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Low Back Pain Mechanical

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Low Back Pain

Mechanical

Lumbar strain / sprain 70%

Degenerative processes 10%

Herniated disk 4%

Spinal stenosis 3%

Osteoporotic compression fracture 4%

Spondylolisthesis 2%

Scoliosis, kyphosis <1%

Low Back Pain

sprain-strain

Age:20-40

Acute, local pain, aggravate with motion

Increased with standing and bending

Decreased with sitting

Negative SLR

Negative imaging

Treatment

Sprain-strain

Neither bed rest nor exercise in acute phase, NSAIDs, muscle relaxant
Spinal manipulation and physical therapy after 3 weeks

The best recommendation: rapid return to normal activity

Natural history: 90% recovery within 2 weeks, recurrence 40% within 6 months

Low Back Pain

Osteoarthritis

Age=over 50

Insidious pain

Increased with standing and
extension

Decreased with sitting and
bending

Negative SLR

Positive imaging



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Low Back Pain

Discogenic Pain

Age: 30-50

Acute pain, L5 and S1 root

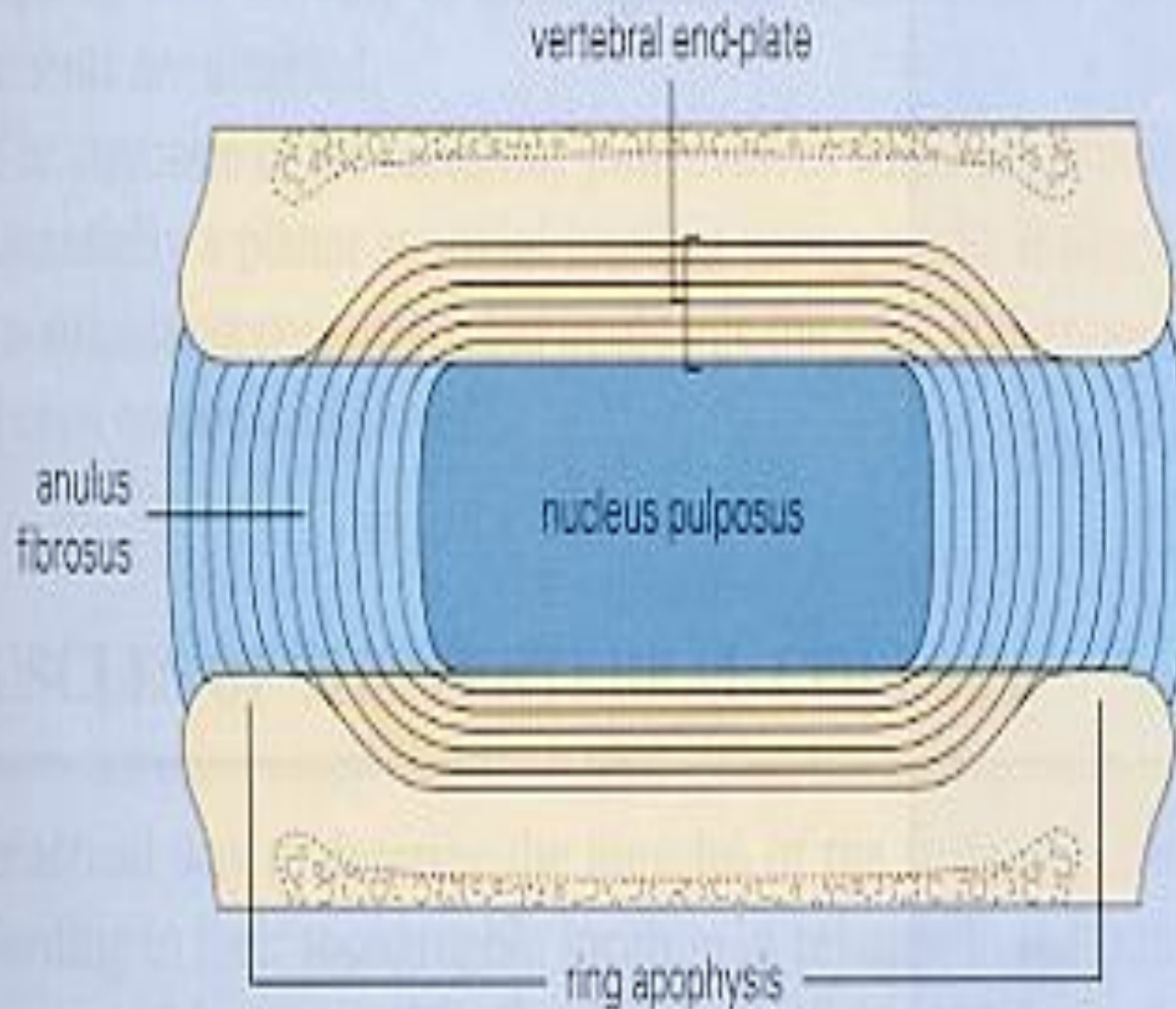
Increased with sitting and bending

Decreased with standing

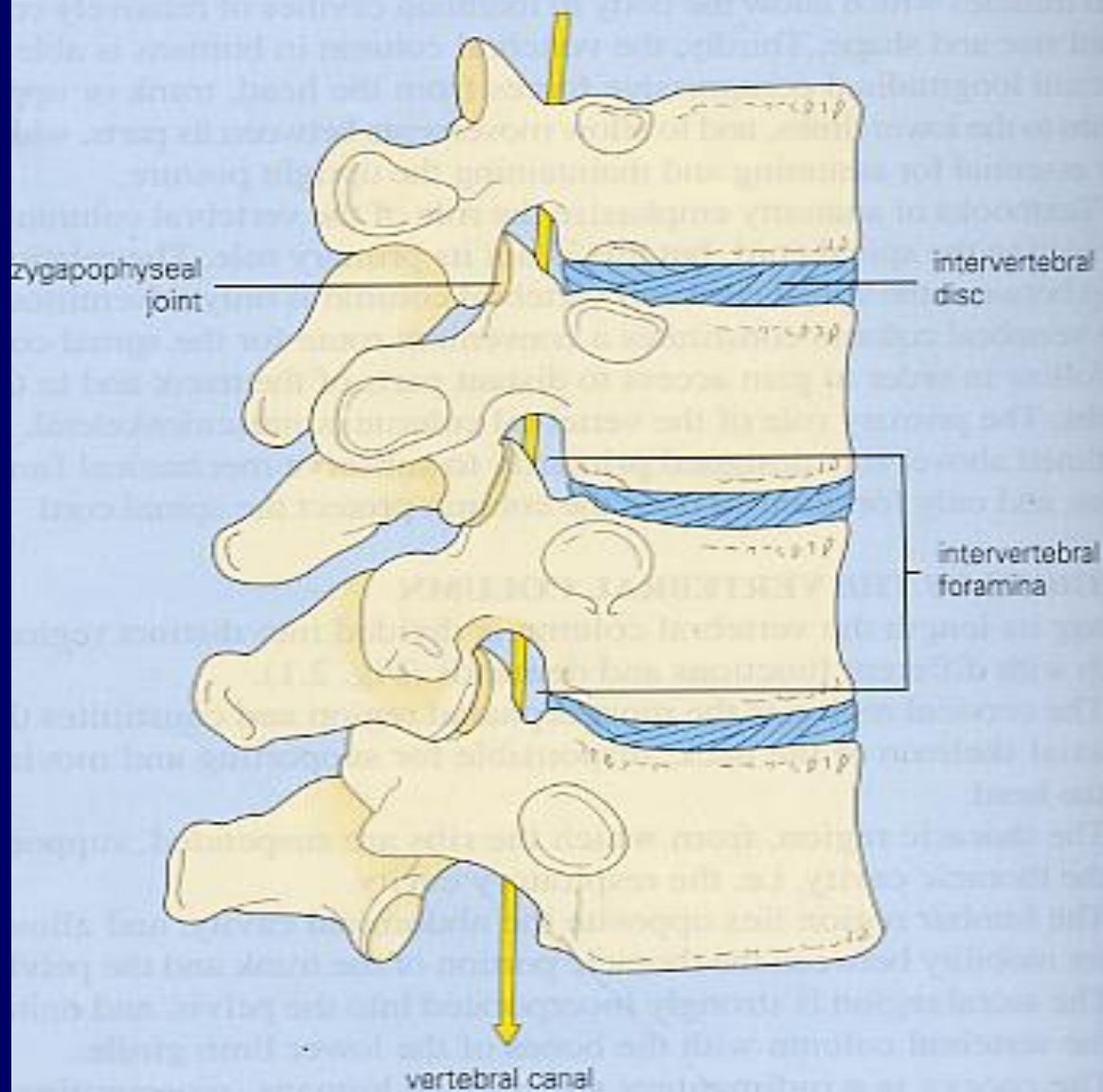
Positive SLR

Positive imaging

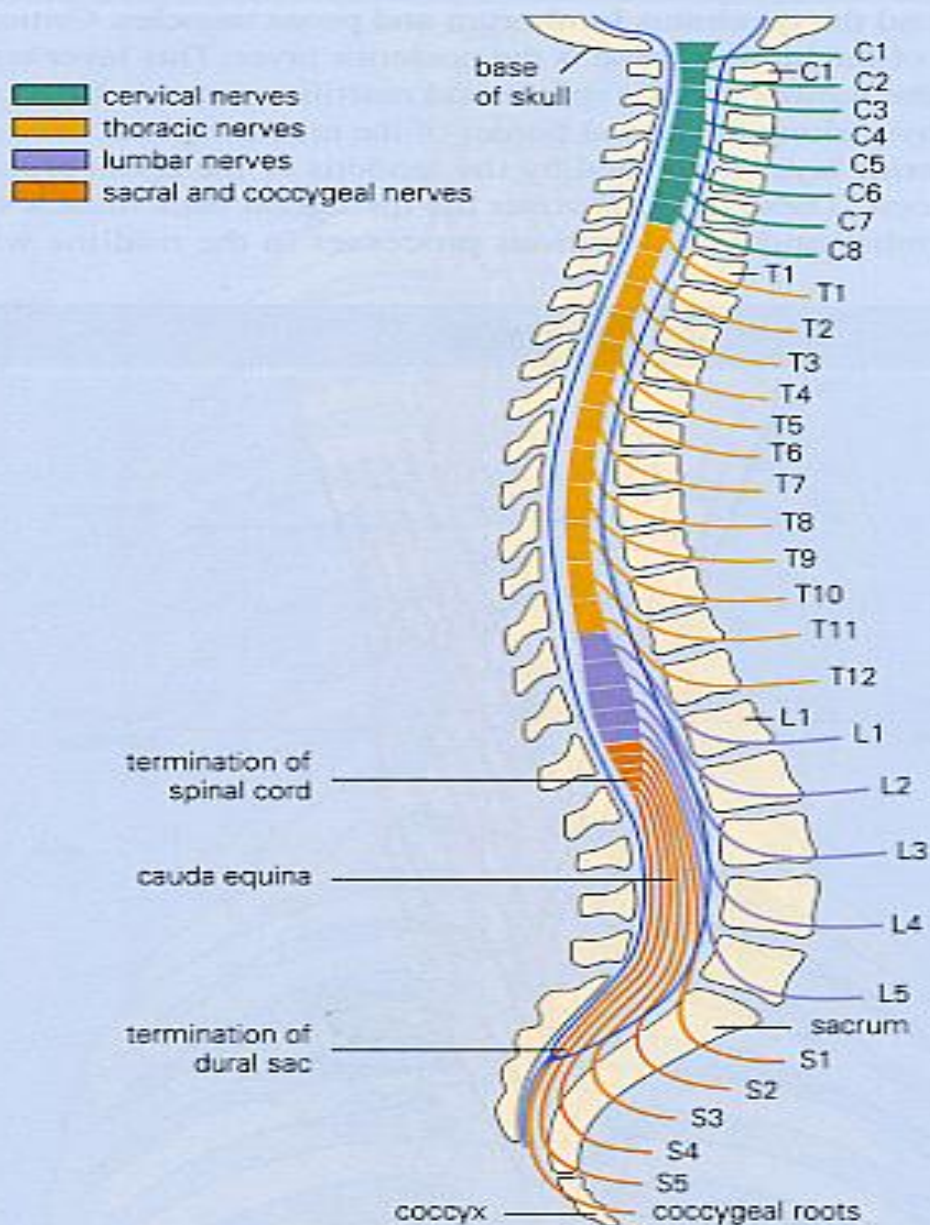
LUMBAR INTERVERTEBRAL DISC



THE VERTEBRAL CANAL AND INTERVERTEBRAL FORAMINA



RELATIONSHIP OF NERVE ROOTS TO VERTEBRAE



Low Back Pain

Straight Leg Raising -Lasegue,s test

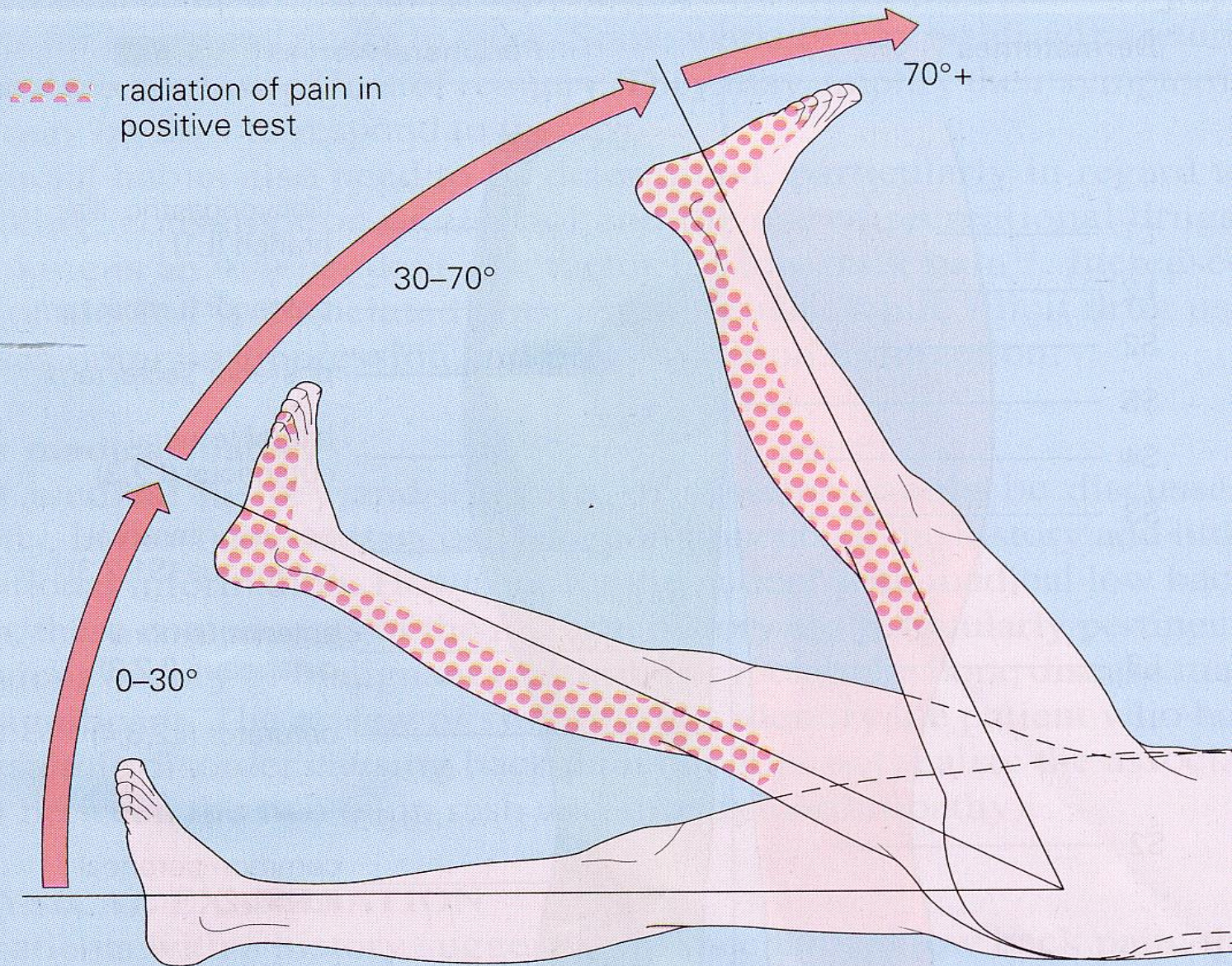
Positive test if:angle of flexion
is about 20-70

