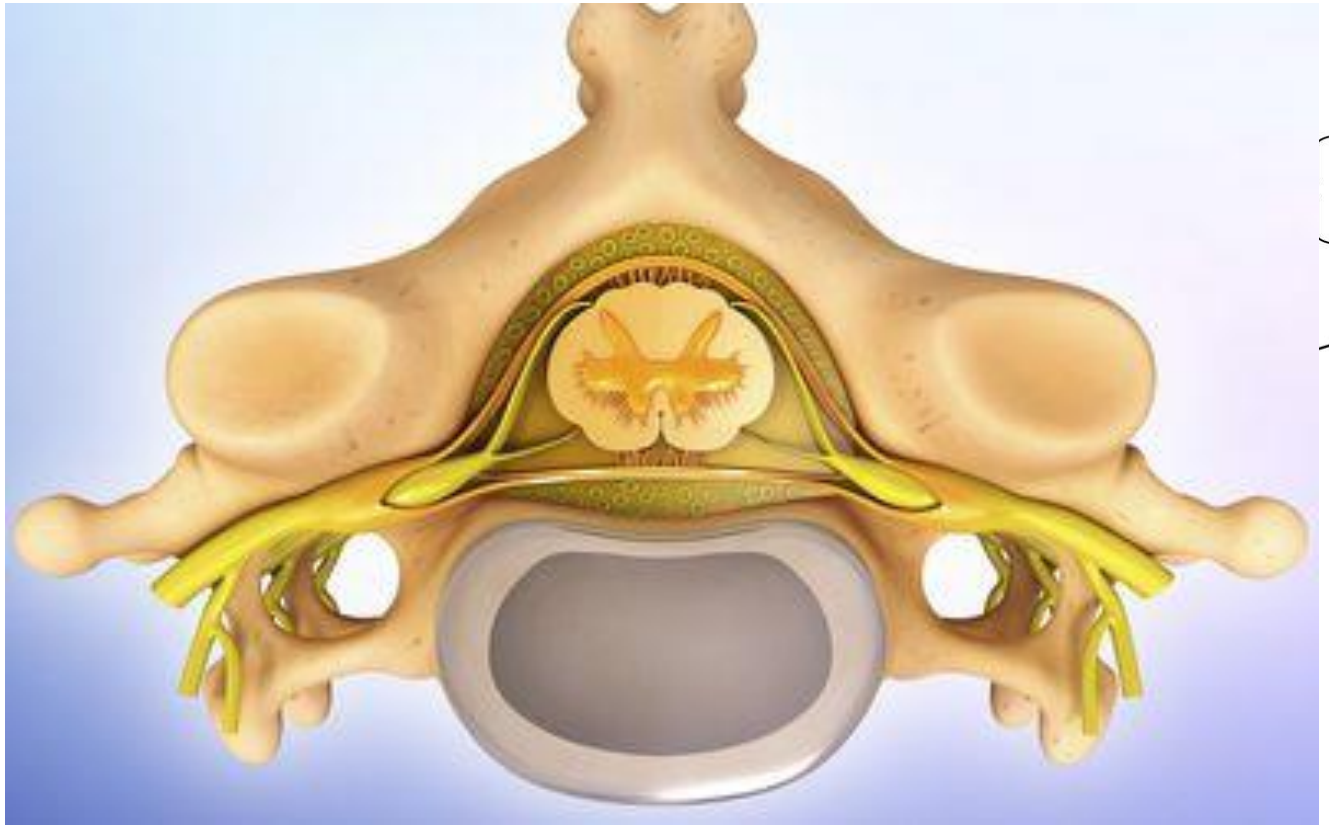
Anatomy

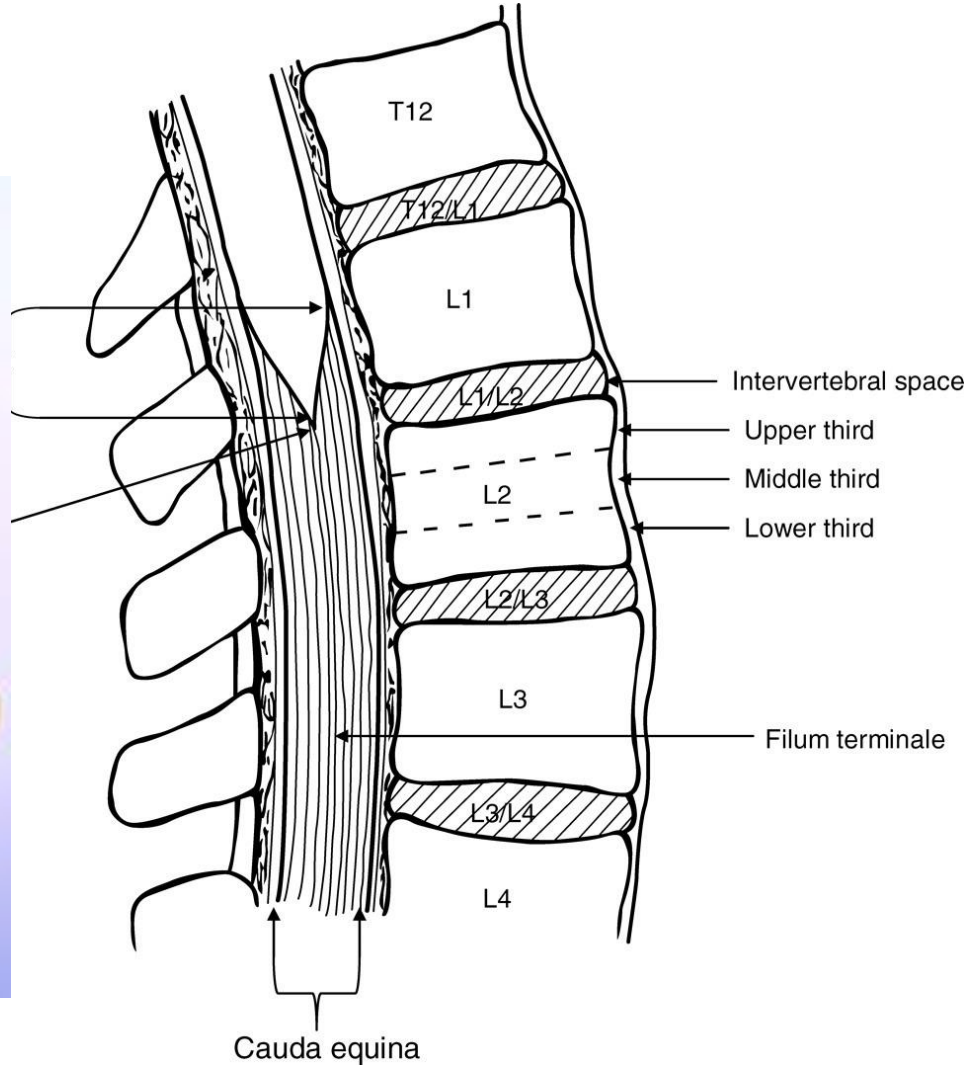


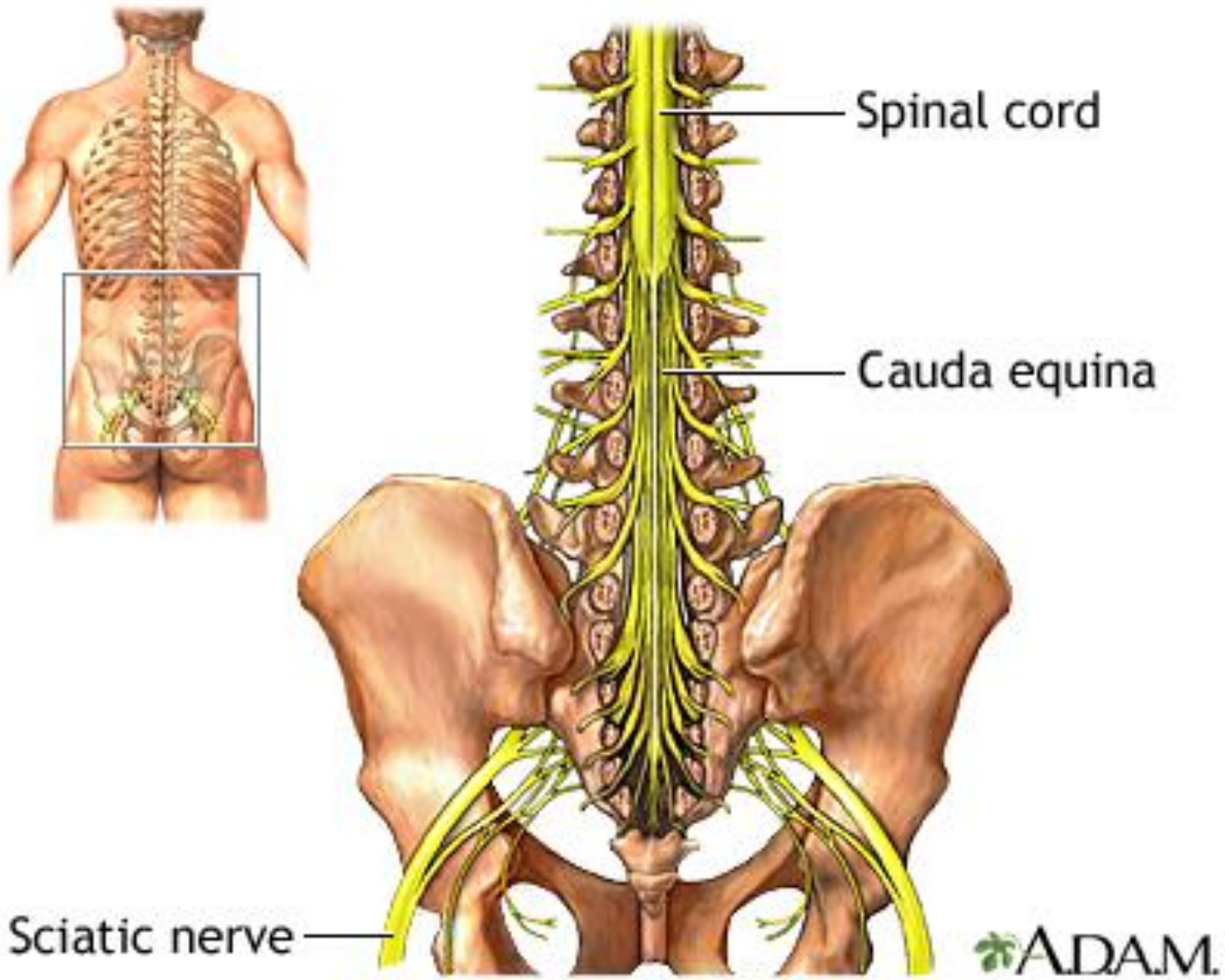
Anatomy


Vertebral body
Intervertebral foramen
Anulus fibrosus
Nucleus pulposus
Lateral view
Superior view






T12
T12/L1
L1
L1/L2
L2
L2/L3
L3
L3/L4
L4
Intervertebral space
Upper third
Middle third
Lower third
Filum terminale
Cauda equina


Spinal cord
Cauda equina
Sciatic nerve
A.D.A.M.

