

# Spondylolisthesis symptoms and classification

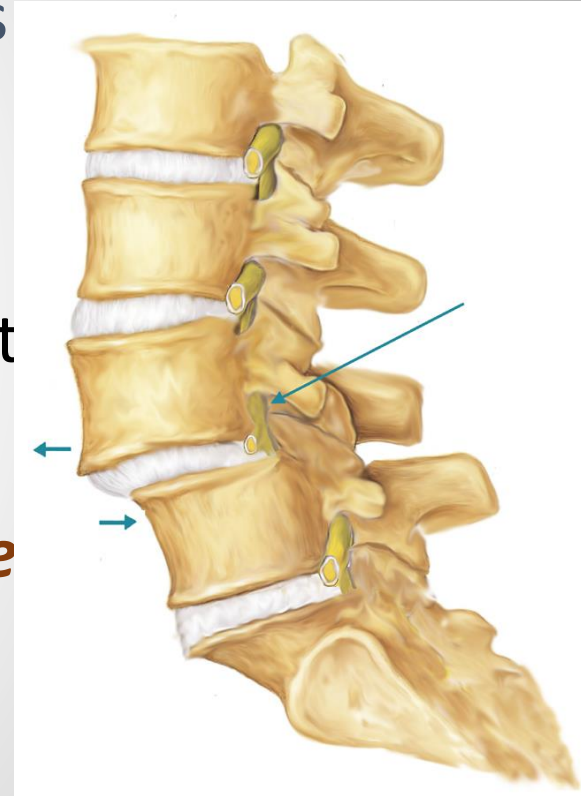
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# Definition

- The word spondylolisthesis comes from the Greek words
  - spondylos, which means "spine" or "vertebra,"
  - Listhesis, which means "slipping, sliding or movement"

***Anterior or posterior slippage of a vertebra regarding the inferior one***



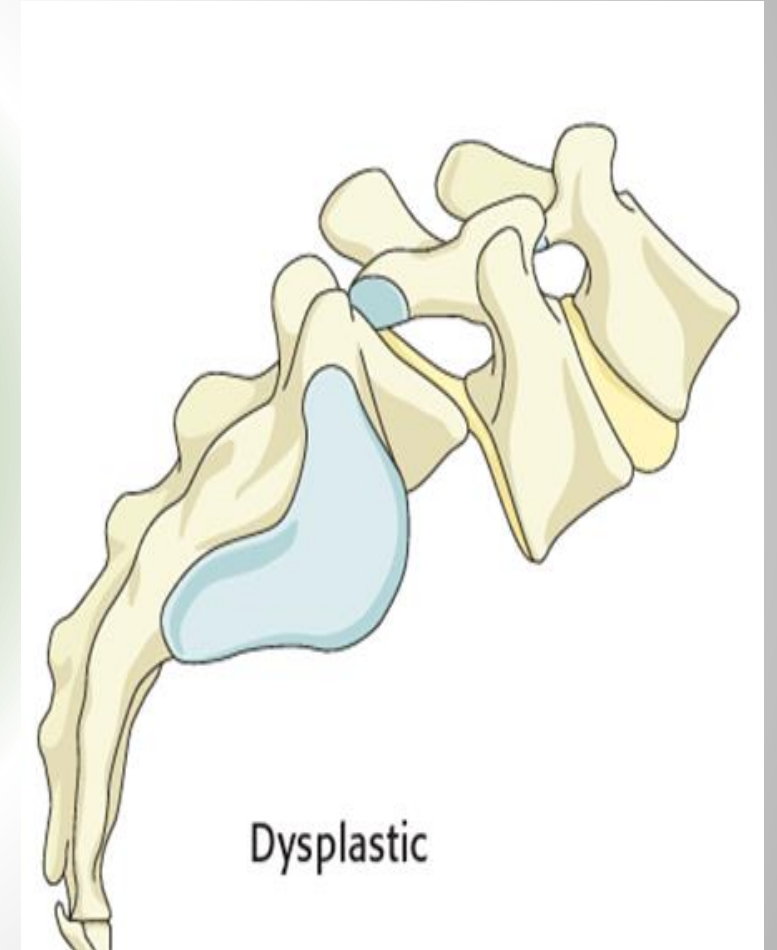
# *Classification*

## *Wiltse-Newman Classification*

- 1) *Dysplastic*
- 2) **Ithmic**
- 3) *Degenerative*
- 4) **Post-traumatic**
- 5) *Pathologic*
- 6) **Iatrogenic**

