Radiology Anatomy of the Spine and Upper Extremity
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Learning Objective
• Identify anatomic structures of the spine and upper extremities on standard radiographic and cross-sectional images

Visual Human Sagittal View
7 Cervical Vertebra
12 Thoracic Vertebra
5 Lumbar Vertebra
5 Sacral Vertebra (fused)
3 Coccygeal Vertebra (fused)

Lumbar Vertebral Body
BODY
PEDICLE
TRANSVERSE PROCESS
SPINOUS PROCESS
LAMINA

Lumbar Vertebral Body
BODY
PEDICLE
TRANSVERSE PROCESS (fractured)
SPINOUS PROCESS
LAMINA
**MRI: Intervertebral Disc**

- Spinal Cord
  - (Cauda Equina)
- Intervertebral Disc
  - Nucleus Pulposa
  - Annulus Fibrosa

**Neural Foramen**

- Pedicle (L3)
- L3 Nerve Root
- L3/L4 Intervertebral Disc
- Pedicle (L4)

**Neural Foramina Cervical Spine**

- Vertebral Body
- Nerve Roots
- Cervical Spinal Cord

**Cauda Equina**

- MRI Myelogram

**Spinal Ligaments**

**Spinal Ligament**

- Anterior Longitudinal Spinal Ligament
- Posterior Longitudinal Spinal Ligament
Case Study: 17 year-old Male involved in a MVA

Do you see a fracture?

Fracture of C7 vertebral body

Case Study: 17 year-old Male involved in a MVA

What bilateral facet dislocation is injured?

Bilateral Facet Dislocation at C6/7

What other structures are likely to be injured?

Spinal Cord Injury
Anterior Longitudinal Spinal Ligament
Posterior Longitudinal Spinal Ligament

Upper Extremity

Radiographic Anatomy

X-RAY BEAM

FILM

LEFT SHOULDER (FRONT)

CLAVICLE
ACROMION
CORACOID
GLENOID
SCAPULA
HUMERUS
Case Study: 52 year old male with shoulder pain

Do you identify the cause of the shoulder pain?
MRI Anatomy of the Shoulder

MUSCLES FROM THE FRONT

Rotator Cuff Muscles
*Sagittal View*

Rotator Cuff: *Subscapularis*

Rotator Cuff: *Supraspinatus*

MUSCLES FROM THE BACK
Rotator Cuff: *Infraspinatus*

Rotator Cuff: *Teres Minor*

Anatomy Considerations in Rotator Cuff Tears

Impingement of the Rotator Cuff

MRI Anatomy of the Rotator Cuff
**Rotator Cuff Tear**

- Contrast leaking into subacromial bursa through tear in supraspinatus
- Contrast injected into glenohumeral joint

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**The Elbow**

**LEFT ELBOW FROM FRONT**

- Humerus
- Lateral Epicondyle
- Capitalum
- Radial Head
- Ulna

**Elbow from the Back**

**AP ELBOW**

- Humerus
- Lateral Epicondyle
- Capitalum
- Radial Head
- Ulna
The Wrist

Carpal Bones (Proximal Row)

Carpal Bones (Distal Row)
The Wrist Palmar View
Carpal Bones (*Distal Row*)

- Trapezium
- Trapezoid
- Capitate
- Hamate
- Radius
- Ulna

MR Anatomy of the Wrist

- Capitate
- Lunate
- Radius

Coronal Wrist