Ipsilateral SLR: sensitive,
not specific

Crossed SLR: insensitive,
highly specific

Reversed SLR: root L3-L4

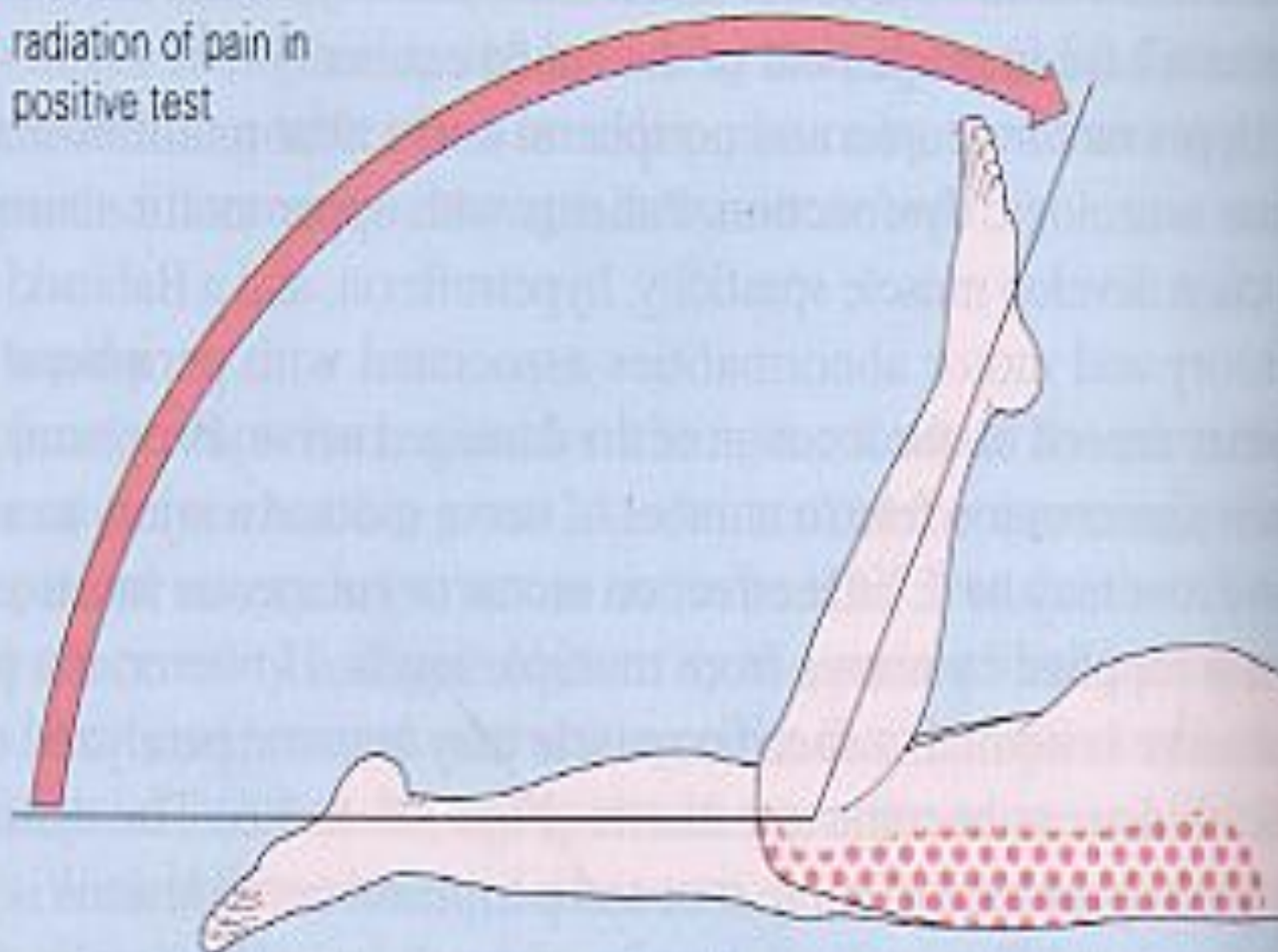
SCIATIC STRETCH TEST



FEMORAL LEG STRETCH



radiation of pain in
positive test



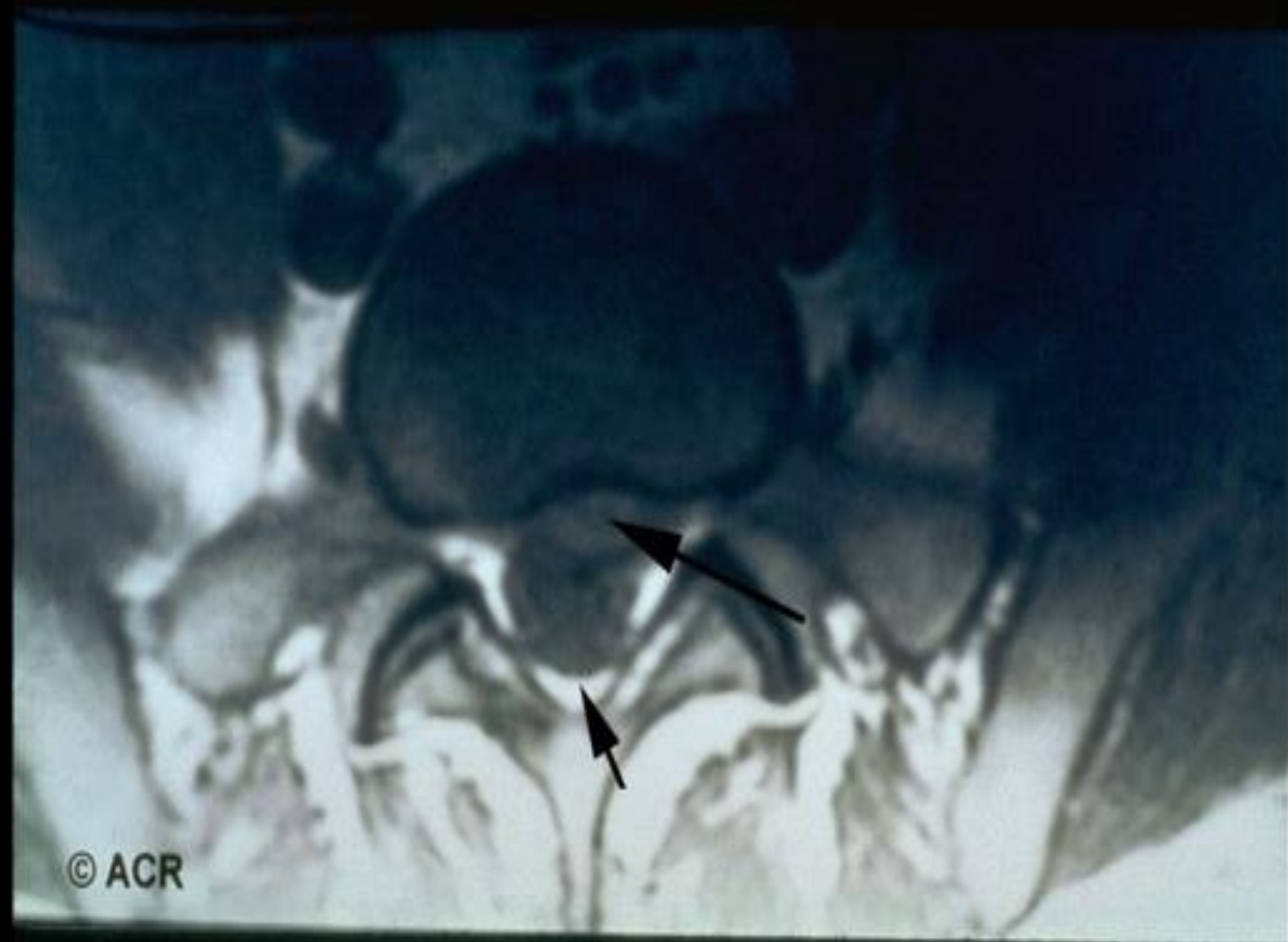
Low Back Pain

Radicular Symptoms and Signs

Pain distribution	Sensory loss	Motor Loss	Reflex loss
L4:Anterior thigh to medial leg	Medial leg to Medial malleolus	Anterior tibialis	Patellar
L5:Lateral leg to dorsum of foot	Lateral leg to Dorsum of foot	Extensor hallucis longus	
S1:Lateral foot	Lateral foot, sole	Peroneus Longus and brevis	Achilles







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Low Back Pain

Representative Results of MRI Studies in Asymptomatic Adults

Subjects

Anatomical Findings (prevalence%)

