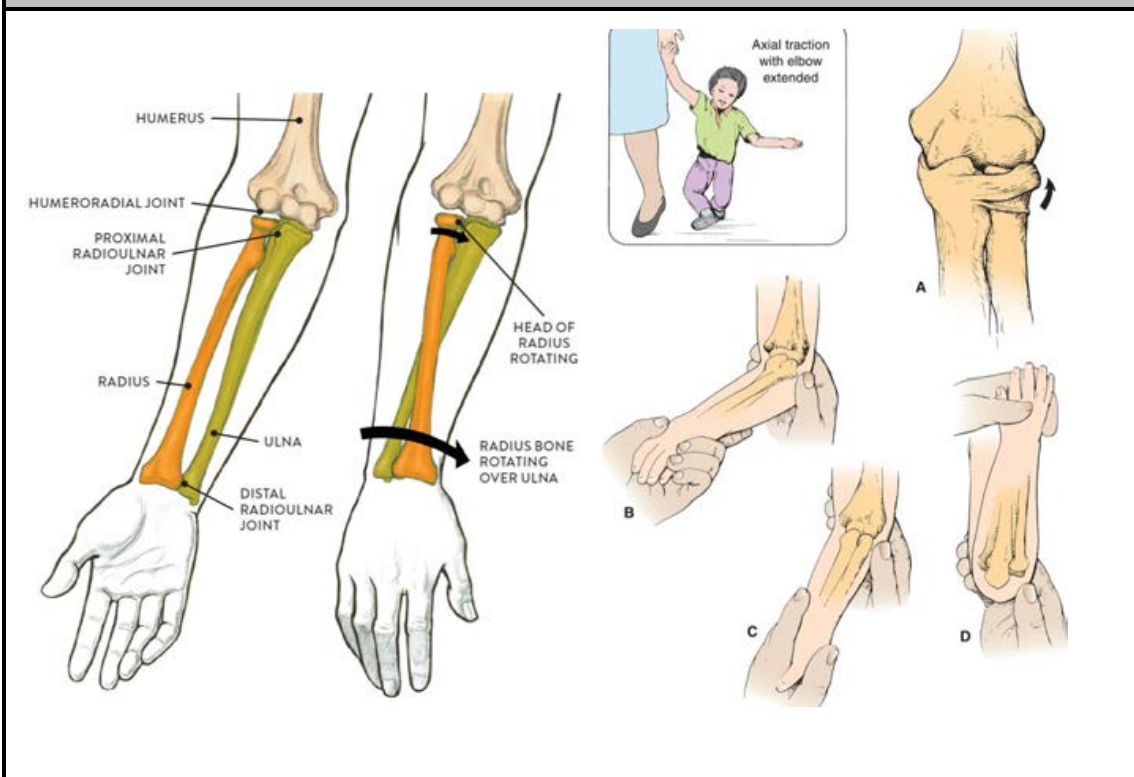


Upper Extremity – Elbow/Forearm/Wrist

Anatomy



Exam Pearls

Rapid Elbow/Forearm Neurovascular Exam

Brachial artery	Brachial + radial pulses, perfusion check
Median Nerve	Sensation over palmar side of digits 1-3
Anterior Interosseous Nerve ** Motor-only branch of median nerve	Test "OK" sign, grip strength
Radial Nerve	Wrist extension
Ulnar Nerve	Spread fingers against resistance

Common Diagnoses

Supracondylar Fracture

Description/ Mechanism	Usually FOOSH with elbow hyperextension
Diagnosis	<ul style="list-style-type: none"> •Exam: Gross deformity, limited active elbow motion •Imaging: Get AP and lateral XR. Findings may be subtle (posterior fat pad sign on lateral film)
Management	<ul style="list-style-type: none"> •Ortho consult •Usually surgical fixation for displaced fractures

Upper Extremity – Elbow/Forearm/Wrist

Common Diagnoses cont.

Nursemaid's Elbow (AKA subluxation of radial head)

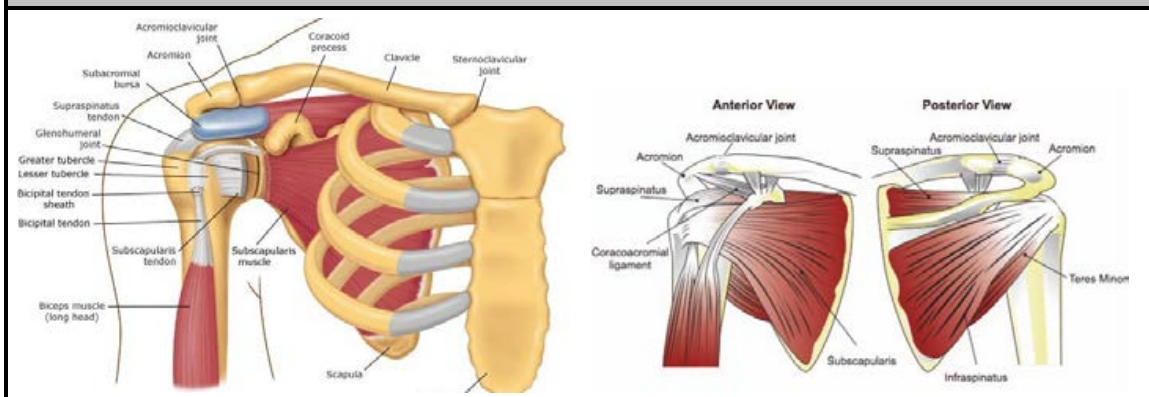
Description/ Mechanism	Traction on arm with extended elbow (e.g. swinging child through the air)
Diagnosis	<ul style="list-style-type: none"> •Exam: no deformity, elbow held in passive pronation with slight flexion, refusing to use arm •Imaging: Unnecessary unless suspect fracture based on H&P, or if reduction unsuccessful
Management	Stabilize elbow w/ one hand → supinate forearm and flex elbow (will usually feel/hear click)