# *Dysplastic spondylolisthesis (Type I)*

- Congenital defect (present from birth) in the formation the facet
- *Usually at the lower lumbar or the upper sacral portion (L5-S1)*
- Comprising 14–21% of cases in spondylolisthesis population



# Isthmic spondylolisthesis ( Type II)

- *3 subtypes*

A. Lytic-fatigue fracture of pars inter-articularis

*Pars fractures are believed to be the result of repetitive motion*

B. Elongated but intact pars acute fracture

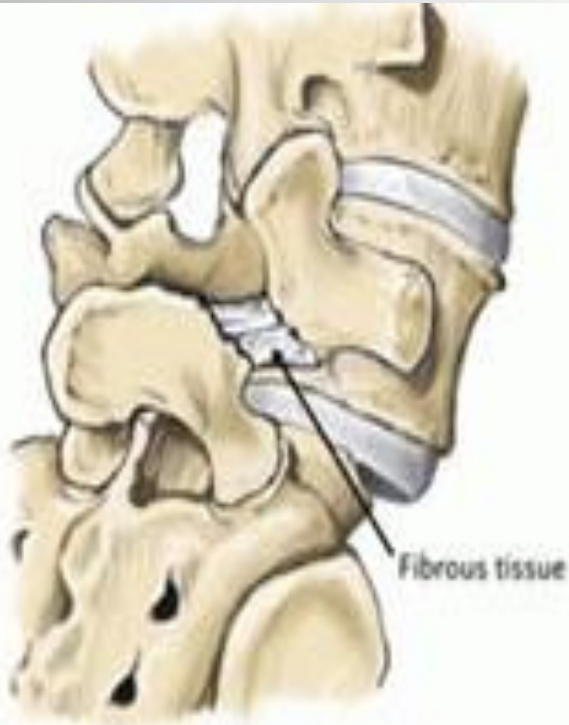
*Elongated pars without a defect which likely indicates anatomical variation or repeated fracture healing*

