Johns Hopkins Radiology
Anatomy Lecture
Spine and Limbs

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Upper Extremity
Question: What is the most commonly torn muscle of the rotator cuff?

Answer: Supraspinatus
1. Acromioclavicular joint
2. Clavicle
3. Acromion
4. Coracoid process
5. Spine of the scapula
6. Humeral head
7. Scapula

Ref: Moeller
Upper Arm

1. Clavicle
2. Scapula
3. Acromion
4. Greater tubercle of the humerus (supraspinatus, infraspinatus, teres minor)
5. Lesser tubercle of the humerus (subscapularis)
6. Humeral head
7. Bicipital groove (long tendon of biceps)
8. Humerus
9. Deltoid tuberosity (deltoid muscle -> axillary nerve)
10. Lateral epicondyle
11. Olecranon/olecranon fossa
12. Medial epicondyle

Ref: Moeller
Medial View of Elbow

- Humerus
- Coronoid
- Ulna
- Radial Head
- Medial Epicondyle
- Olecranon

Ref: Mosher
Elbow

1. Humerus
2. Coronoid fossa (receives coronoid process during flexion of ulna)
3. Coronoid
4. Radial head
5. Radial tuberosity (biceps tendon)
6. Olecranon fossa
7. Medial epicondyle
8. Lateral epicondyle
9. Olecranon (into fossa on extension)
10. Ulna

Ref: Moeller
Epicondylitis

Medial epicondylitis = common flexor tendon

Lateral epicondylitis = common extensor tendon
Forearm

1. Radius
2. Ulna
3. Radial tuberosity (biceps tendon)
4. Scaphoid
5. Trochlea of the humerus (articulates with ulna)
6. Olecranon
7. Olecranon fossa (triangular depression, posterior humerus)
8. Ulnar styloid
9. Capitellum (rounded end of humerus, articulates with radius)

Ref: Moeller
19 yo Male who was shot in left arm during Labor Day weekend.
The Wrist Palmar View
Carpal Bones (*Proximal Row*)

Ref: Mosher
The Wrist Palmar View
Carpal Bones *(Distal Row)*

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

Ref: Mosher
Hand

1  Scaphoid
2  Lunate
3  Triquetrum
4  Pisiform
5  Trapezium
6  Trapezoid
7  Capitate
8  Hamate
9  Radius
10 Ulna
11 Metacarpal
12 Phalanx (proximal)
13 Sesamoid (bone within tendon)

Ref: Moeller
Scaphoid Fracture/AVN

- Most common type of wrist fracture
- High risk for avascular necrosis
- Blood supply = lateral and distal branches of the radial artery
- Check snuffbox for radial arterial pulse!
- Snuffbox is created by tendons of extensor pollicis longus and extensor pollicis brevis

Ref: Radiology Secrets
Lower Extremity

Happy Feet, the Penguin
1  Sacrum
2  Anterior Superior Iliac Spine (cut off)
3  Anterior Inferior Iliac Spine
4  Ischial tuberosity
5  Superior pubic ramus
6  Femoral head
7  Acetabulum (ilium, ischium, and pubis)
8  Greater Trochanter of the femur (obturator, gluteus tendons)
9  Lesser Trochanter of the femur (psoas tendon)

Ref: Moeller
Question: What is the unhappy triad?

Answer:
1. ACL
2. Medial collateral ligament
3. Medial meniscus

Ref: http://www.bigkneepain.com/images/kneepict-copy.gif
Knee

1. Femur
2. Patella
3. Posterior fat pad
4. Lateral femoral condyle
5. Tibial plateau
6. Tibula
7. Fibula

A = ACL
B = PCL
C = MCL

Ref: Radiology Secrets
Ref: Moeller
1  Tibia
2  Fibula
3  Talus
4  Medial Malleolus
5  Lateral Malleolus
6  Interosseus membrane
7  Femur
8  Patella

Ref: Moeller
Foot

1. Talus
2. Calcaneus
3. Navicular
4. Base of the fifth metatarsal
5. Cuboid
6. Cuneiforms

Ref: Moeller
Another Foot

1. Distal Phalanx
2. Middle Phalanx
3. Proximal Phalanx
4. Sesamoid bone
5. Metatarsals
6. Cuboid
7. Navicular
8. Medial Cuneiform
9. Middle Cuneiform
10. Distal Cuneiform

Ref: Moeller
5th Metatarsal Fracture

50 year old female who “twisted her ankle” on labor day weekend. ER physician observed point tenderness over base of fifth metatarsal.

Question: What is the most commonly injured ankle tendon?

Answer: Achilles
SPINE

Ref: Mosher
Visual Human Sagittal View

7 Cervical Vertebra

12 Thoracic Vertebra

5 Lumbar Vertebra

5 Sacral Vertebra (fused)

3 Coccygeal Vertebra (fused)

Ref: Mosher
SPINE FROM THE FRONT

Ref: Mosher
Lateral Lumbar Spine

BODY

PEDICLE

SPINOUS PROCESS

Ref: Mosher
Thoracic Spine

1. Clavicle
2. Trachea
3. Body of Vertebra (top and bottom are called endplates)
4. Transverse Process (muscle attachment)
5. Pedicle (project posteriorly)
6. Spinous Process
7. Inferior articular process
8. Superior articular process

1 (what bone?)
2 (what lucency?)
3 (what process?)
5 (what process?)
4 (what process?)
7 (what process?)
8 (what process?)
Lumbar Spine

1. Endplate of vertebral body
2. Intervertebral foramen
3. Spinous process
4. Transverse process
5. Inferior articular process
6. Superior articular process
7. Sacrum
8. Intervertebral disk space
References:
• Moeller Pocket Atlas of Radiographic Anatomy
• Radiology Secrets
• Mosher ppt: http://www.humangrossanatomy.us/radiology/upperextremityback/mosher04/siframes.html

Interested in Radiology?
• Consider a small research project
• Take the radiology elective early in 3rd year
• Check out the Hopkins Radiology website
• Talk to current residents or 4th years who are applying now

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