

DISC PATHOLOGY

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Spinal Disc

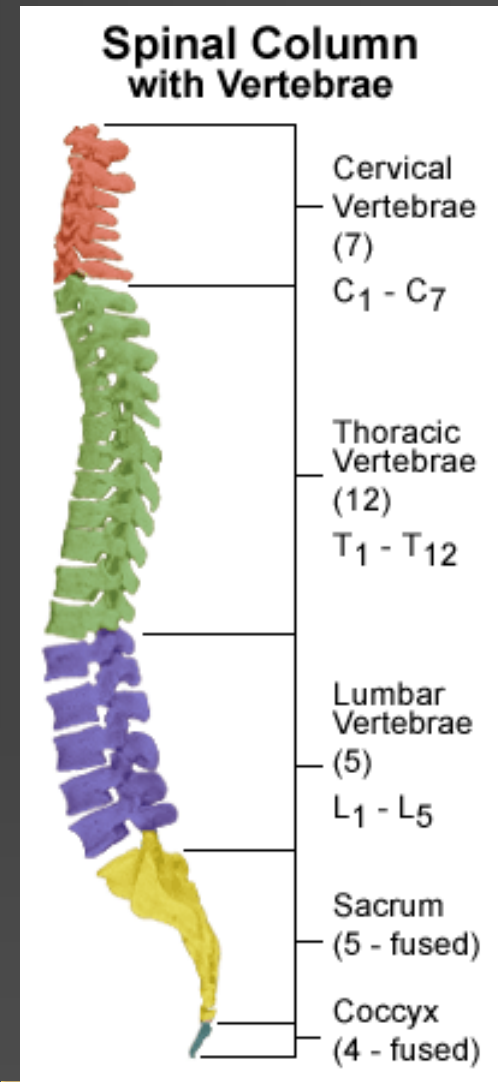
Socio-economic importance

Spine

Bones

Discs