C. Acute fracture

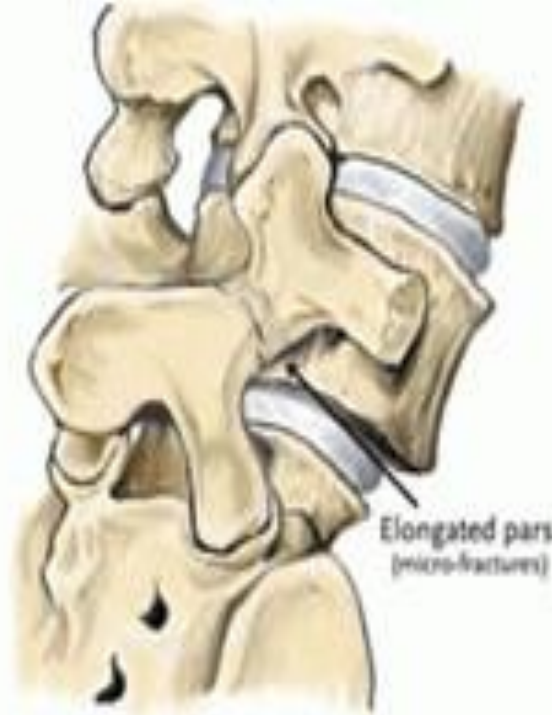
Non-healing fracture



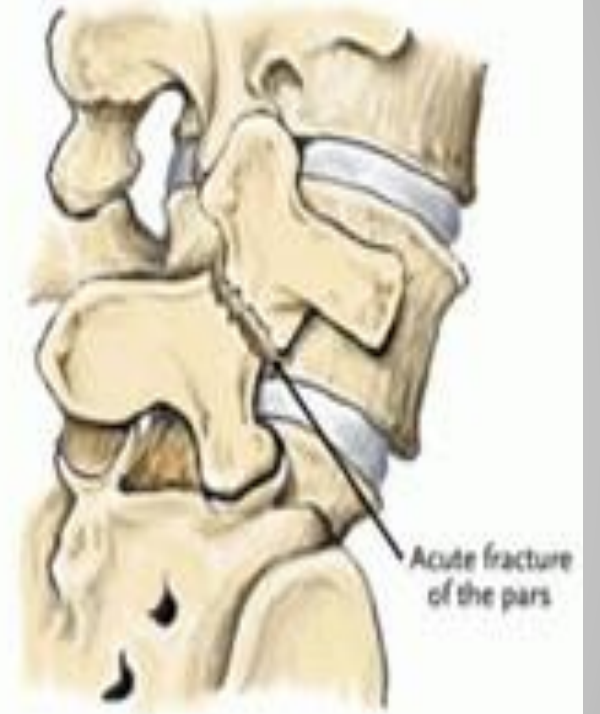
# *Isthmic spondylolisthesis*



Type IIA



Type IIB



Type IIC

# *Isthmic spondylolisthesis*

- *More frequent in middle-aged population*
- *Symptoms appear at the 3<sup>rd</sup> and 4<sup>th</sup> decade of life*
- *more frequent at L5-S1 level*

# Degenerative spondylolisthesis ( Type 3)

- *Acquired disease*
- *Affecting persons more than 50 years of age*
- **Multifactorial etiology**
  - Anatomical:
    - ✓ more sagittaly oriented facet
    - ✓ increased lordosis
  - Gender: female preponderance ( estrogen receptors, ligamentous laxity)
  - Body mass index
  - Repetitive physical stress
    - ❖ Most common at L4-5 segment