	Herniated Disk	Bulging Disk	Degenerative Disk	Stenosis	Annular Tear
Volunteers <60 yr old	22	54	46	1	NR
Volunteers >60 yr old	36	79	93	21	NR
Volunteers (mean age, 42 yr)	28	52	NR	7	14
Volunteers (mean age, 35 yr)	40	24	72	NR	33
Patients referred for head or neck imaging (median age, 42 yr)	33	81	72	NR	56

NR denotes not reported

Low Back pain

Treatment: Discogenic Pain

NSAIDs, narcotics, muscle relaxant, corticosteroides (systemic or focal injection)

Surgery: Severe stable pain after one month, cauda equina syndrome, progressive neurologic deficit

Natural history: only 10% pain after 6 weeks

Low Back Pain

Spinal Stenosis

Age > 60, onset: insidious

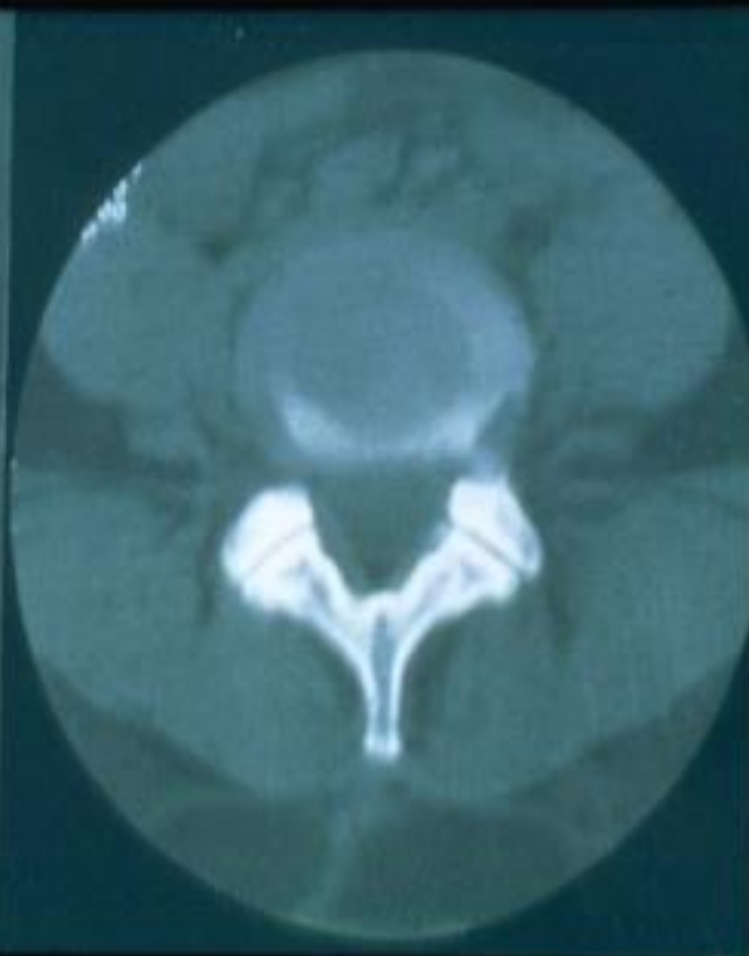
Increased pain with standing and extension

Decreased pain with sitting and bending

SLR(+,-), Imaging (+)



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Low Back Pain

Treatment: Spinal Stenosis

Avoidance of alcohol and sedatives

Exercise (bicycle or walking)

NSAIDs, narcotic, corticosteroid(systemic or focal injection)

Surgery: Progressive or severe neurologic deficit, severe back and leg pain, disability

Natural history: 15% improvement over 4 years, 70% remain stable, 15% deterioration

Low Back Pain

Spondylolisthesis

Age:20-30 Onset:insidious

Increased pain:bending and standing

Decreased pain:sitting

Step off, increased lordosis

SLR:negative

Imaging: X-Ray, MRI

Treatment:NSAIDs,flexion strengthening
exercises,orthopedic corsets,surgery
(greater than grade II slippage)



Low Back Pain

Scoliosis

Age=20-40, adolescent girls

Definition: Lateral curvature of the spine in excess of 10 degree

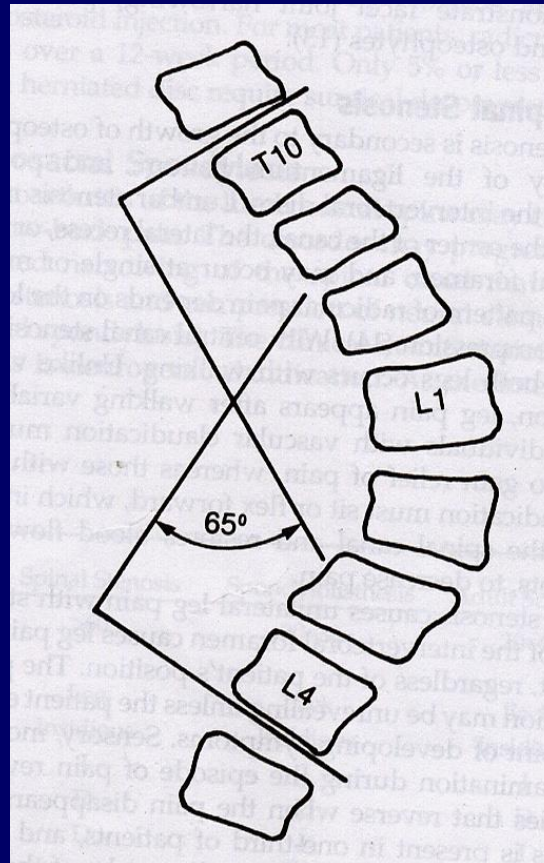
Onset: insidious, increased with standing and bending, decreased with sitting, SLR negative

Imaging: coob's method



Low back Pain

Scoliosis: Cobb's Method



Low Back Pain

Treatment: scoliosis

Exercise, braces

Surgery: Progressive scoliosis
(greater than 40 degree),
Harrington rods, fusion

Low Back Pain

Diffuse Idiopathic Skeletal hyperostosis (DISH)

More common in older man, hyperostosis of spine in anterior longitudinal ligament and peripheral disc margin ,more in dorsal spine, anterior and right lateral of disc

Large bony spurs, often in olecranon and calcaneous

Despite extensive anatomic abnormality , minimal pain, moderate limitation in spinal motility and prominent stiffness.