Kinesiology

Extension 20-25 degrees

Flexion 60 degrees

Basic assessments

- Neuro screen
  - Myotomes
  - Dermatomes
  - Reflexes
- Neural tension
  - SLR
  - slump

TABLE 2: MYOTOMES	
C1, C2	Cervical flexion
C3	Cervical side flexion
C4	Scapula elevation
C5	Shoulder abduction
C6	Elbow flexion and wrist extension
C7	Elbow extension and wrist flexion
C8	Thumb extension
T1	Finger abduction
L1, L2	Hip flexion
L3	Knee extension
L4	Ankle dorsiflexion
L5	Big toe extension
S1	Ankle plantiflexion
S2	Knee flexion

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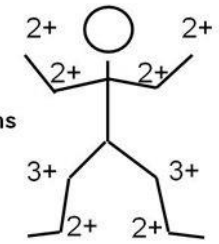
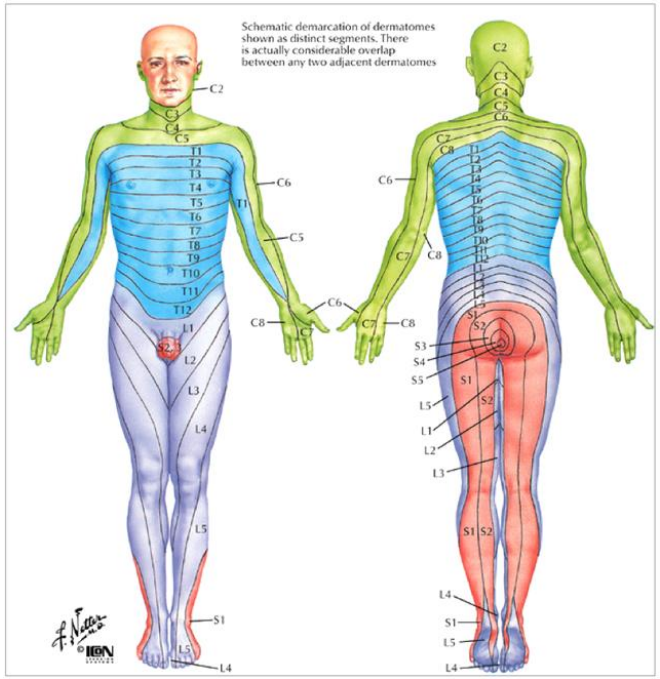
Reflexes

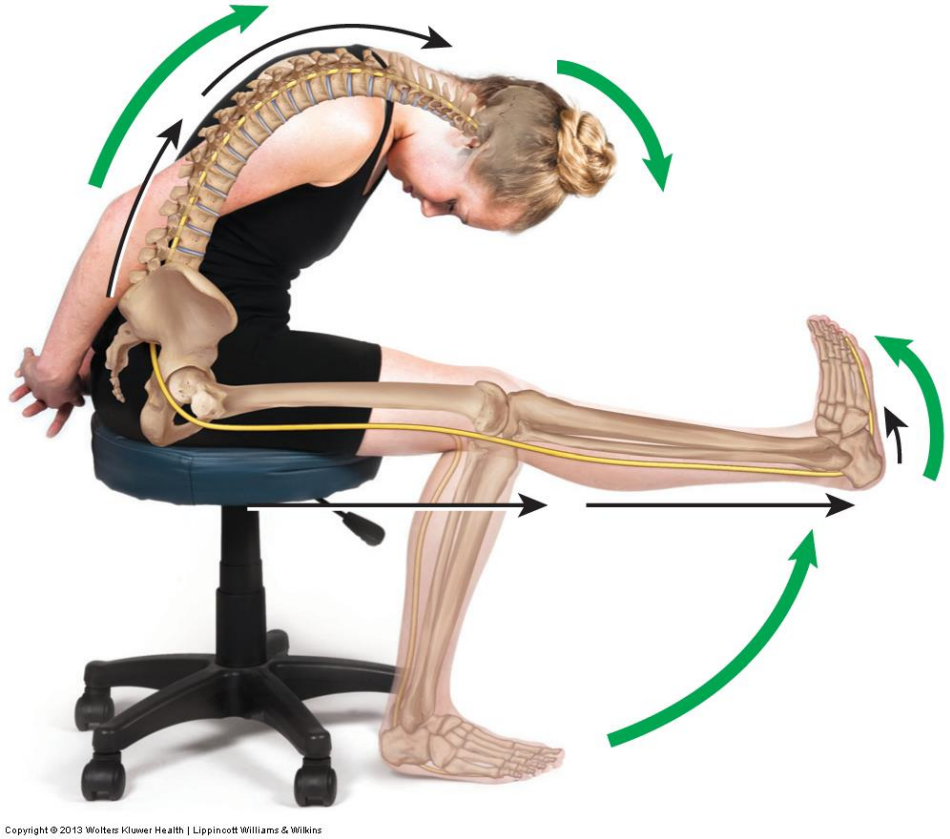
- **Deep tendon reflexes**
  - Biceps reflex C5/C6
  - Brachioradialis reflex C6
  - Triceps reflex C7
  - Patellar reflex L4
  - Achilles tendon S1
- **Plantar response**
- **Reflexes tested in special situations**
  - Spinal cord injury
  - Frontal release signs
  - Posturing
- **Scale**
  - 0 = absent
    1+ = hypoactive
    2+ = normal
    3+ = hyperactive
    4+ = hyperactive with clonus
    5+ = sustained clonus