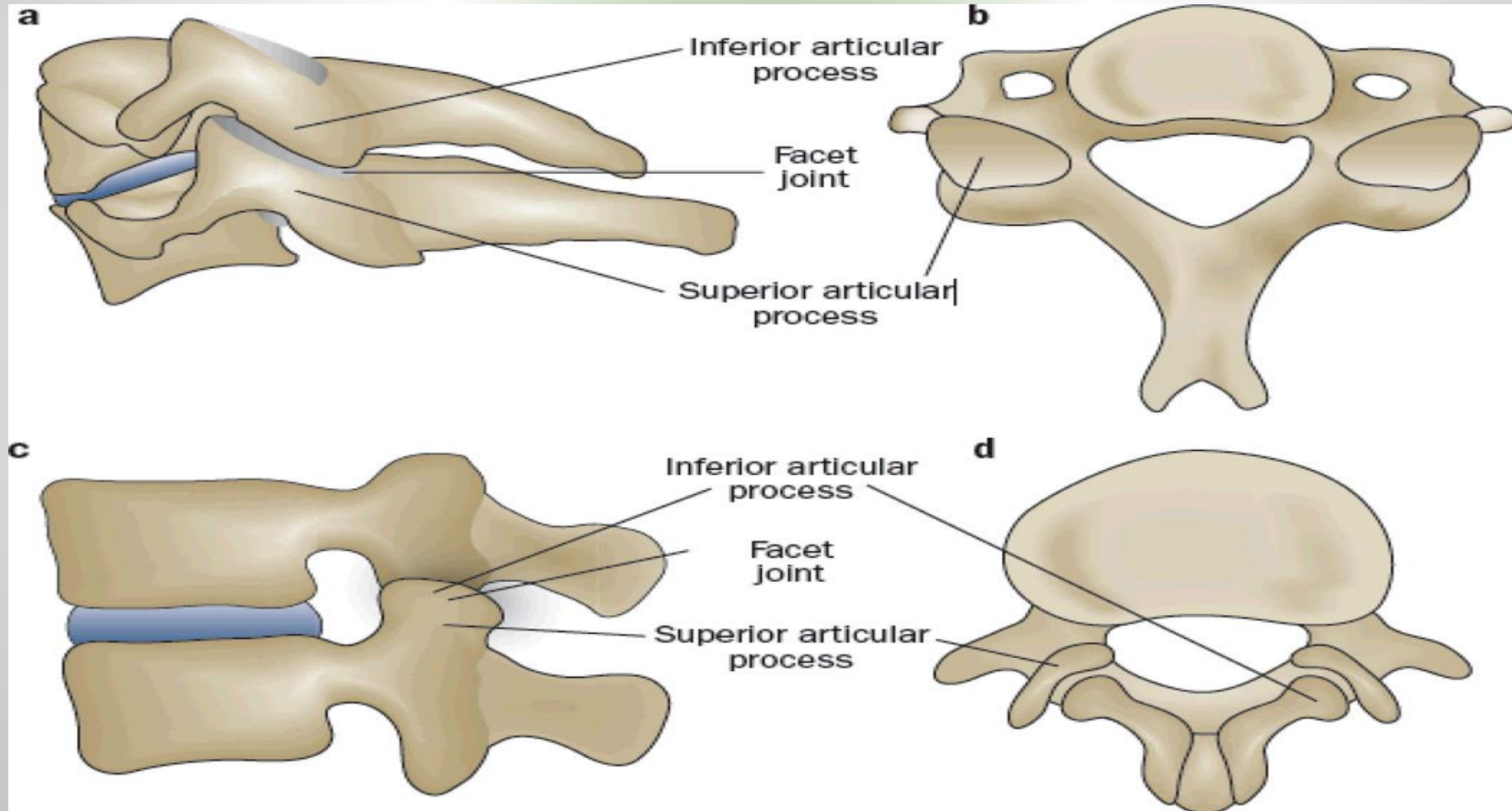


- *Pars could be intact or fractured*

- *Facet hyper-trophy is common*



# Facet orientation



# Post-traumatic spondylolisthesis ( Type IV)

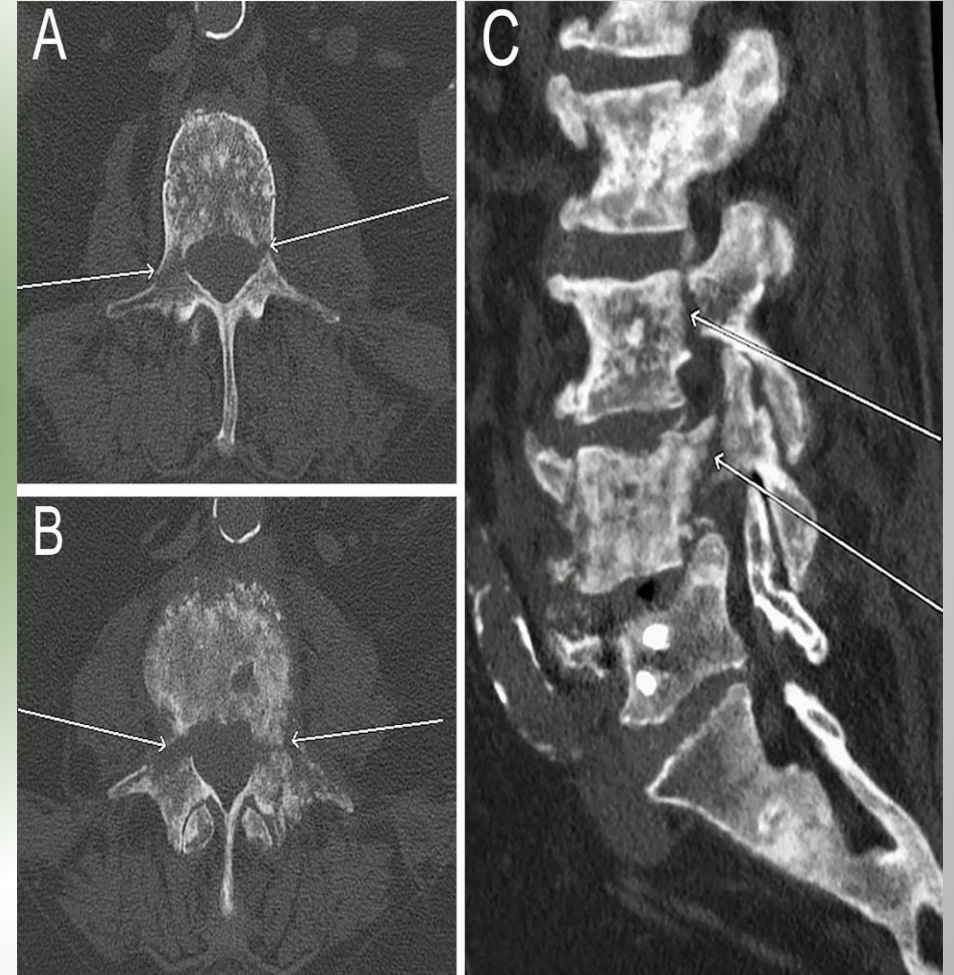
- *Acute fracture of posterior elements of the vertebral column including pars*
- *Usually due to high force mechanism of trauma*
- *Unstable in nature*
- *More common at cervical region*
- *Acute Neurological deficit could happen*