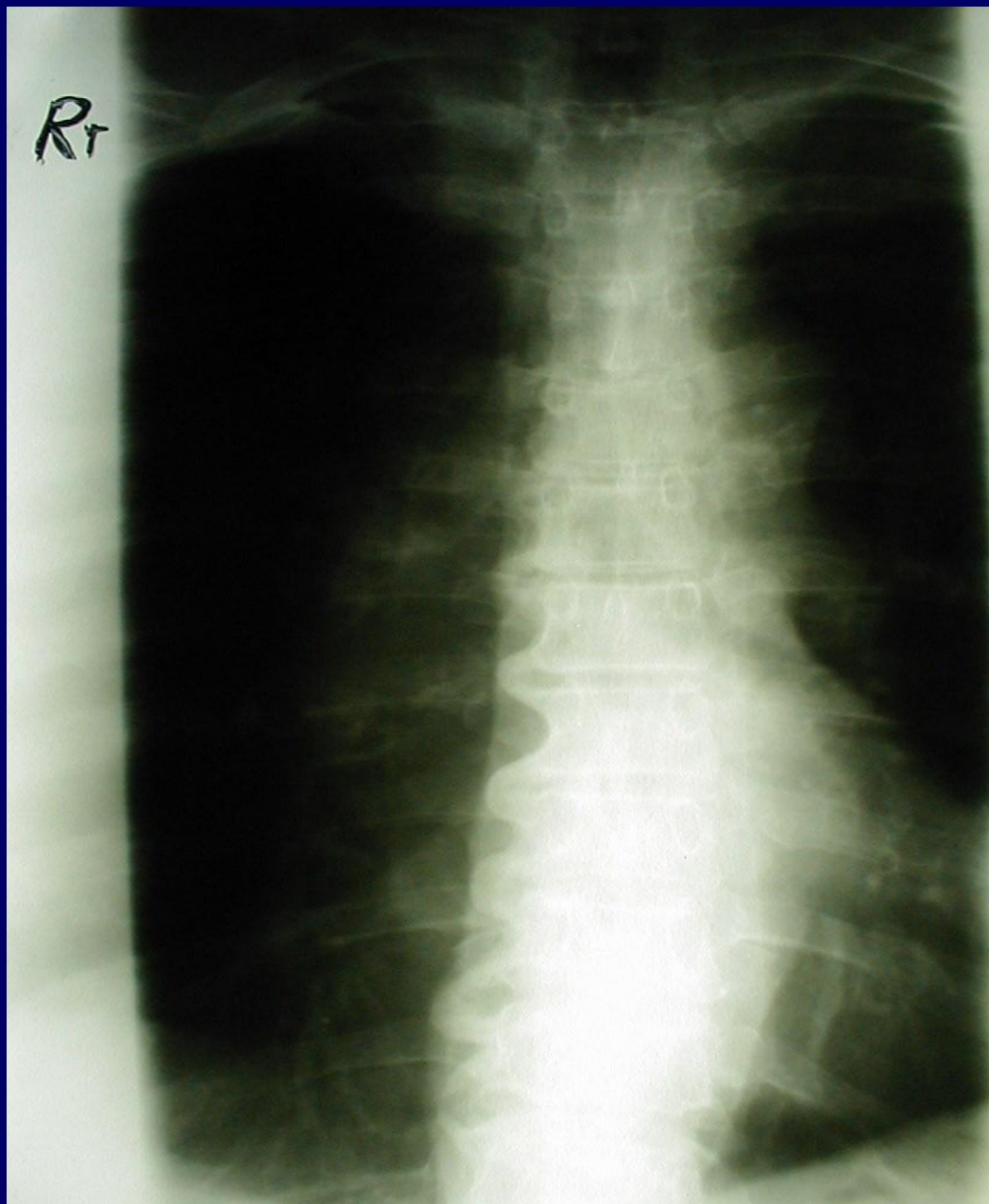
DM and impaired GTT in 50% of patients

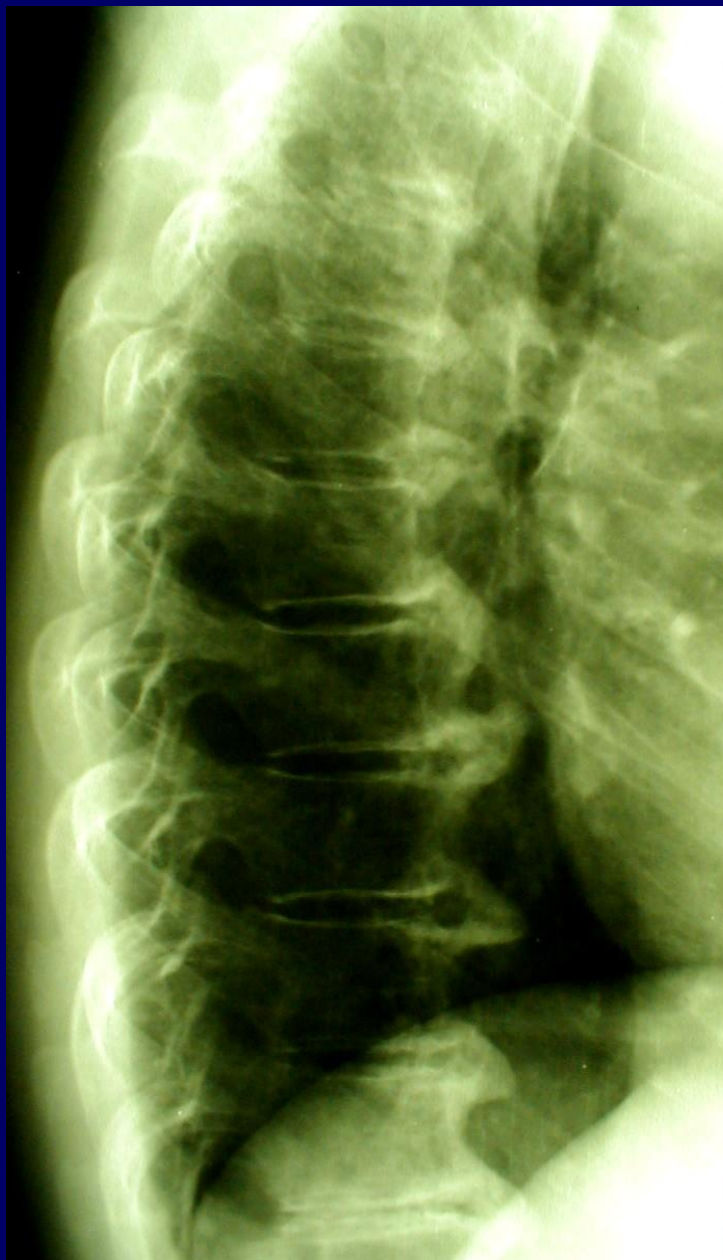
Low Back Pain

Diffuse Idiopathic Skeletal hyperostosis (DISH)

Resnick criteria for DISH diagnosis

- 1-Flowing ossification along anterolateral aspect of at least four contiguous vertebral bodies.
- 2-Preservation of disc height.
- 3- Absence of vacuum phenomena or vertebral body marginal sclerosis.
- 4- Absence of apophyseal joint ankylosis or sacroiliac joint erosions, sclerosis, or fusion.