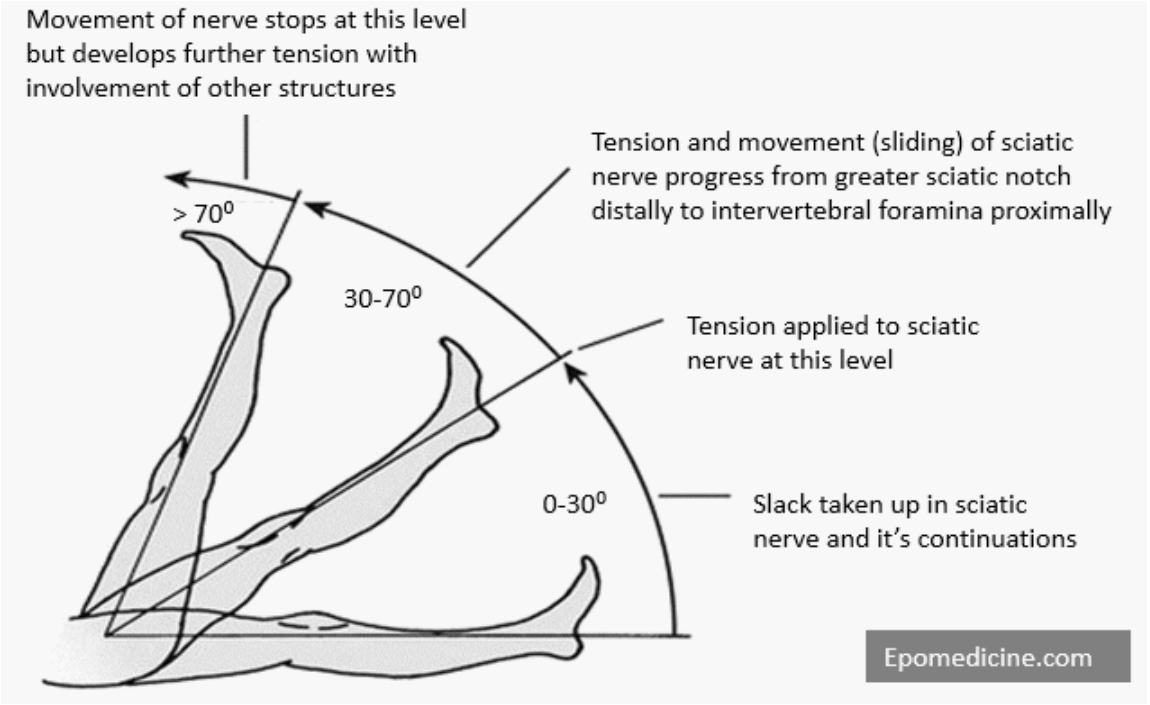


Clinical shorthand to summarize reflex findings



Neuro Screen

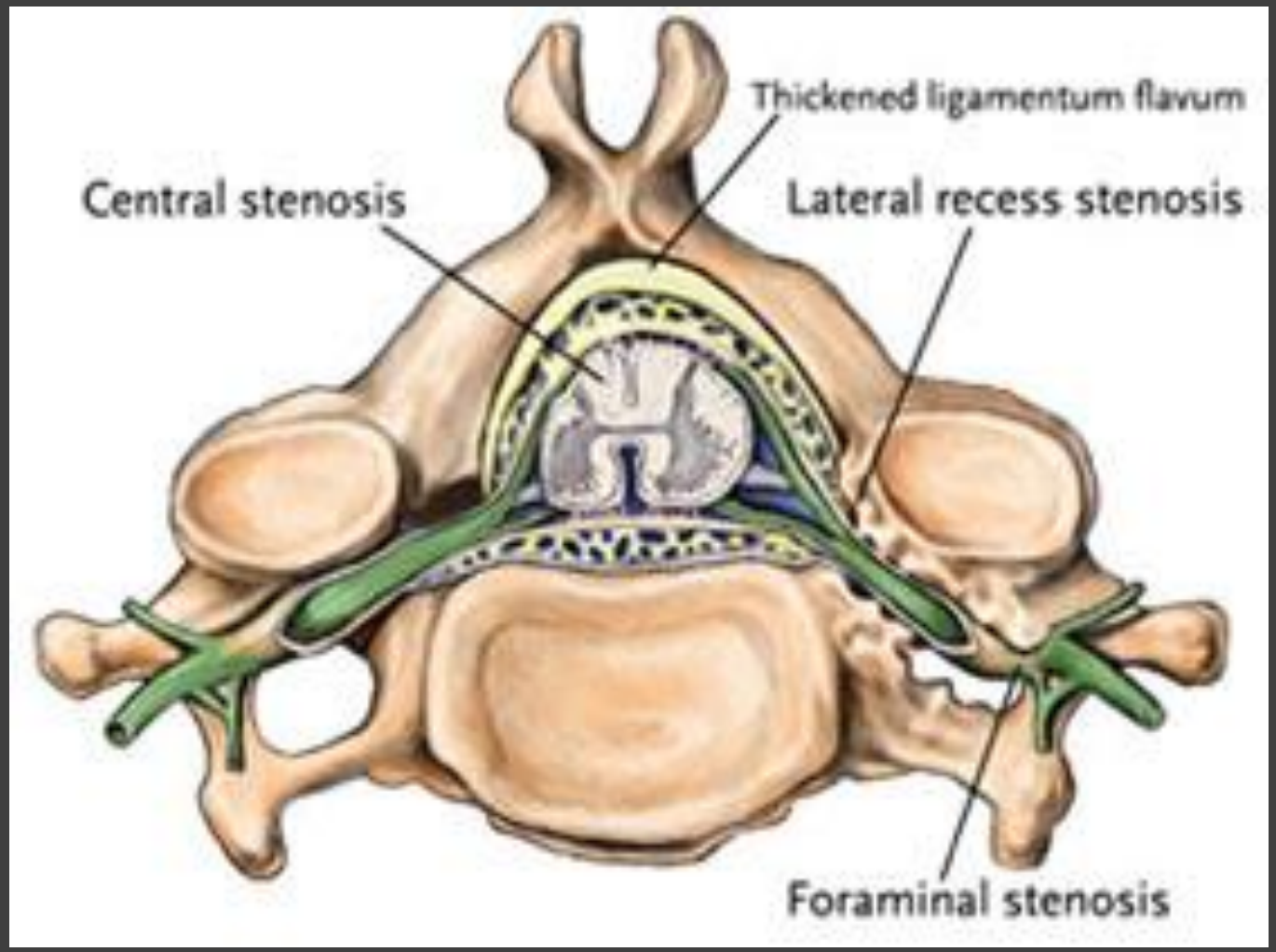




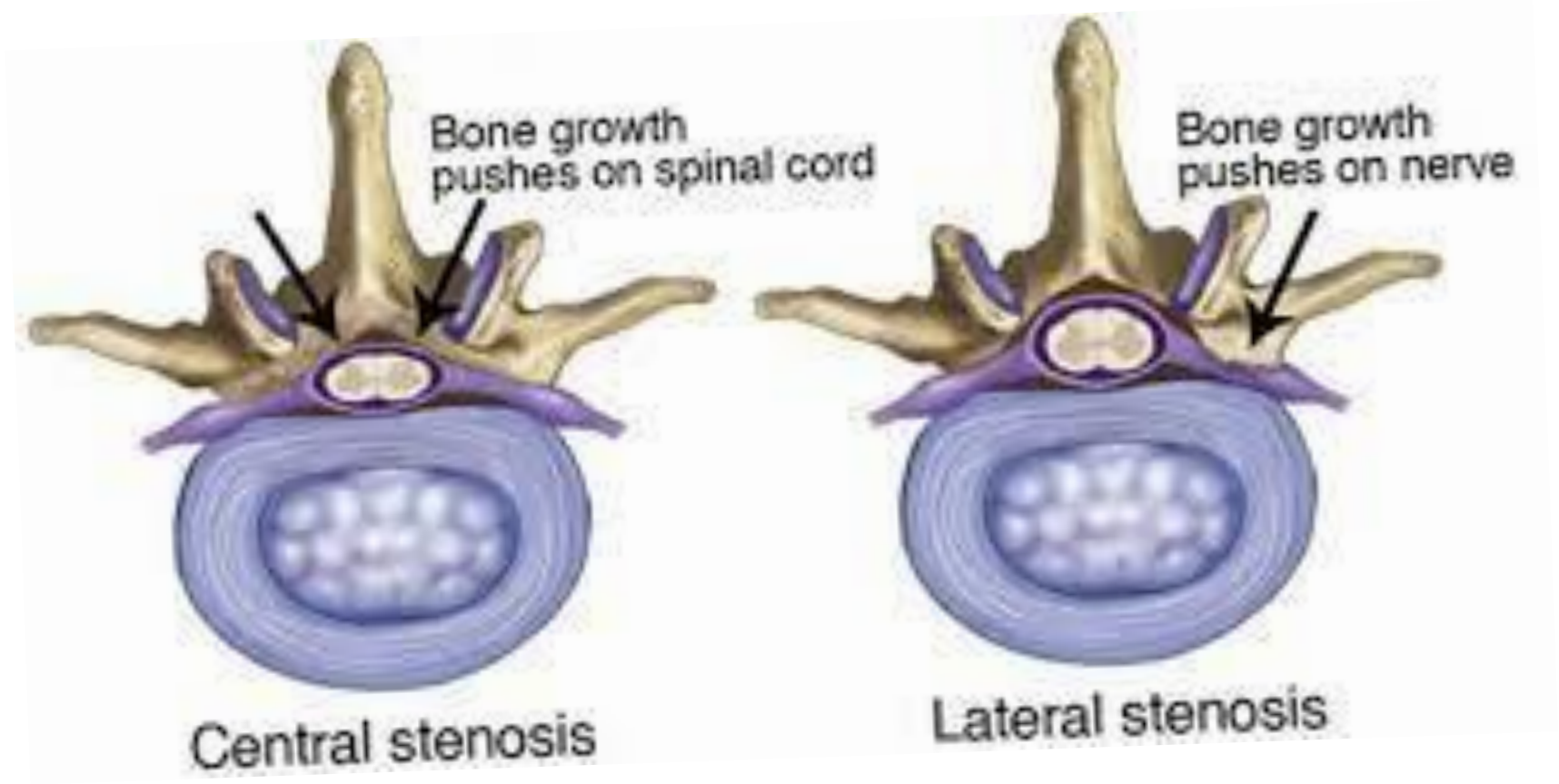
Neural Tension

Pathologies

- Stenosis
- Radiculopathy
- Herniated discs
- Localized pain
- Instability


Thickened ligamentum flavum
Central stenosis
Lateral recess stenosis
Foraminal stenosis

Stenosis


Bone growth
pushes on spinal cord
Central stenosis
Bone growth
pushes on nerve
Lateral stenosis

Diagnosis

- Older adults
- Bilateral > unilateral pain
- Leg pain > back pain
- Worse with walking/standing
- Better with sitting/ up ramps/ bike riding

Differentiate

Neurogenic vs vascular

Exercises

A. Pelvic tilt

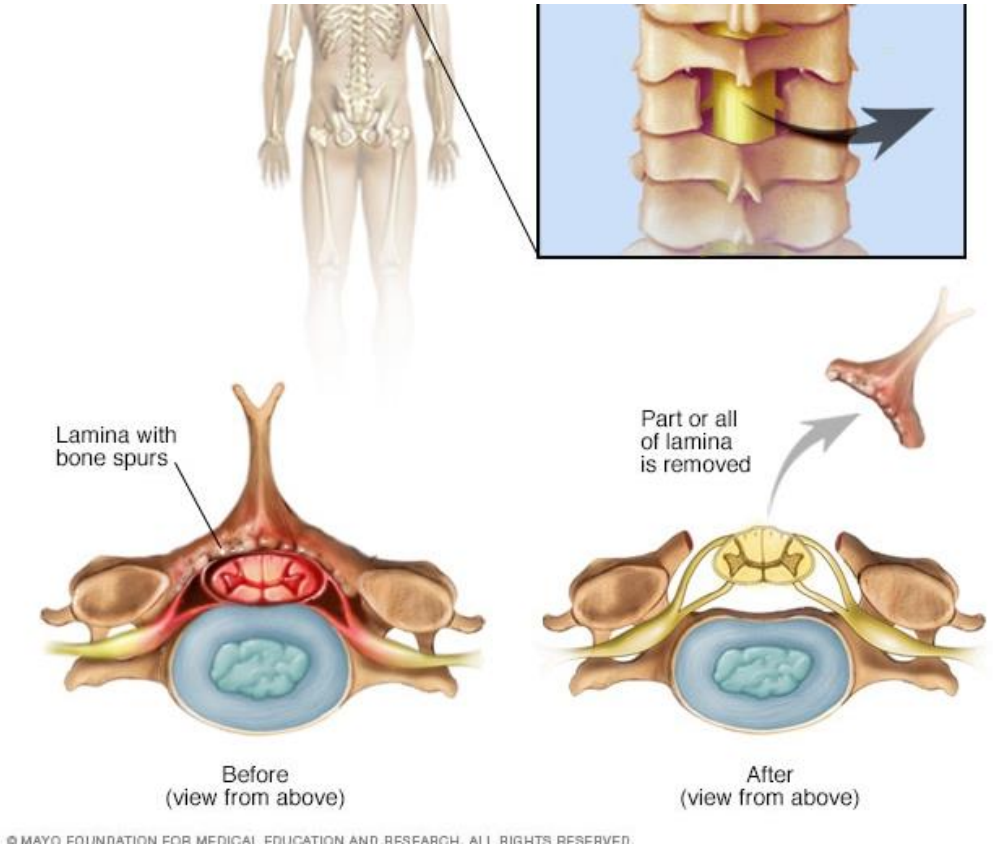
B. Sit-up in knee flexion

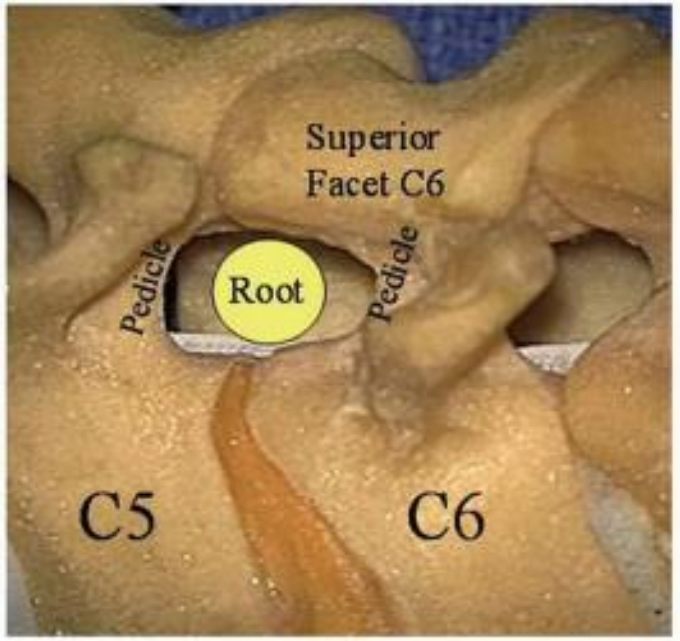
C. Single knees to chest and double knees to chest to stretch the erector spinae

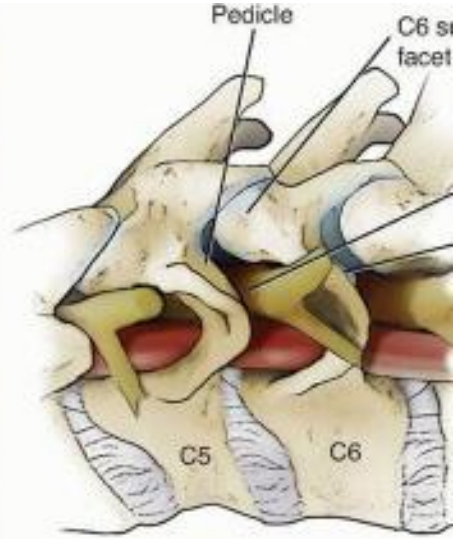
D. Seated reach to toes to stretch the hamstrings and erector spinae