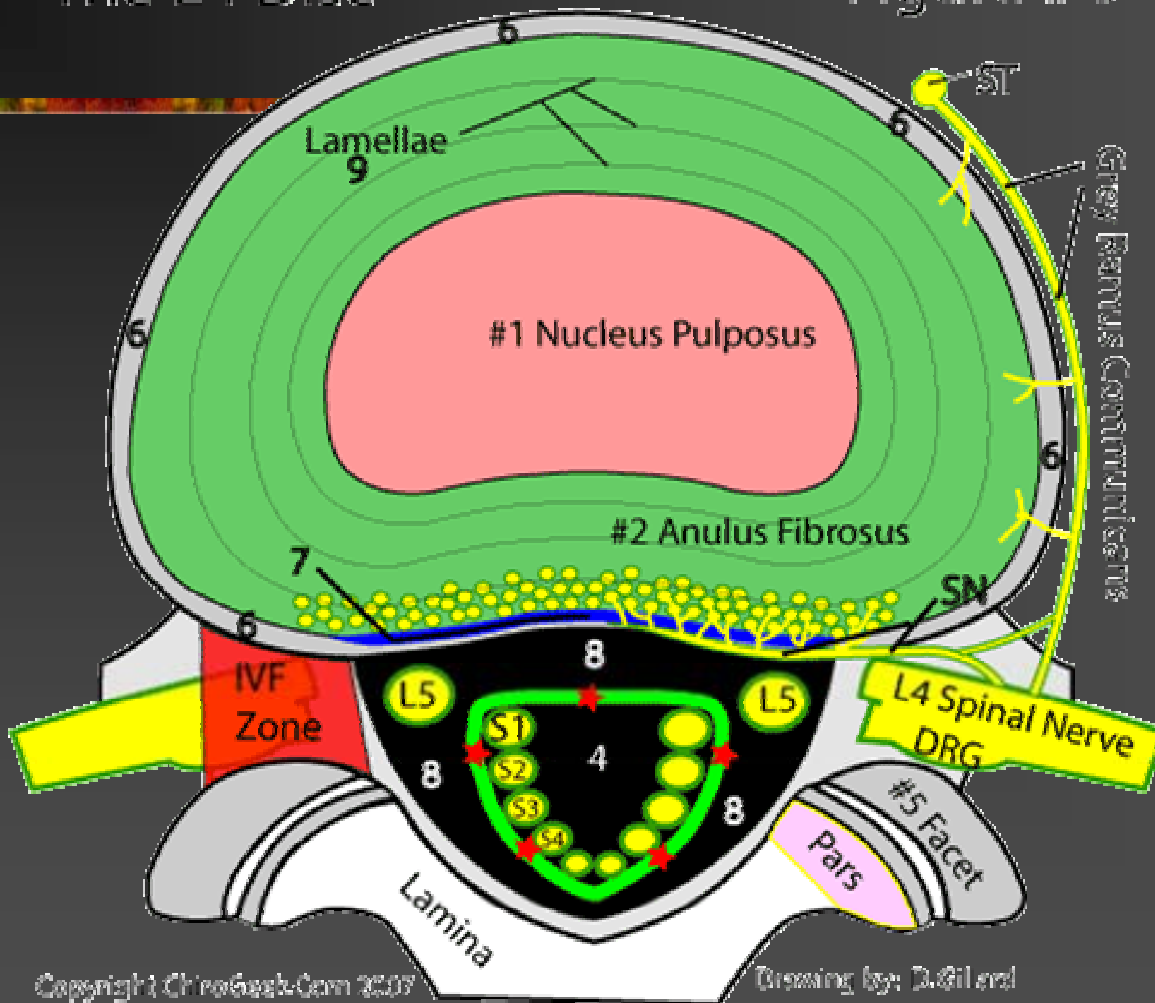
Spinal nerves



Disc

The L4 Disc

Figure # 9



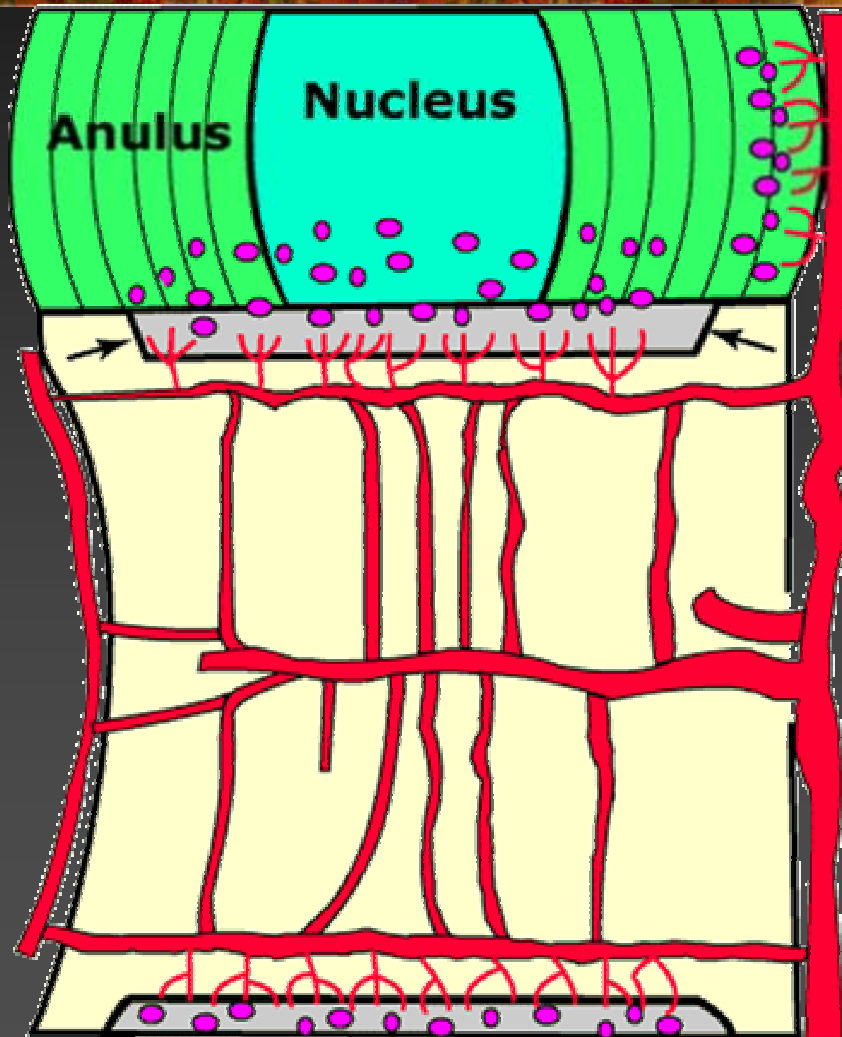
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Drawing by: D. Gil and