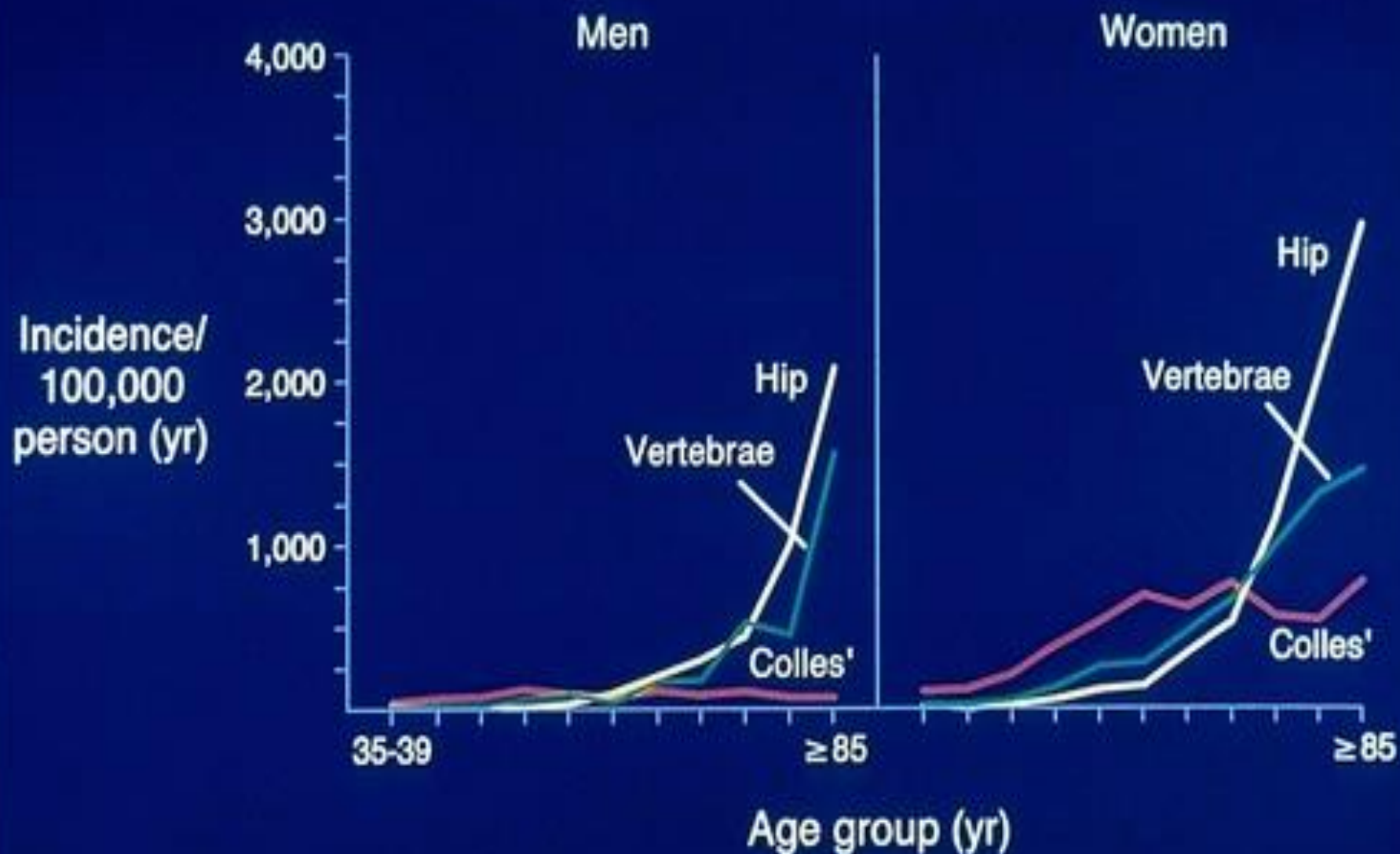


Low Back Pain

Osteoporotic Compression Fracture

- In united state 500000 vertebral fracture annually
- Acute low back pain, progressive kyphosis, often asymptomatic, decreased height
- Diagnosis often incidental
- Treatment in acute form : analgesic, calcitonin IM or SC, treatment of osteoporosis