E. Forward crouch to stretch the iliofemoral ligament

F. Seated flexion

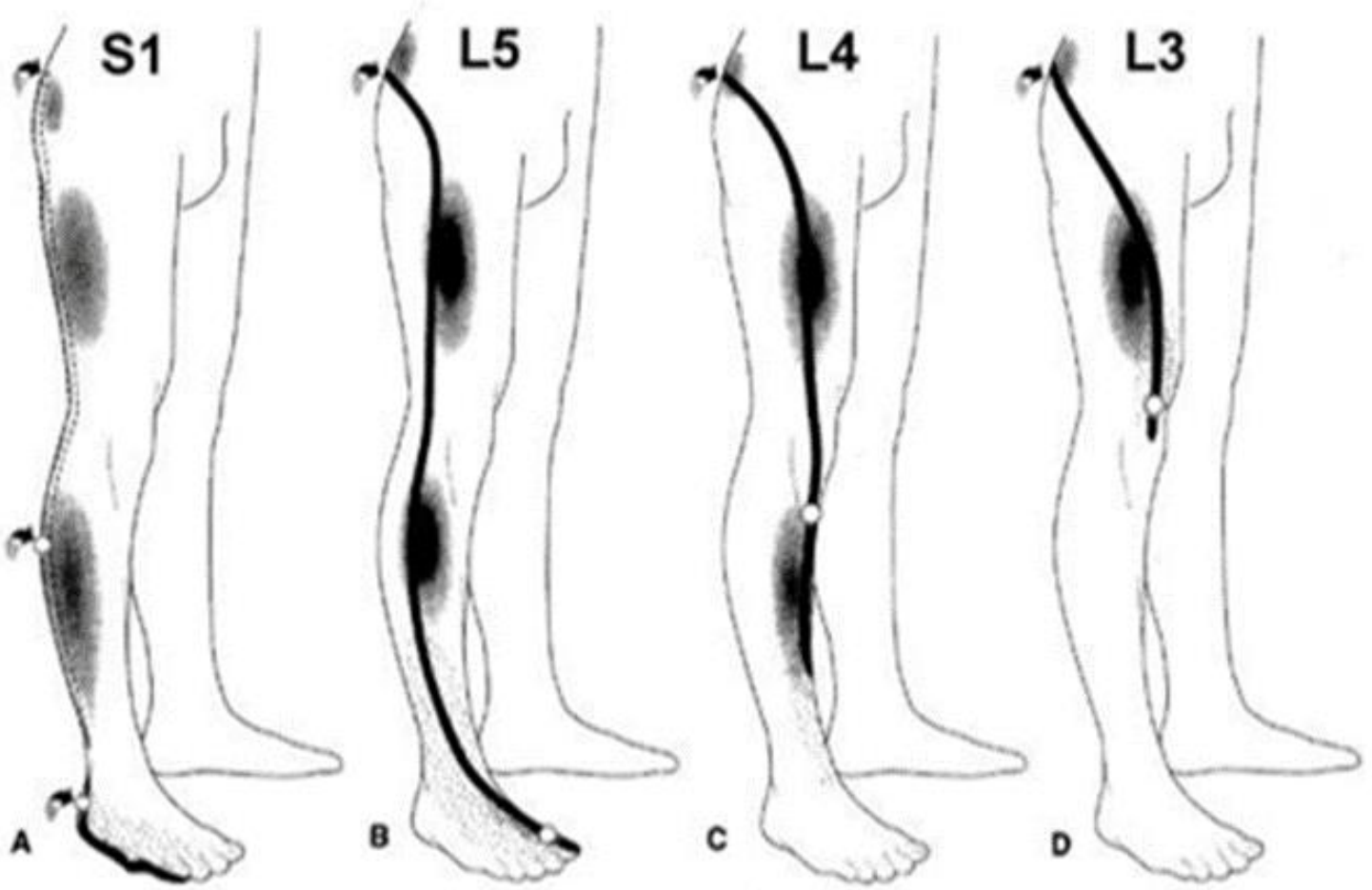






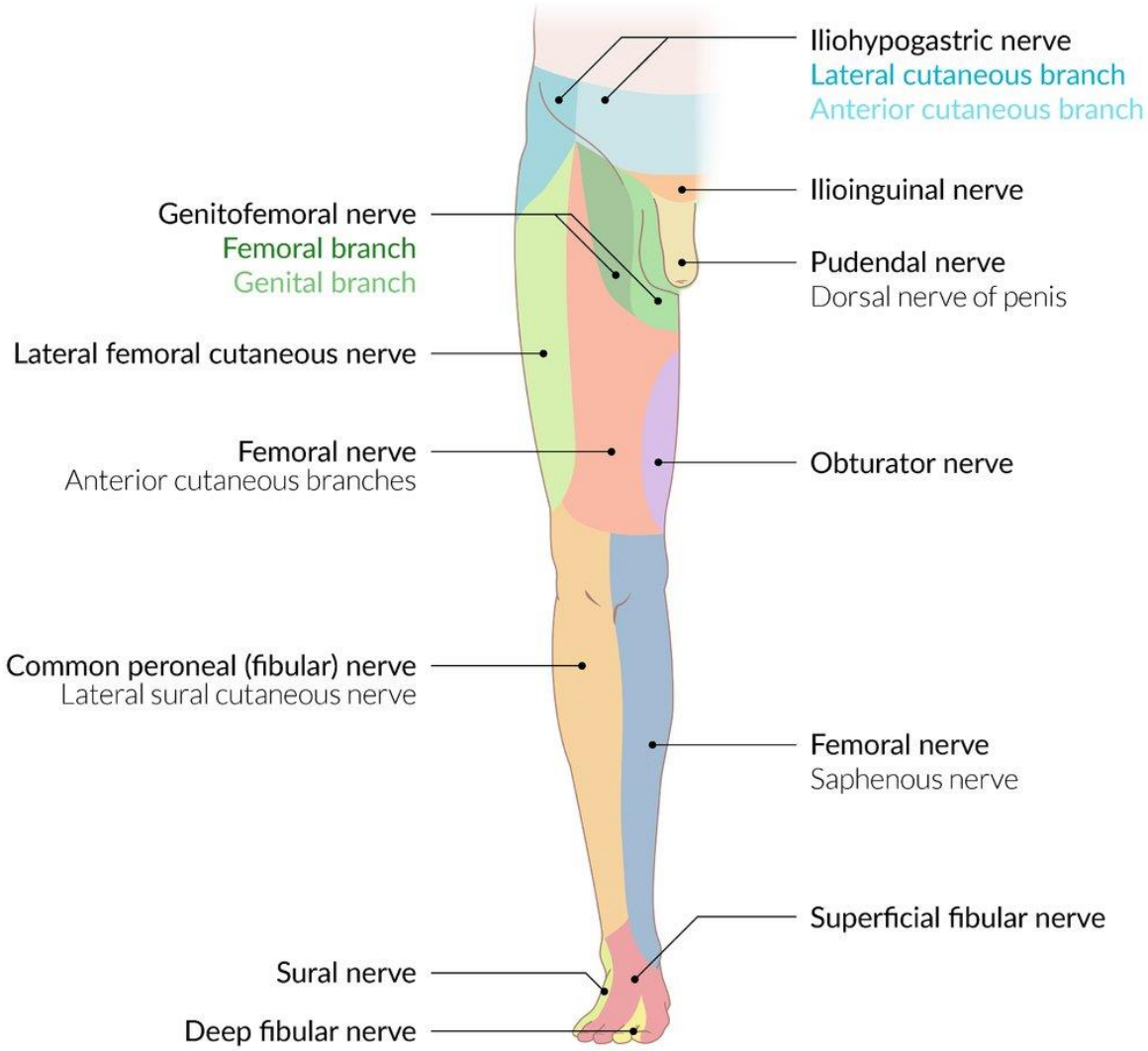
Surgical

Radiculopathy

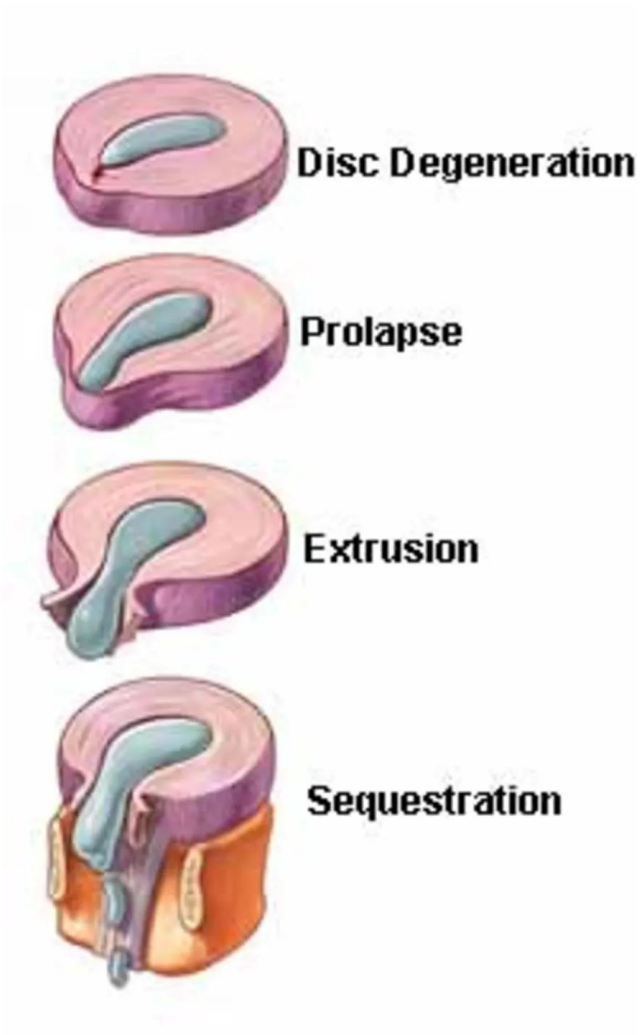


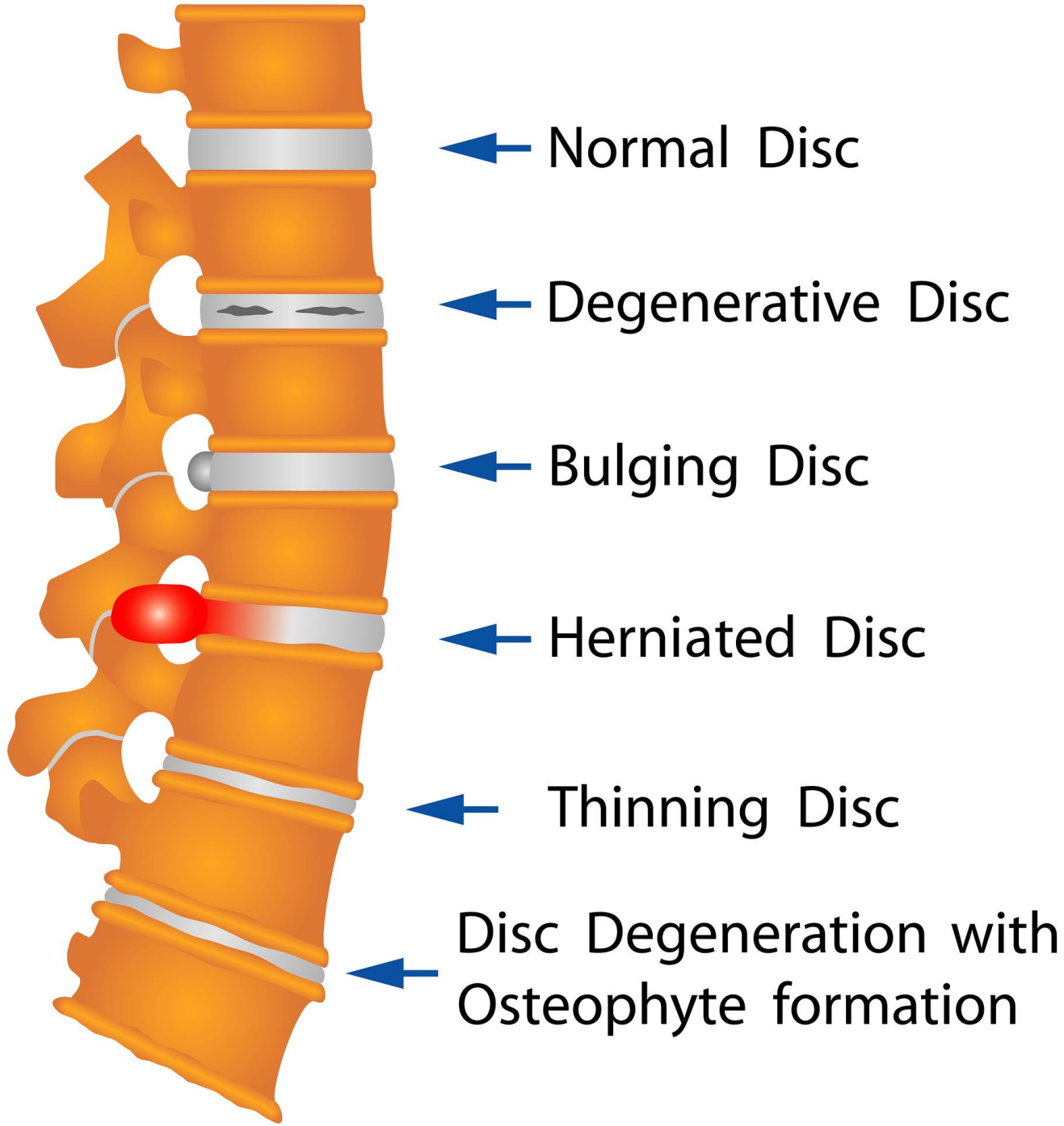
The thick black line represents the sharp radiating radicular pain with a dermatomal pattern. The dotted lines indicate the location of the numbness or tingling sensations

