

# DISC PATHOLOGY

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# Spinal Disc

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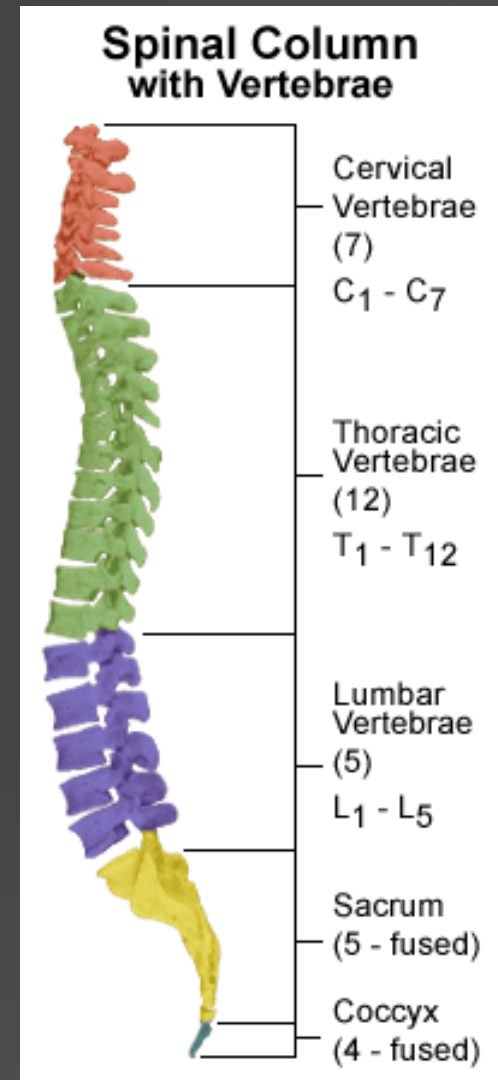
Socio-economic importance

