

# Assessing the Spine

Back Pain, Fractures, and Herniations

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## Back Pain

Back pain is the 5<sup>th</sup> most common complaint for seeking medical treatment

9 out of 10 adults experience back pain

Descriptors include: aching, sharp, shooting, stabbing, limited flexibility

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## Back Pain Causes

Majority of back pain results from muscle strain

- **Strained/pulled muscles**
- **Improper or heavy lifting**
- **Sudden or awkward movement, twisting**

Muscle spasms

Arthritis

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## Back Pain Assessment & Treatment

- ▶ Assessment
  - Physical Exam
- ▶ When to obtain an x-ray
  - Trauma
  - Pain
- ▶ Treatment
  - Physical Therapy
  - Rest
  - Medications

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## Back Pain When to order an MRI

Pain radiating  
into leg

Abnormal x-ray  
(question burst  
component)

Back pain with a  
history of cancer

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## Compression Fractures



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## Osteoporosis



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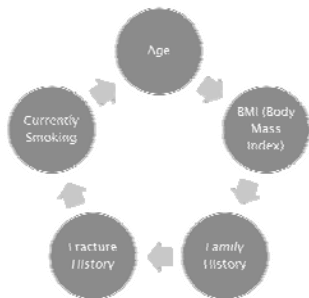
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## Risk Factors of Osteoporosis



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## Risk Factors for Osteoporosis

Consuming 3 or more alcoholic beverages daily

Rheumatoid arthritis

Corticosteroids

Secondary Osteoporosis

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## Screening for Osteoporosis

Screening begins at age 65 or older for women

70 or older for men

Adults over age 50 who suffer a fracture

Post menopausal women age 50-69 based on their risk profile

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## FRAX

- ▶ An evaluation tool to be used in women and men over age 50
- ▶ Free to use
  - <http://www.shef.ac.uk/FRAX>

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## FRAX Tool

The screenshot shows the FRAX WHO Fracture Risk Assessment Tool web interface. It includes a navigation menu with options like HOME, CALCULATION TOOL, ABOUT FRAX, and HELP. The main content area is titled 'Calculation Tool' and contains a questionnaire with fields for Country, Age, Sex, Height, Previous fracture, Parental history of fracture, Current smoking, Alcohol intake, and Rheumatoid arthritis. A 'Risk factors' section at the bottom explains that the tool calculates the 10-year probability of fracture with BMD.

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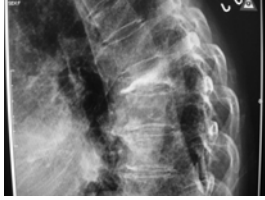
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## Treatment of Compression Fractures



Conservative management

Surgery

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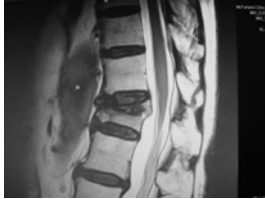
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## Burst Fractures

- ▶ Fracture of the vertebral body resulting from severe trauma
- ▶ The margins of the fracture spread out in all directions



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## Treatment of a burst fracture

- ▶ Stable
  - No neurologic injury
  - Angulation <20 degrees
  - Spinal canal compromise <50 %



"You're looking well."



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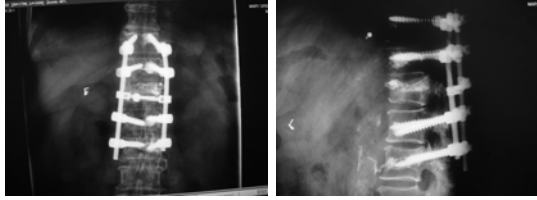
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## Treatment of Burst Fractures



AP view T12 burst fracture

Fusion T10-L2

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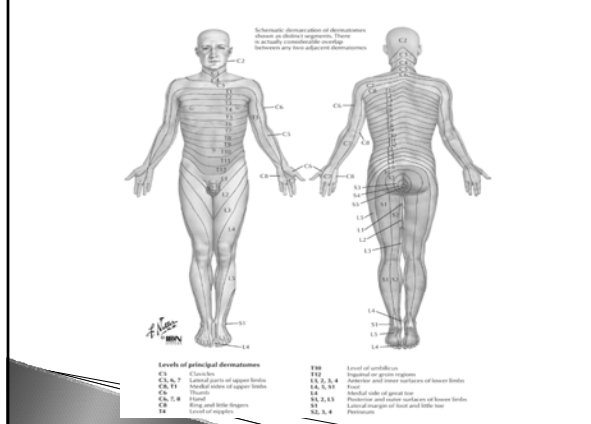
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## Dermatome Map of the Body




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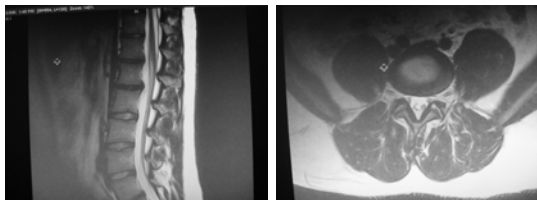
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## MRI of Lumbar Spine



Normal

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## Disc Herniations

- ▶ A disc is a cushion between vertebral bodies
- ▶ A herniation is the displacement of disc material:
  - When the nucleus pulposus herniates
  - May come through and annulus tear
- ▶ 95% of herniations occur in low lumbar spine
- ▶ 19–27 of people **without** symptoms have a disc herniation on imaging

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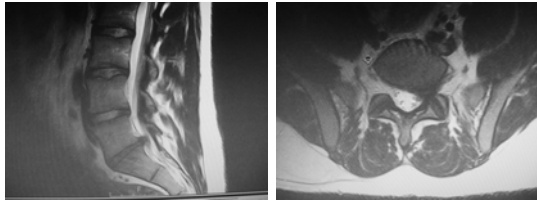
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## Disc Herniations



Sagittal view L spine

Axial view L5-S1

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## Disc Herniation Treatment

Physical Therapy

Medications

Epidurals

Surgery

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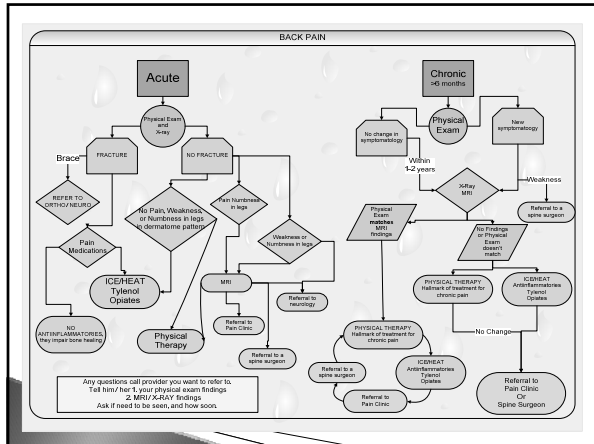
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### Case Study

- ▶ 67 y/o female presents with complaint of sudden onset of mid-back pain after watering her plants
- ▶ What do you do?
- ▶ What is your probable diagnosis?
- ▶ What is your treatment?

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### Case Study

- ▶ 45 year old male present with low back pain and right leg pain after working in the yard.
- ▶ What do you do for your assessment?
- ▶ What is your diagnosis (probable)?
- ▶ What is your treatment?

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**Questions**



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