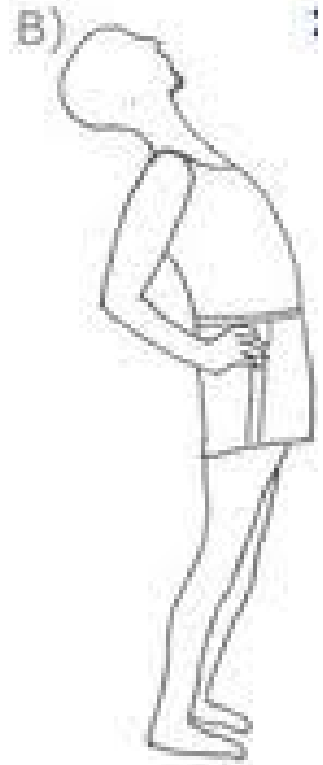
Differentiate



Herniated discs



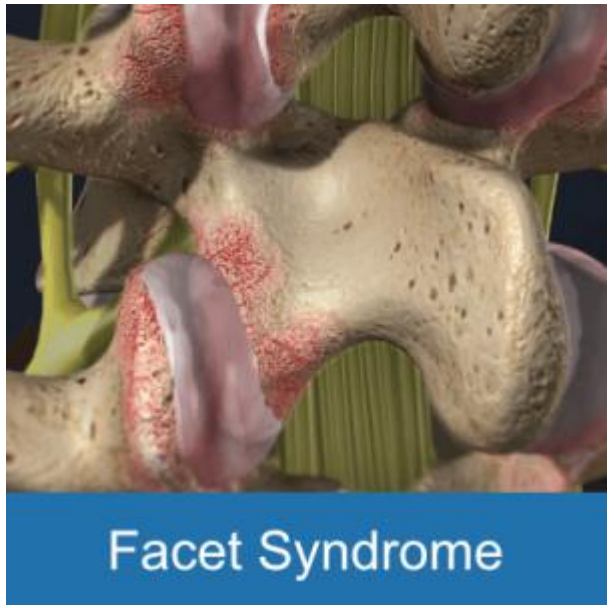


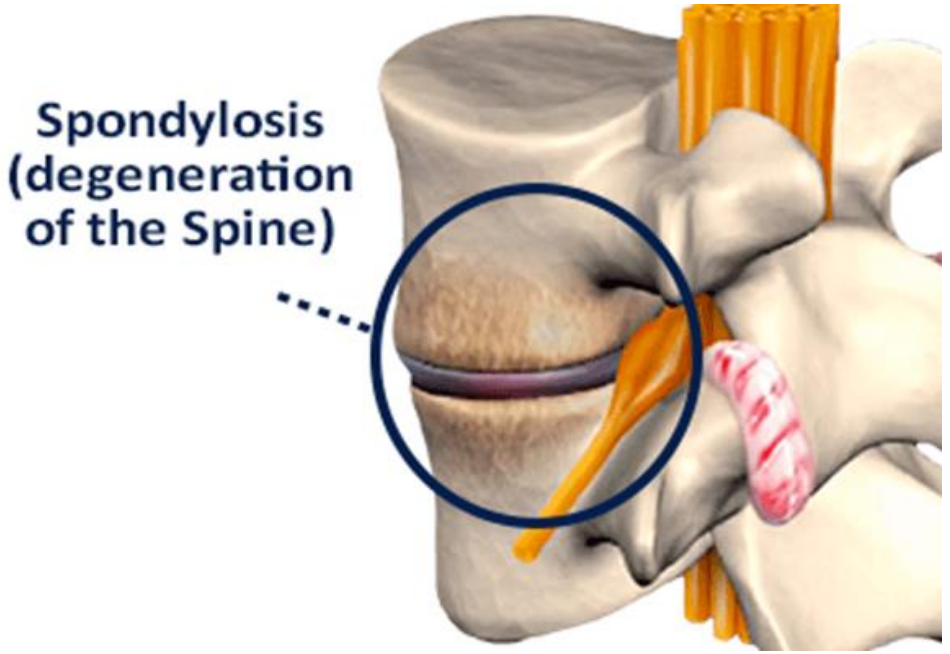


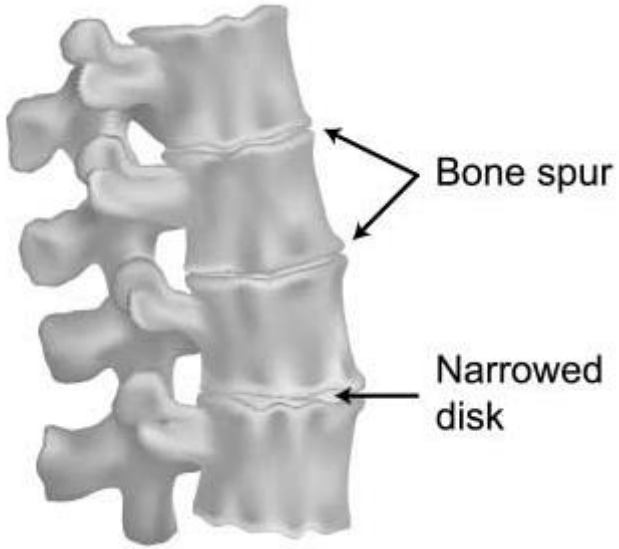
Presentation & Treatment

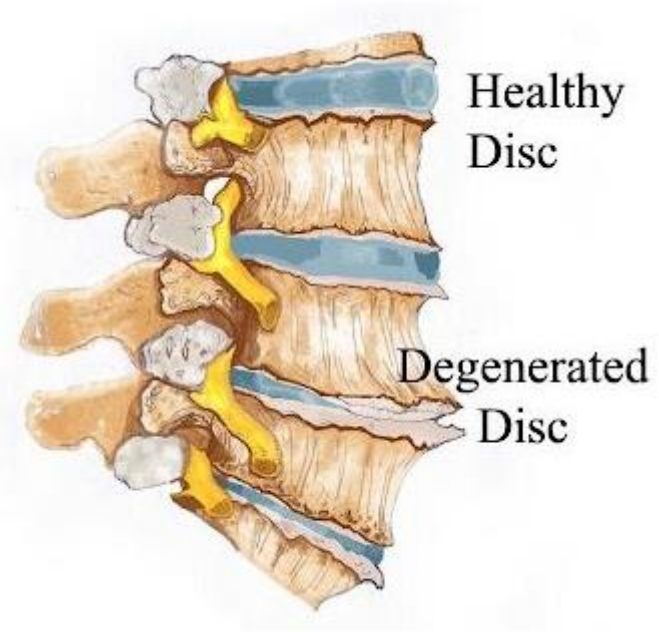
Localized pain

- Aka
  - Spondylosis
  - DDD
  - Facet arthropathy
  - arthritis









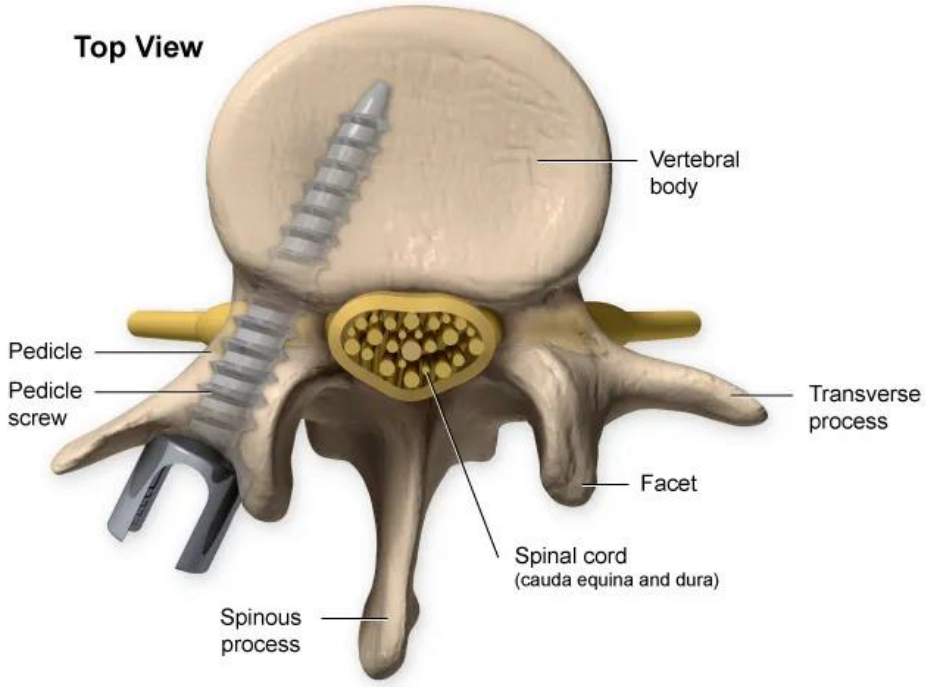
Manipulation CPR

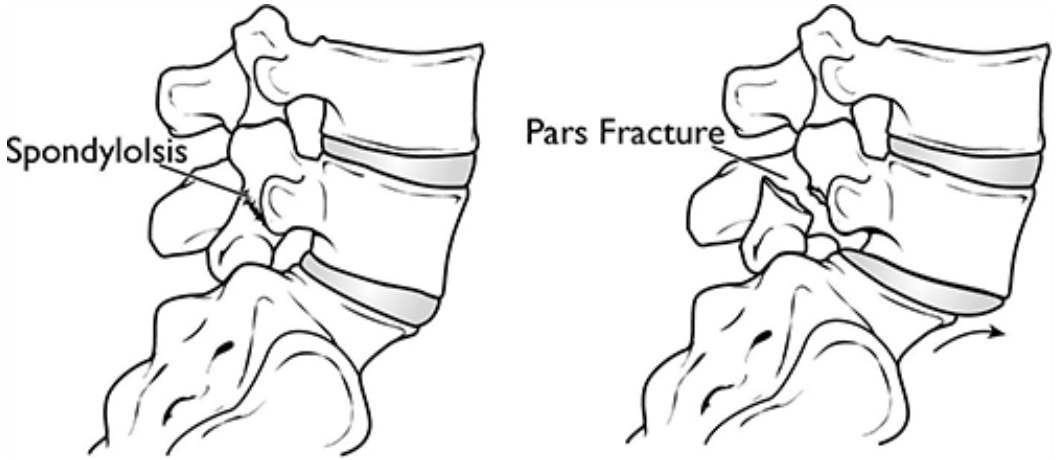
- Fear-Avoidance Beliefs Questionnaire work score <19 points.
- Duration of current episode <16 days.
- No symptoms extending distal to the knee.
- At least 1 hypomobile lumbar spine segment.
- At least 1 hip with >35° of internal rotation range of motion.