# Spine

Bones

Discs

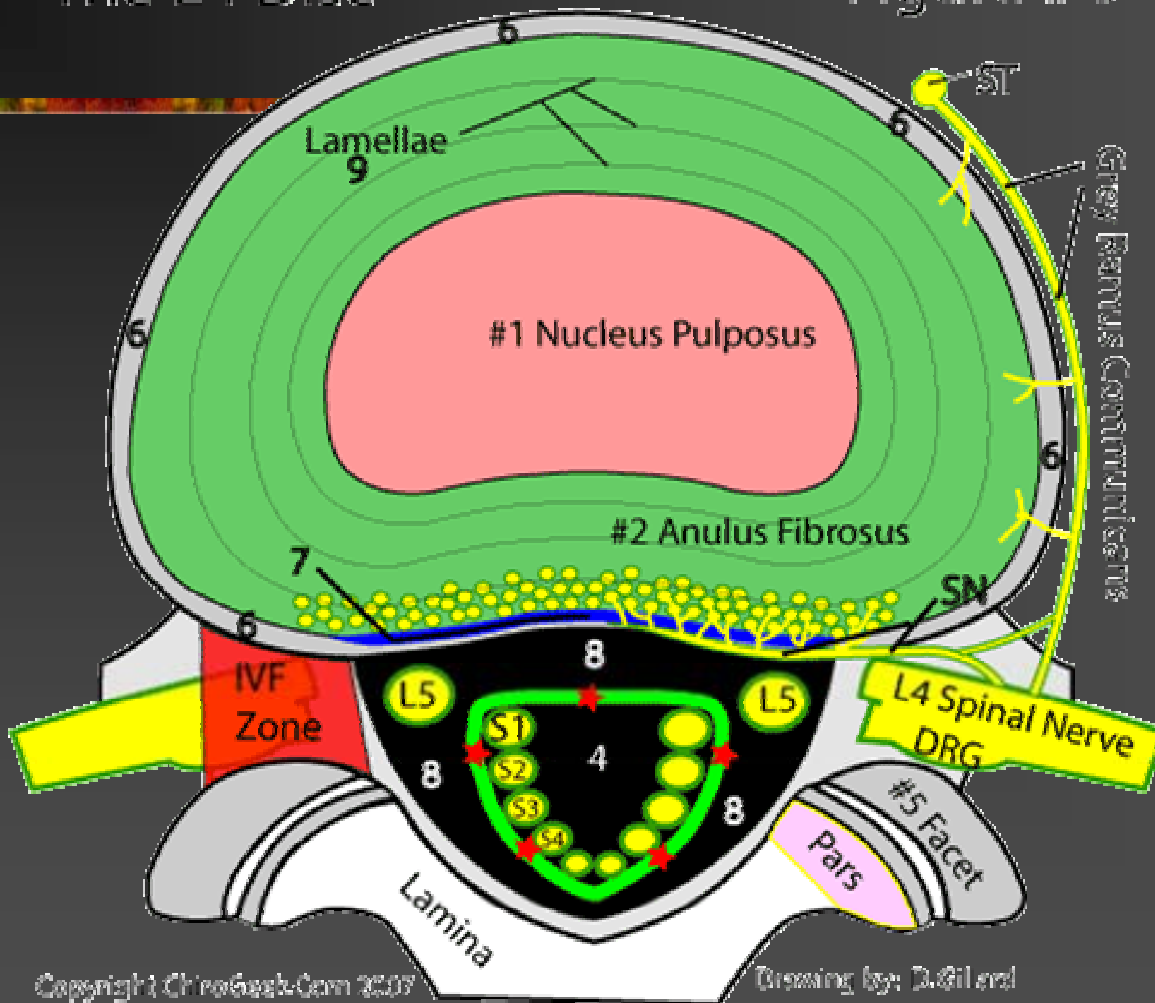
Spinal nerves



# Disc

## The L4 Disc

Figure # 9

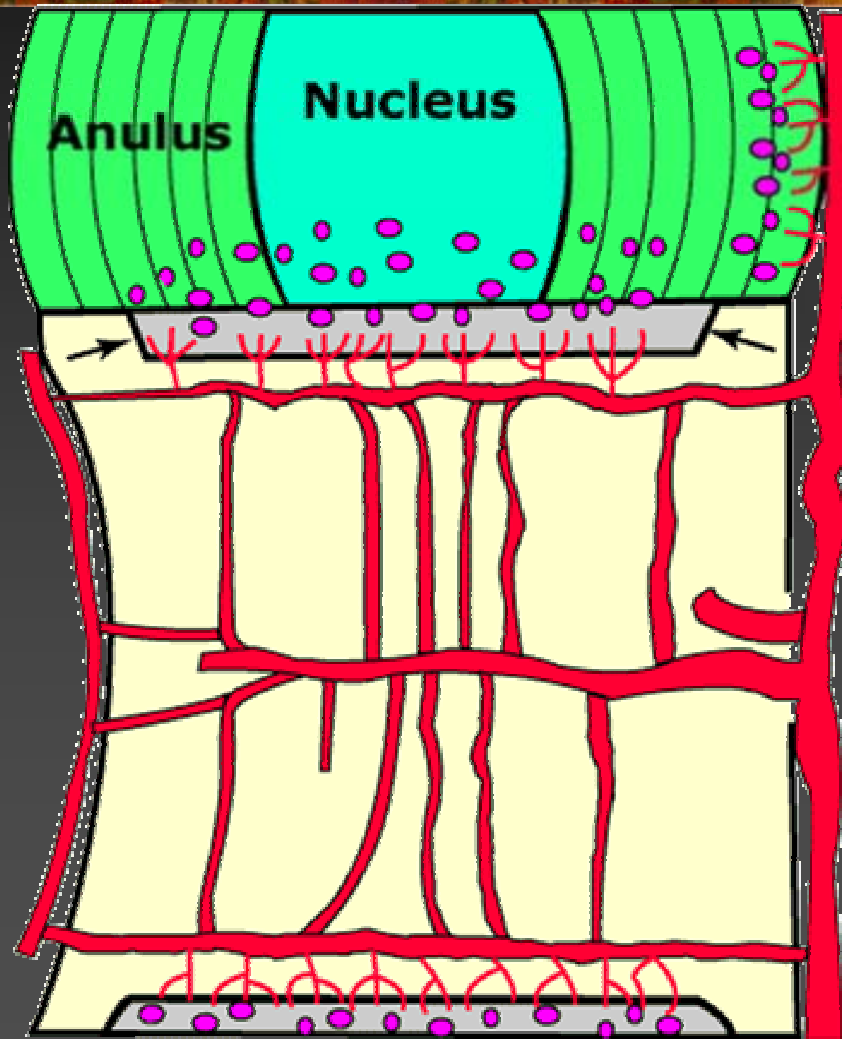


# Anatomy of the Disc

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- 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

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- 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

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

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- 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

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- Degeneration
  - Herniation and grades
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# Disc Herniation

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- 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

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- 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)

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- 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

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- 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

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

Back: muscle spasm /tenderness

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# Investigation

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

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- 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

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

SPINAL FUSION..PLIF

Intervertebral fusion

Vertebroplasty

Artificial Replacement of Disc

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# Complications of disc Surgery

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

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And take care!

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