Anatomy of the Disc

- Components: nucleus pulposus and annular fibrosis vertebral endplates
 - Constitution: proteoglycan, water, collagen
 - Blood Supply and Nutrition
 - Nerve Supply
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Blood supply



Function of disc

- Spacer
 - Shock absorber: hydraulic cylinder
 - Motion segment: elasticity allows motion coupling, so that spinal segment can flex, rotate, bend side to side
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Stresses on disc

- Twisting
 - Bending
 - Weight bearing
 - Lifting
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Normal Disc and Ageing

- Day to day activity: loss of water and height at the end of the day.
 - Changes-ageing: loss of water, replacement of nucleus by fibrous tissue, disc height preserved.
 - What constitutes abnormal changes
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Pathologies of discs

- Degeneration
 - Herniation and grades
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Disc Herniation

- Disc Bulge: generalised distension of the disc beyond the edges of the apophyses.
 - Disc Protrusion / Disc Extrusion/ Sequestration.
 - Containment /Continuity.
 - Definition: localised displacement of nucleus pulposus beyond the intervertebral disc space, radial, cranio-caudal.
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Nerve Roots

- Nerve roots exit the spinal canal through small passageways between the vertebra and the disc.
 - Disc in the spinal canal or on the nerve roots could cause pain and other symptom
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Grades of impingement(MRI)

- Grade 0:Normal
 - Grade 1: disc pushing on perineural fat
 - Grade 2: disc pushing on nerve root with slight distortion of nerve root
 - Grade 3: nerve compressed against bone
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Disc disease

- Asymptomatic group
 - Discogenic pain
 - Radicular pain:
 - Combination of discogenic and radicular pain which could be aggravated by physical activity..even cough and sneezing
 - Limitation of function/ activity related aggravation of symptoms.
 - Bowel and urinary symptoms.
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Signs of Disc Disease

- Legs: motor/reflex/sensory impairment.
- Bladder and bowel /cauda equina.
- Motor/sensory impairment.

Back: muscle spasm /tenderness

Investigation

- Haematological
 - plain x'rays
 - C.T.Scan
 - MRI Scan: most reliable and often used.
 - Myelogram
 - Discography
 - Combination of tests
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TREATMENT

- Conservative: bed rest, pain relief, muscle relaxant, patient education/postural training, physical therapy
 - Minimally invasive-caudal epidural
IDET(Intradiscal Electrodiatermy therapy
Automated Percutaneous Discectomy
Micro-discectomy / Mini-discectomy
Chemonucleolysis
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Other treatment options

- Invasive All interventional treatment carries risks----open discectomy

SPINAL FUSION..PLIF

Intervertebral fusion

Vertebroplasty

Artificial Replacement of Disc

Complications of disc Surgery

- Infection
 - Allergy
 - Dural leak and headache
 - Scarring
 - Symptoms above and below fusion level.
 - Nerve damage/paralysis/incontinence
 - Death
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Thank you

And take care!