Instability

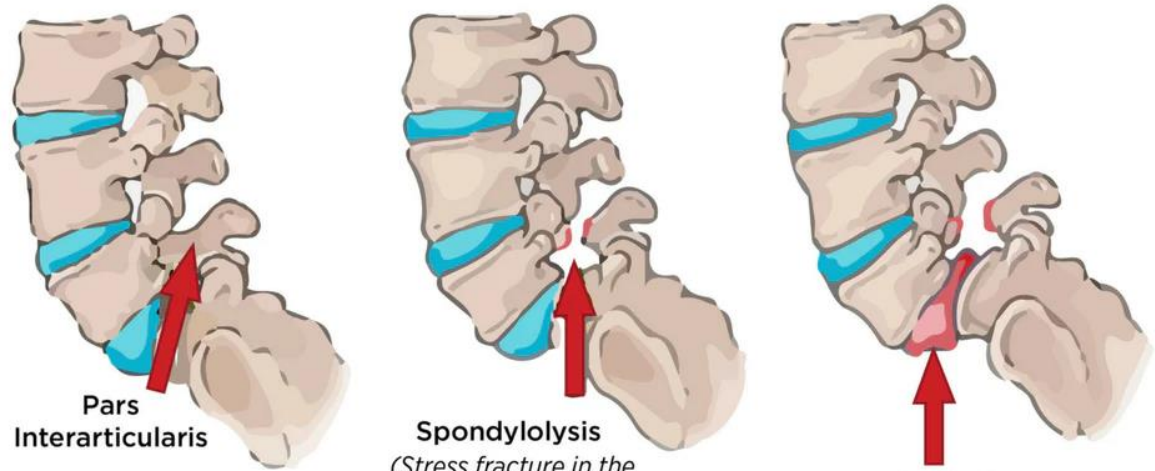
- Diagnosis
  - Transitional movement pain
  - + prone instability test
  - <40
  - Post-partum
  - PA pain

Instability

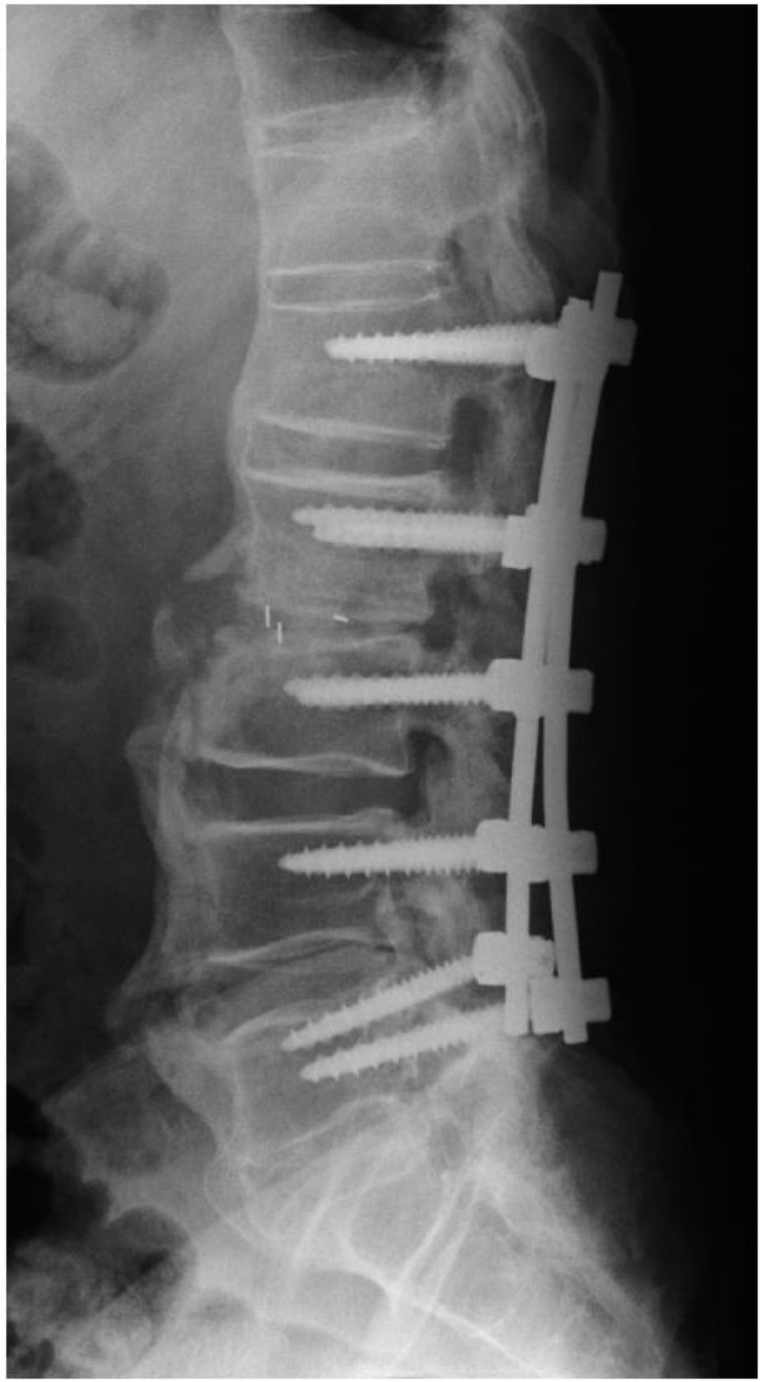




HOW TO TELL IF YOU HAVE SPONDYLOLISTHESIS OR SPONDYLOLYSIS



BRACEABILITY



Differential Dx

- SI Joint
- Cancer
- Crohn’s/IBS
- Cauda Equina Syndrome
- Vertebral compression fracture
- Infection
- Abdominal anyuerysm

SI Joint

- Cluster
  - Distraction
  - Compression
  - Thigh thrust
  - Sacral thrust
- FABER
- Gaenslen