Age-Related Fractures



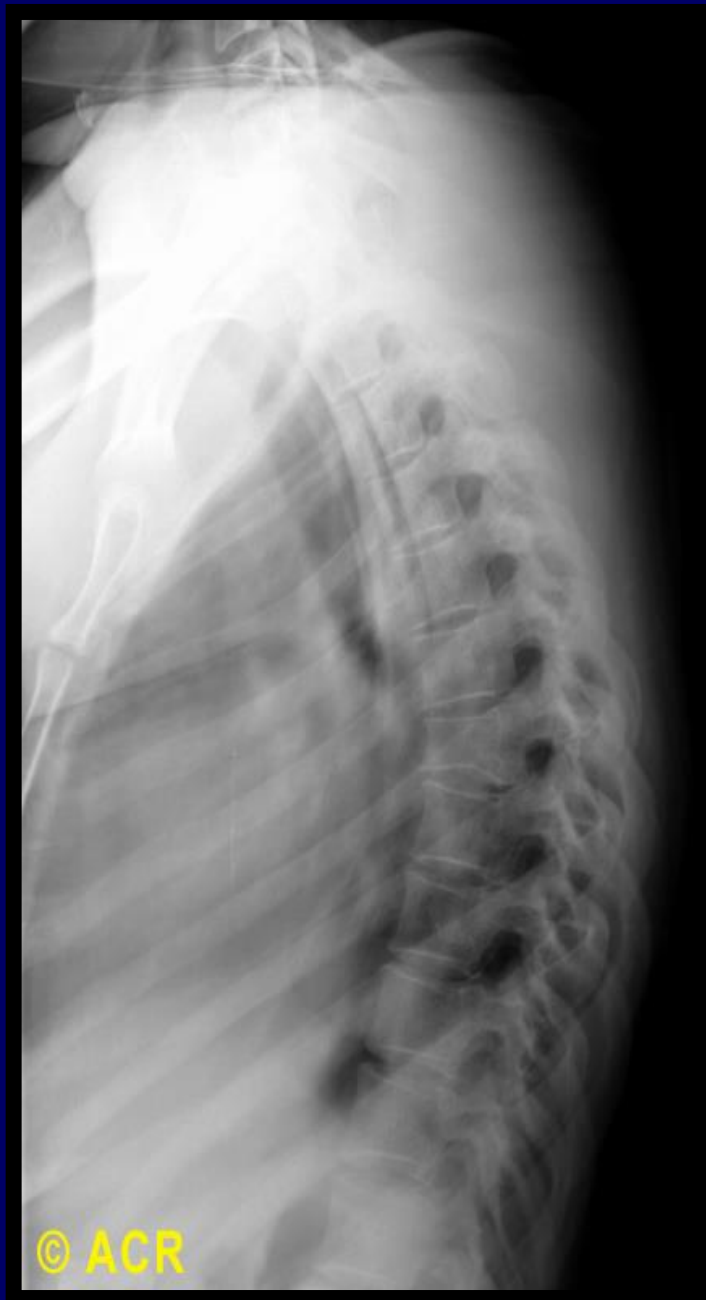


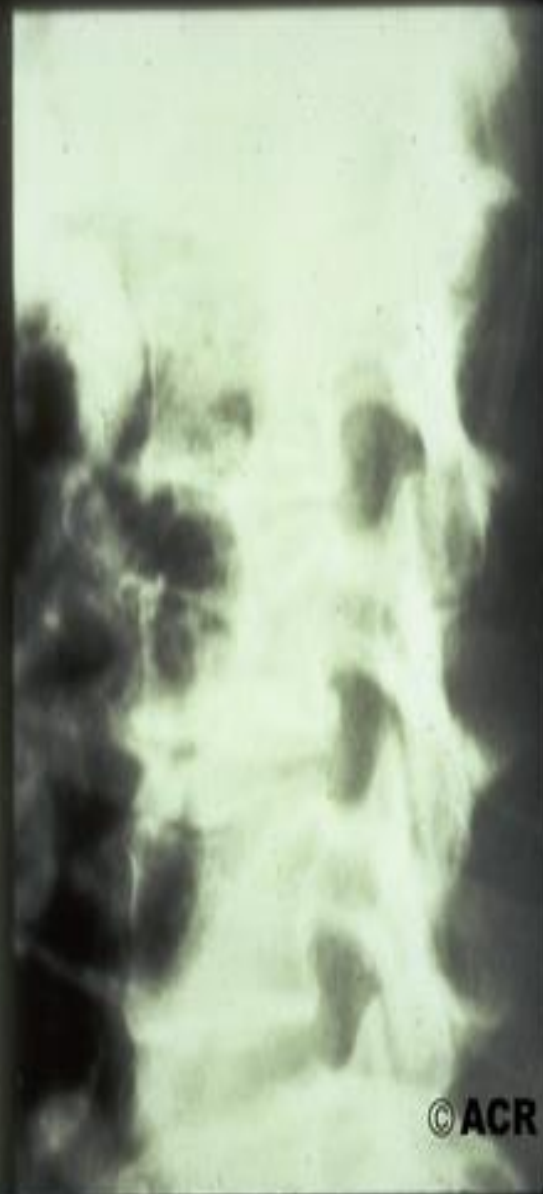
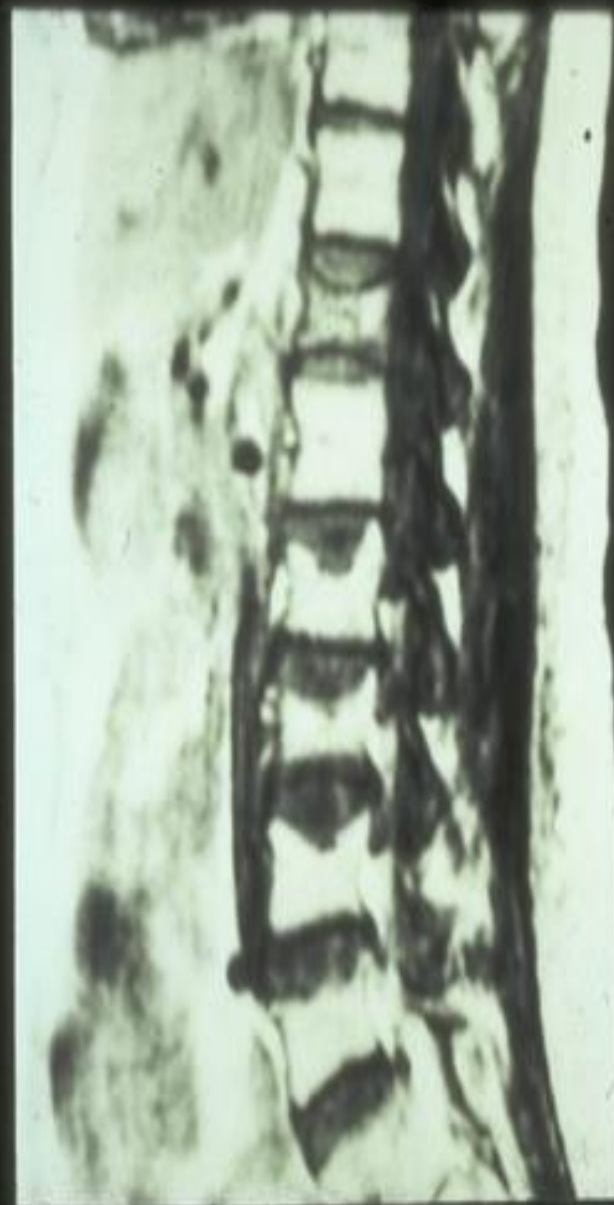


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