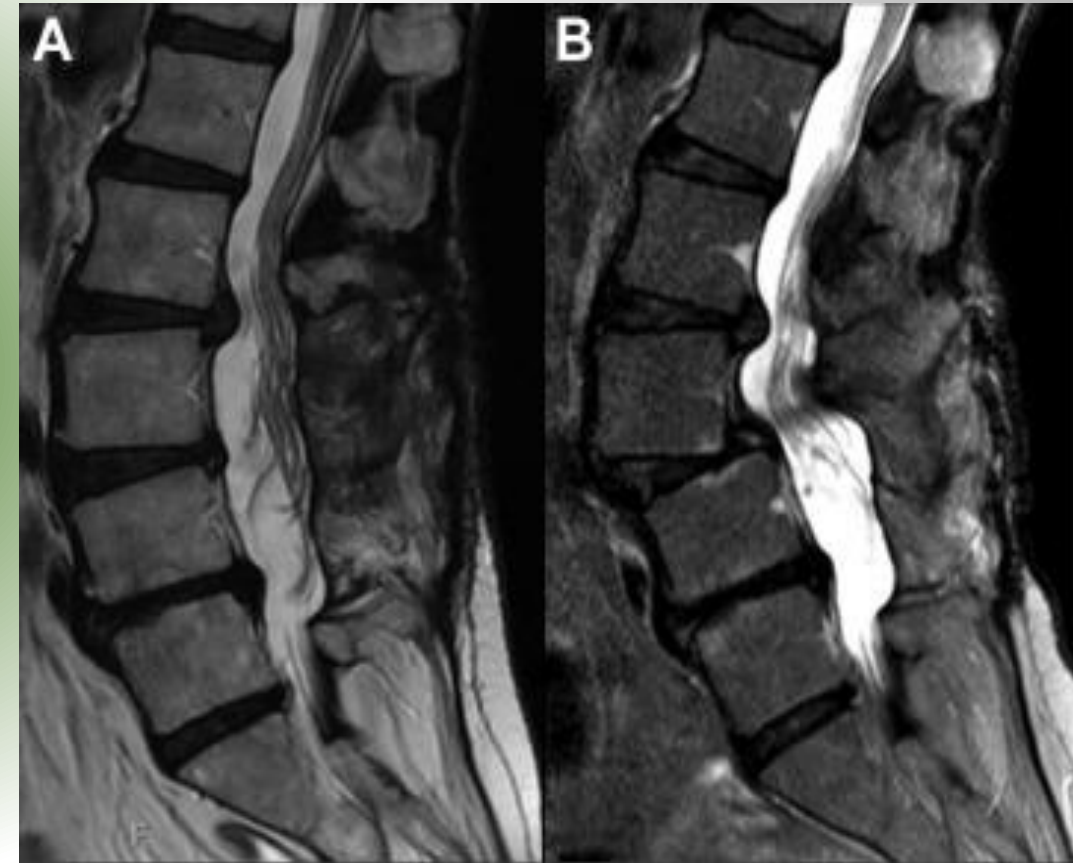
# Pathologic spondylolisthesis

- Destruction of posterior bony elements
- Malignancy
  - Metastasis
  - Primary bone neoplasm
- Infection
- Etc.



# Iatrogenic spondylolisthesis

- *Slip caused directly from a prior spine surgery*
- *Decompression of the spine without stabilization*
- *Due to extensive pars ( facet joint) removal*
- *Could happen early or late*
- *Symptoms begins with ambulation*



# *symptoms*

- *Most patients are asymptomatic ( especially in the degenerative group)*
- In dysplastic type back pain and walking or sitting difficulties could happen in the early childhood
- Isthmic subtype affects younger patients than the degenerative one
- *In traumatic type symptoms are acute and neurological deficit could be presents at the beginning*
- In pathologic type pain is the usual symptom ( mechanical in nature) and could appear when considerable destruction of the vertebrae has occurred



- Symptoms:

- ***Pain:***

Back pain

Radicular pain

Claudicatory pain

- ***Autonomic:***

- ✓ Bowel incontinence

- ✓ Bladder incontinence

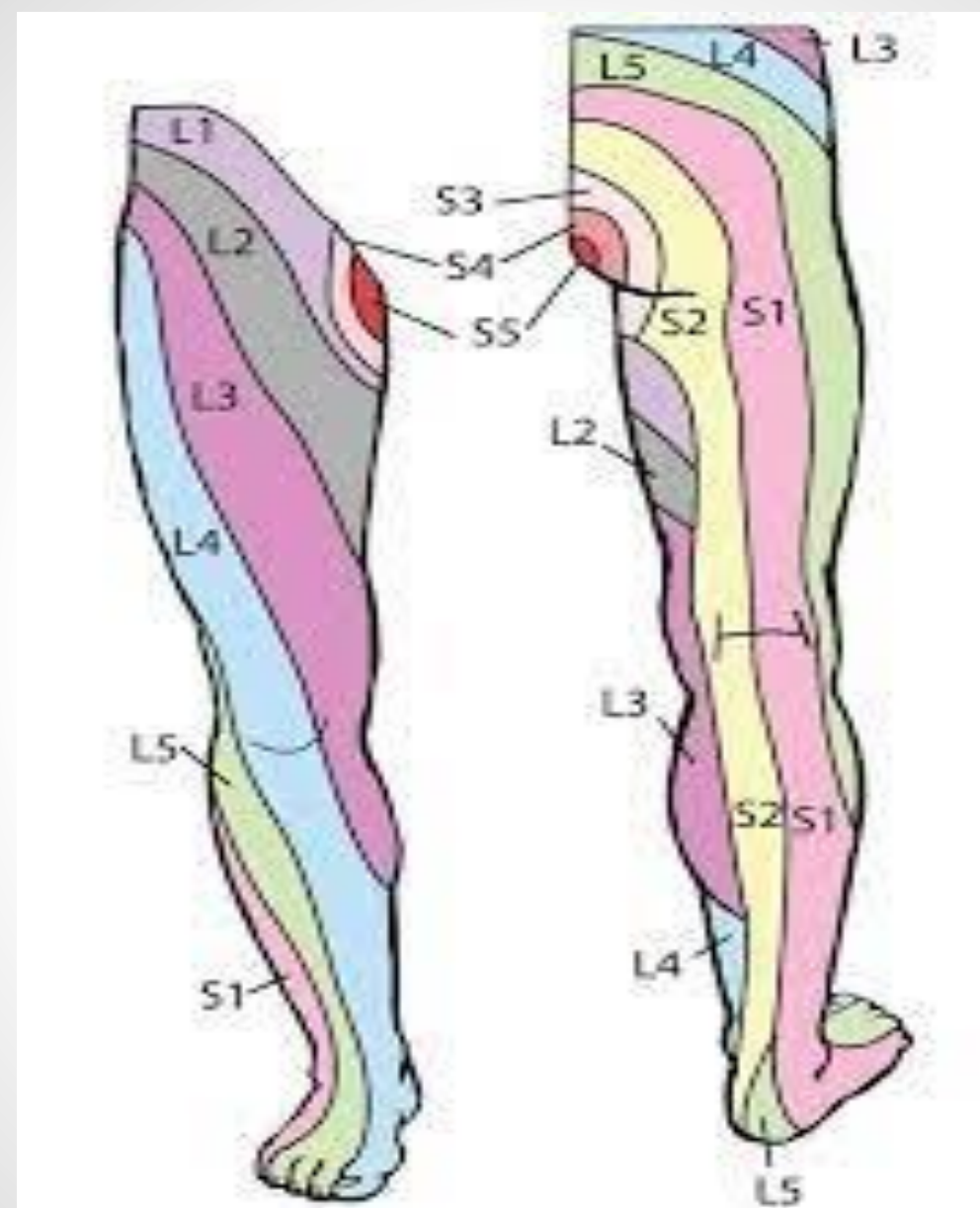
- ✓ Bladder retention

- *Neurologic:*

- Weakness
  - Numbness
  - Tingling
  - Muscle atrophy
  - Affected DTR
- Affected babinsky or Hoffman exams ( esp. cervical )
  - Etc.

# *Pain*

- *Back pain with or without extremities involvement*
  - Mechanical in nature
  - *Worse at extension position*
- *Radiculopathy most affects L4 and L 5 nerve roots*





•Thank *you* for *kind* attendance