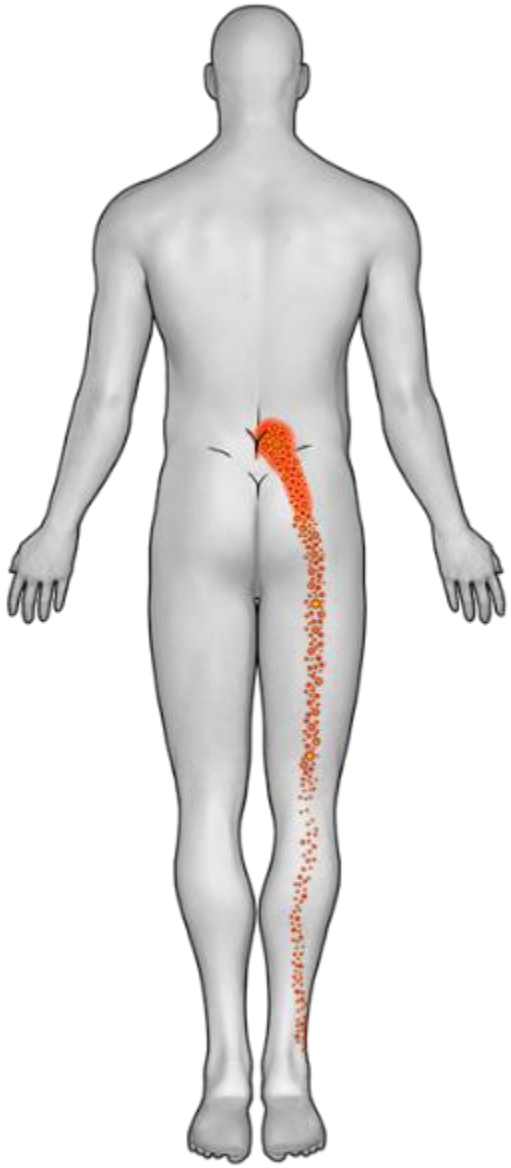
Distraction

Thigh Thrust

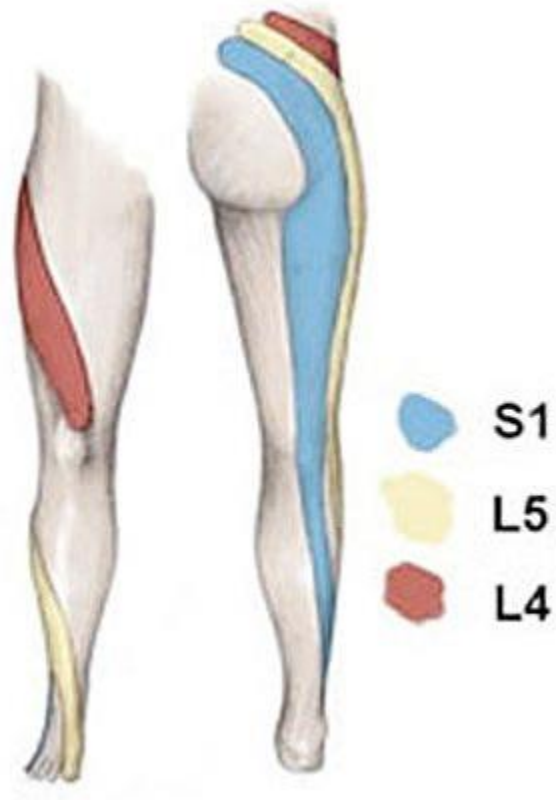
Compression

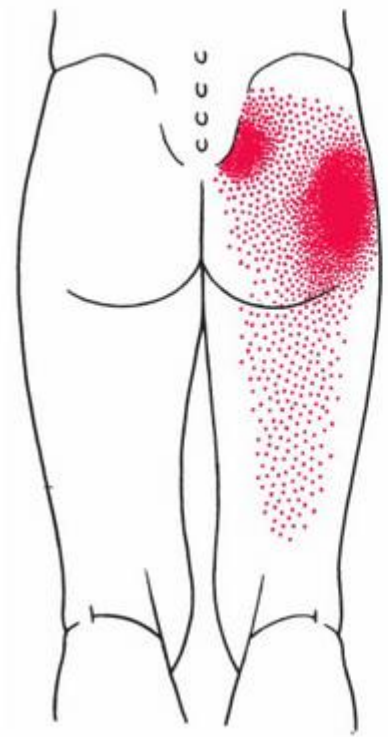
FABER

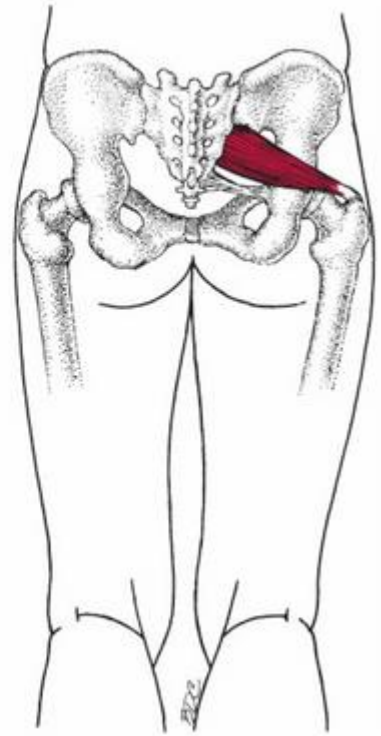
Gaenslen

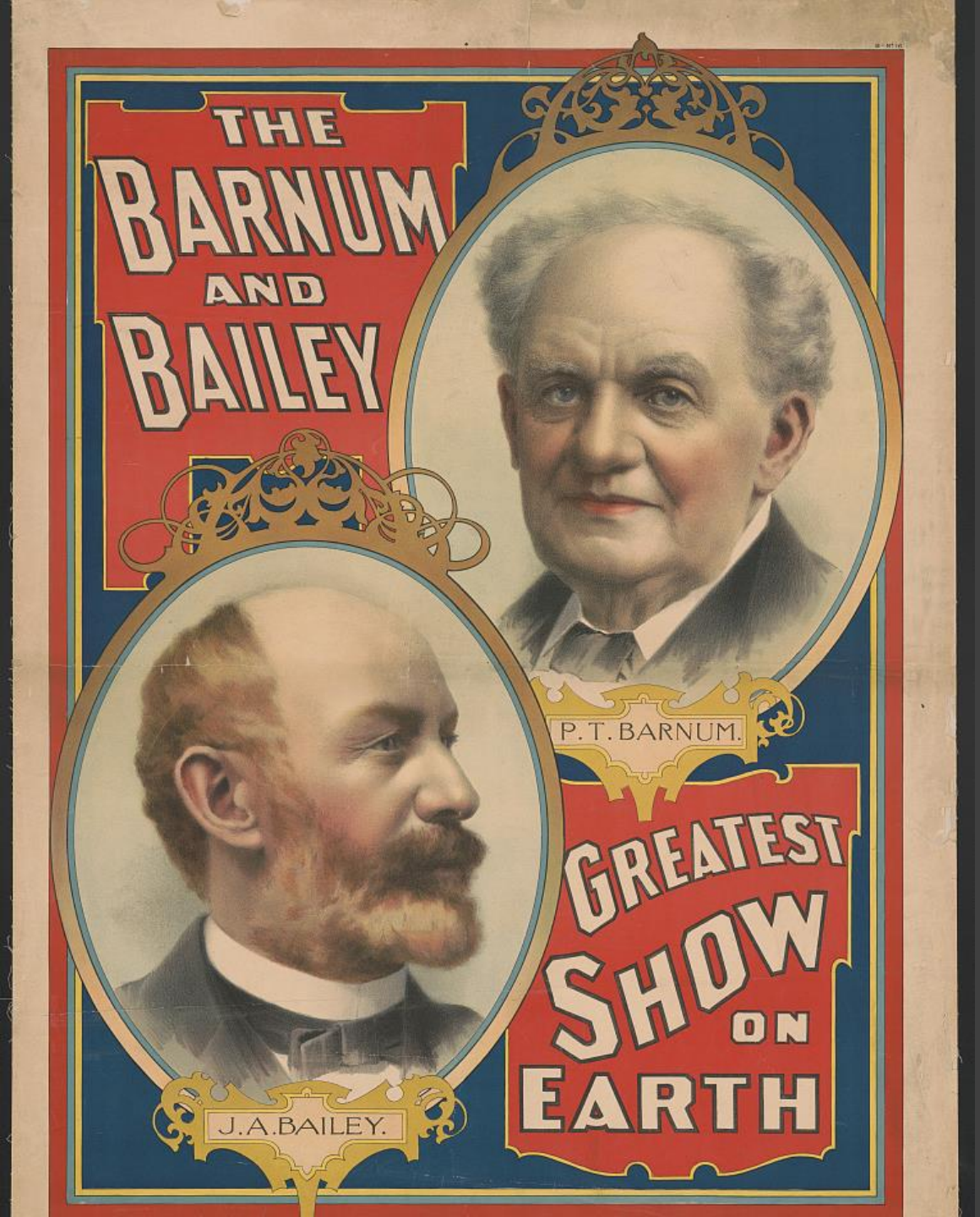


SI Joint Pain







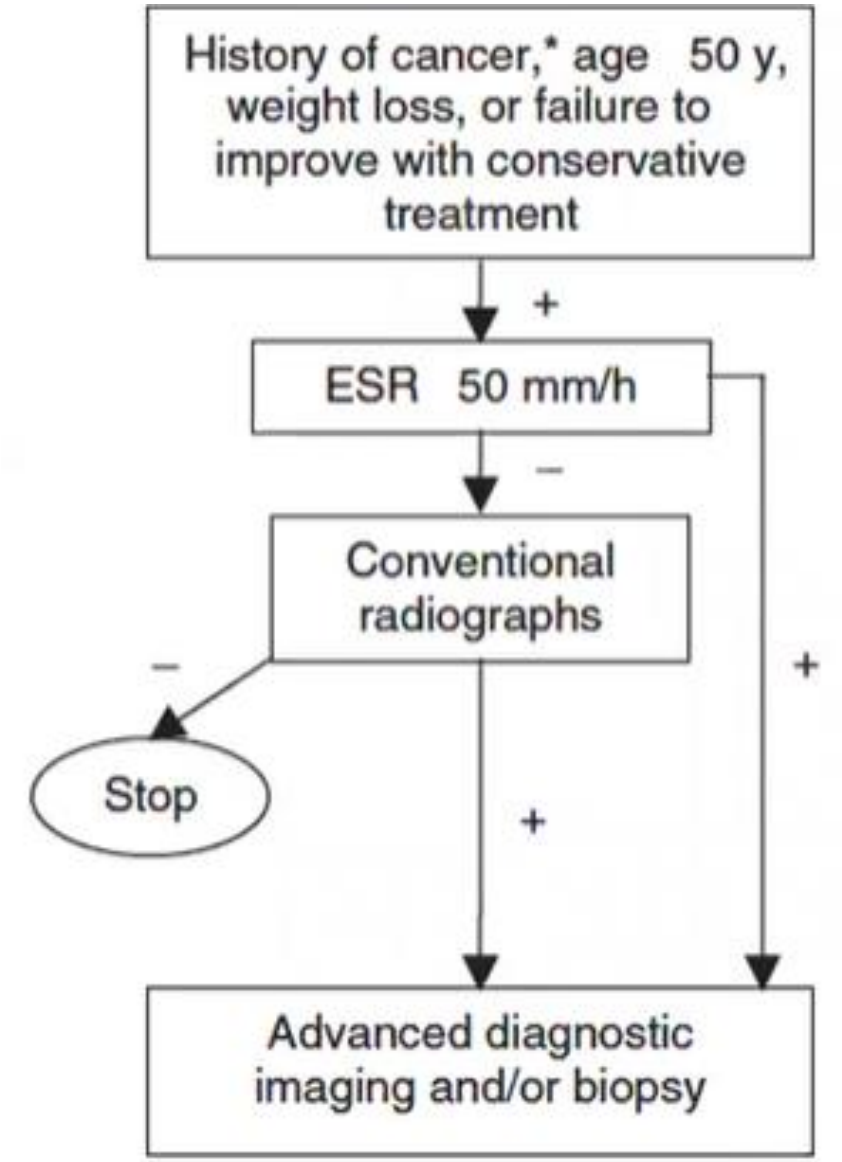


Cancer

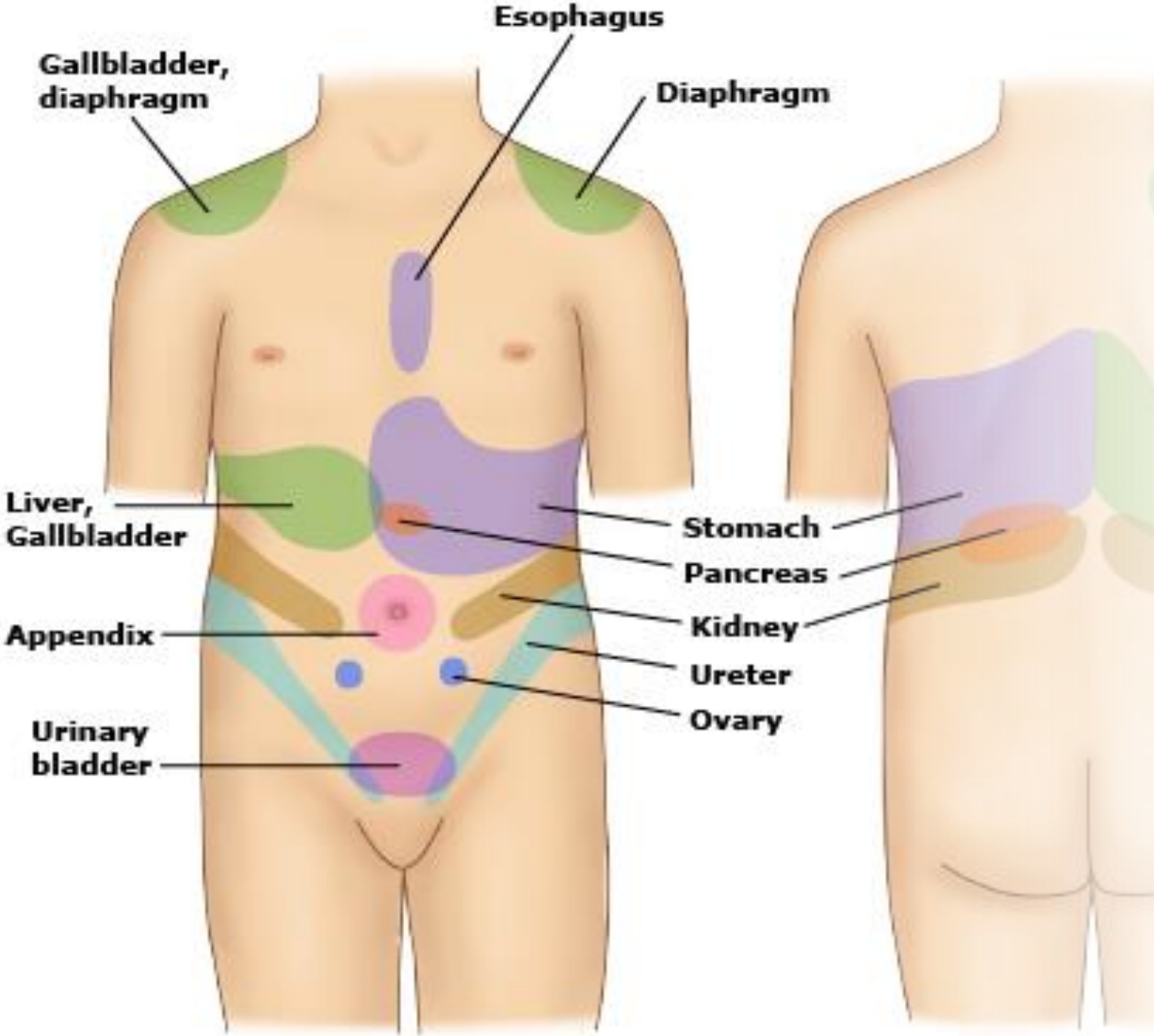
- 5 most common sites for metasis to spine
  - Prostate
  - Thyroid
  - Breast
  - Lung
  - Kidney

Screening

- High likelihood if:
  - Hx of cancer (highest SP)
  - No relief with bedrest (highest SN)
  - 1 of the following
    - >50
    - Weight loss
    - Failure to improve after 30 days
  - Order an ESR next
    - >20 is elevated
    - >50 is serious concern= refer out!



Ross, 2005



Crohn's/ IBS/ GI/Urinary

- UTI most common
- Screening out GI
  - Cough, sneeze, deep breath make it worse?
  - Worse with bending/lifting/twisting?
  - Change in B & B?
  - Worse with eating?
  - Weight change?

Cauda Equina Syndrome

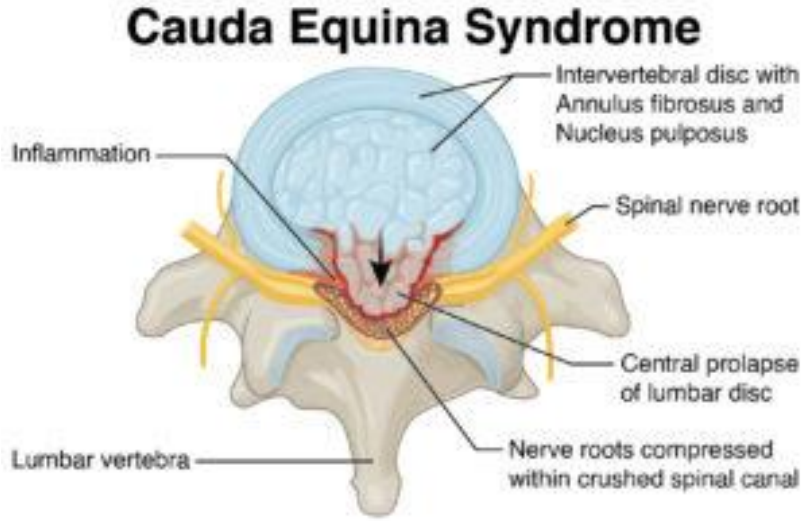
Urinary retention # 1 sign

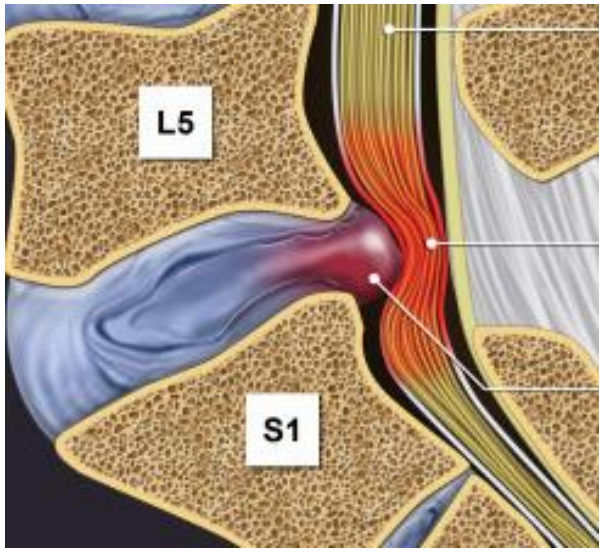
Fecal incontinence

Saddle paresthesia

MRI gold standard

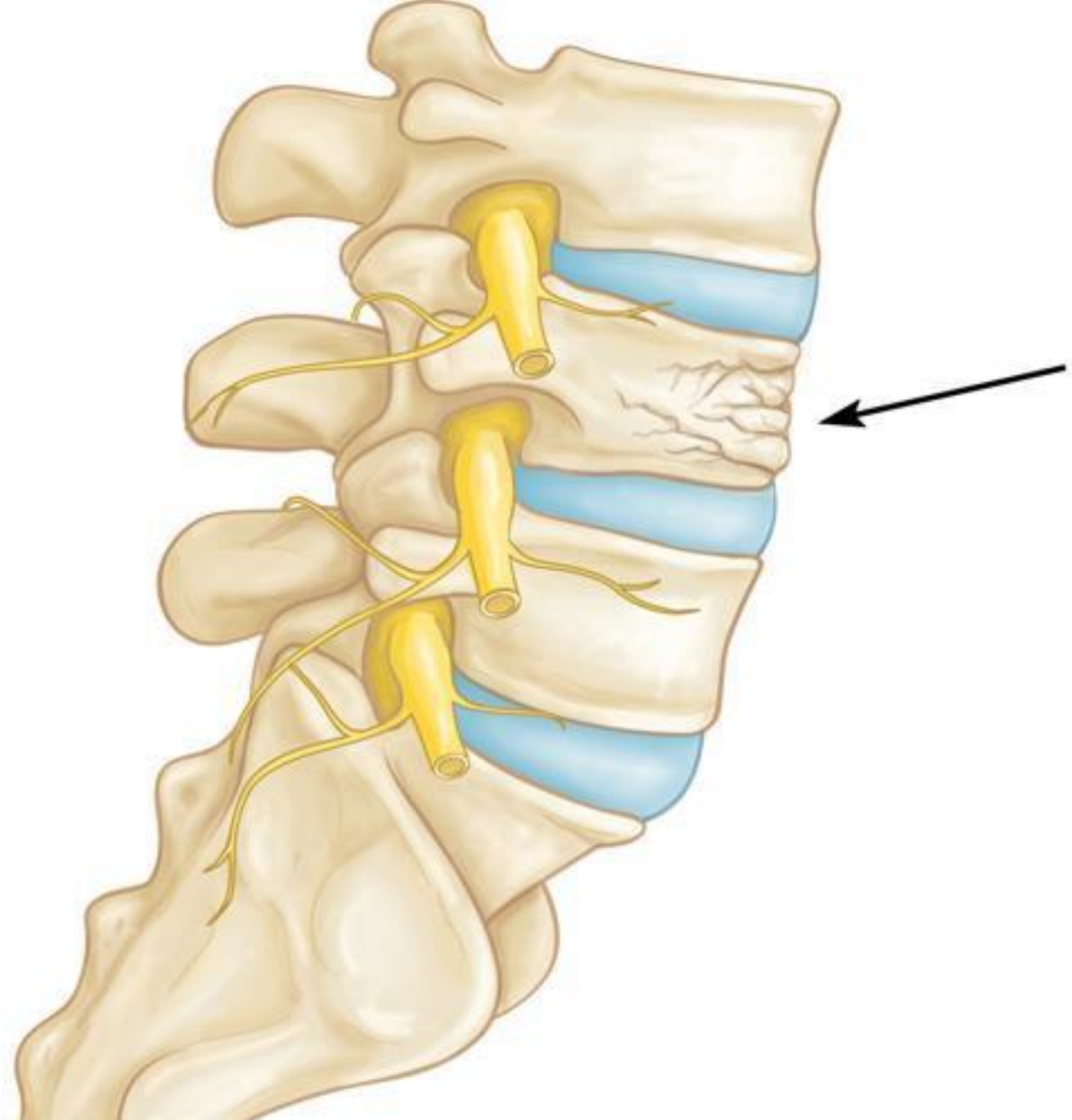
Treatment within 48 hours





VCF

- >70
- >3 mo prednisone
- Hx of trauma
- Female

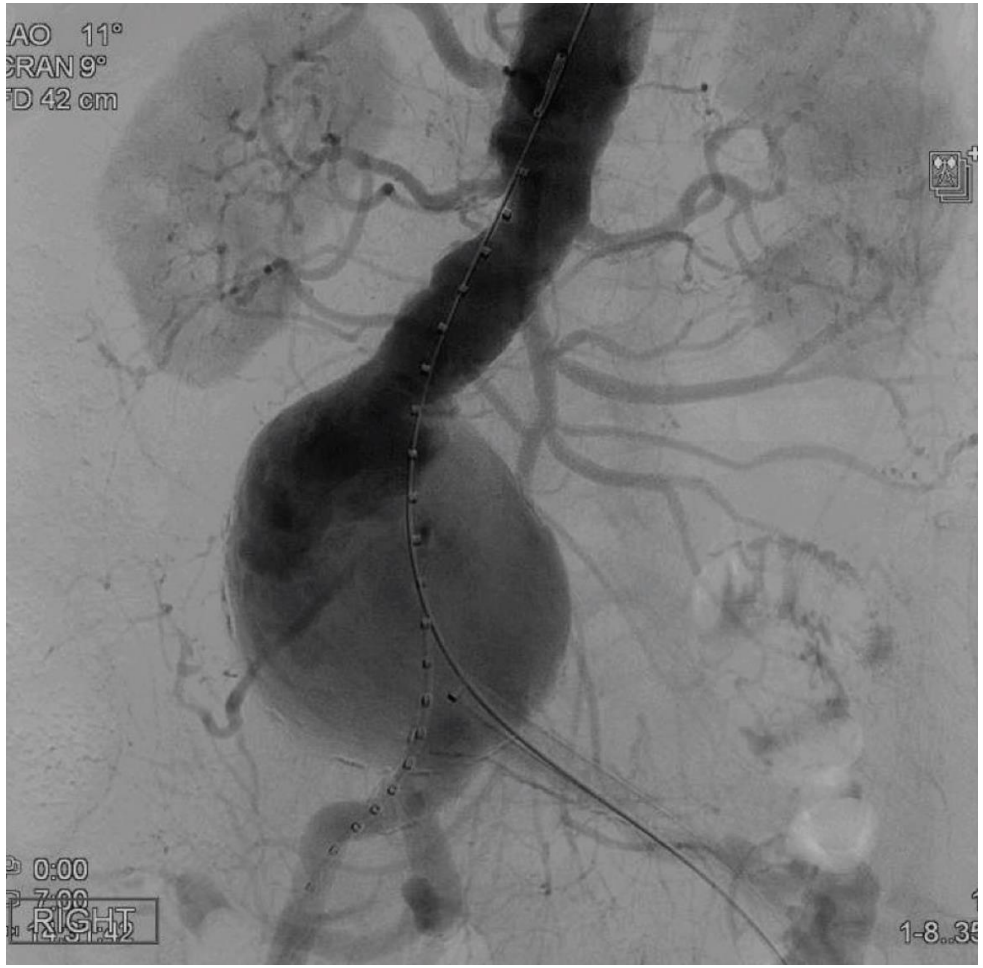


Infection

- Hx of infection
- Fever
- Rigidity
- Constant pain
- Malaise
- Immunosuppressive disorder
- IV drug use
- Neuro signs if persistent

Abdominal aneurysm

- Bruit upon auscultation
- Palpation of abnormal abdominal pulse
- CV hx
- Risk
  - M
  - CV issues
  - statins



Question 1

- A patient presents with low back pain that travels down the back of the legs bilaterally. The pain is the worst when walking down ramps around his apartment complex but is generally reduced by sitting and taking a short break. Based on this information, what is the most likely diagnosis?

- 1- stenosis
- 2- herniated nucleus pulposus
- 3- spondylosis
- 4- pars interarticularis fracture

Question 2

- A physical therapist is evaluating a a 38- year old female patient with complaints of low back pain. They report that they feel pain when standing up from a chair or from returning to standing after bending over. They have tried using kinesiotape on the low back and found it improves it decreases their pain. Of note, they also have some numbness in their groin area, which has decreased more over the last week. Based on this description, what is the **MOST** appropriate intervention?
- 1- apply the manipulation CPR
- 2- refer to an orthotist
- 3- initiate stabilization exercises
- 4- refer to the emergency room

Question 3

- A patient prescribes a shooting pain that travels down their right leg for the last 2 weeks. They are an avid runner, but have had to cut back on mileage due to the development of “shin splints” on the right leg. When examined, they found that the plantarflexors are weak and painful on the right. In fact, they cannot walk on their toes on the right side without the heel slapping the ground. What is the **MOST** appropriate next step to perform?

- 1- refer to a neurologist
- 2- refer to an orthopedist
- 3- examine the patellar reflex
- 4- examine the achilles reflex

Question 4

A 62- year old patient complains of low back pain for a period of 20 weeks. They have a PMH of COPD related to smoking. They do not recall a mechanism of injury, although they report having had back pain in the past. During motion preference testing, there is no change in the pain with any position, nor at rest. They just finished a 12-week course of physical therapy that had no improvement but wanted to try again. What is the **MOST** likely condition being described in this scenario?

- 1. spinal stenosis
- 2. cancer
- 3. spondylosis
- 4. spinal instability

Question 5

- A female patient presents with pain that travels from the back to just above the right knee for a period of 7 days. When PA joint mobilizations of the lumbar spin are performed, a hypomobile and painful segment is identified. Otherwise, general mobility of the spine and extremities is excellent and WNL. What is the **MOST** appropriate next step?
- 1. refer for imaging
- 2. perform lumbar manipulation
- 3. perform stabilization therex
- 4. traction

Feedback? Let Us Know!

We would love to get your general feedback on today's session and ideas for subject matter for future Spotlight Sessions!

SPOTLIGHT *Series*

Good Luck and Thanks for Tuning In!

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