Distal Radius Fracture

Description/ Mechanism	<ul style="list-style-type: none"> •Most common pediatric fracture •FOOSH
Diagnosis	<ul style="list-style-type: none"> •Exam: Pain, ecchymosis, swelling •Imaging: AP + lateral of wrist and forearm; consider AP+lateral of elbow if tender or if diaphyseal fractures present
Management	<ul style="list-style-type: none"> •Ortho consult •Depending on severity may require anything from immobilization to ORIF

Upper Extremity – Shoulder

Anatomy



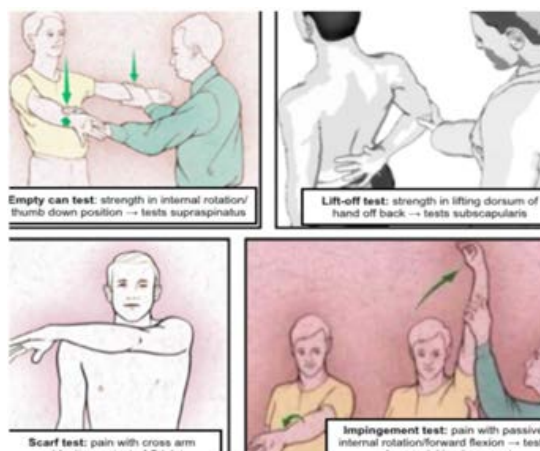
Shoulder continued on next page →

Upper Extremity – Shoulder

Exam Pearls

Rotator cuff muscles (mnemonic: SITS → AEEI)

- Supraspinatus → Abduction
- Infraspinatus and Teres Minor → External rotation
- Subscapularis → Internal rotation



Common Diagnoses

Proximal Humeral Fracture

Description/ Mechanism	<ul style="list-style-type: none"> • FOOSH • Direct blow to lateral shoulder
Signs/ Symptoms	History of trauma, severe shoulder pain, pain w/ arm movement
Diagnosis	<ul style="list-style-type: none"> • Exam: tenderness, swelling, shoulder asymmetry, arm shortened and held in extension • Imaging: AP and axillary XR views of humerus <ul style="list-style-type: none"> ■ Get scapular "Y" view in addition if concerned for shoulder injury ■ Suspect Salter-Harris I if negative XR + tenderness at physis
Management	<ul style="list-style-type: none"> • Immobilization • Likely ortho consult (esp if more severe - assoc. w/ shoulder dislocation, neurovascular compromise, etc.)

Dislocation

Description/ Mechanism	<ul style="list-style-type: none"> • Majority of dislocations are anterior • Blow to abducted/externally rotated/extended arm • Fall on outstretched arm • Forceful forward swinging of arm
Diagnosis	<ul style="list-style-type: none"> • Exam: arm abducted and externally rotated w/ resistance to all movement, loss of rounded appearance of shoulder <ul style="list-style-type: none"> ■ Evaluate for sensory loss over lateral deltoid (2/2 axillary nerve dysfunction) • Imaging: AP + scapular "Y" + axillary XR to confirm dx and exclude fractures (can be repeated post-reduction if unsure of success)
Management	Reduction (variety of techniques exist) → immobilization and referral to sports med/ortho for prevention of recurrent dislocation

Rotator Cuff Injury

Description/ Mechanism	<ul style="list-style-type: none"> • Includes impingement (inflammation & pinching of rotator cuff tendons) and rotator cuff tears • Overuse or acute injury, usually involving throwing or overhead activities
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Upper Extremity – Shoulder	
Common Diagnoses cont.	
Rotator Cuff Injury cont.	
Signs/ Symptoms	Pain in upper arm, worse w/ overhead activity or lying on affected side
Diagnosis	<ul style="list-style-type: none"> • Exam: pain/weakness with testing of rotator cuff muscles; positive empty can, lift off, and/or impingement tests (see above) • Imaging: XR only if bony pathology suspected; MRI best
Management	<ul style="list-style-type: none"> • Can start w/ conservative management (NSAIDs, PT) • Chronic, symptomatic tears → consider surgical intervention
Little League Shoulder (proximal humeral epiphysiolysis)	
Description/ Mechanism	<ul style="list-style-type: none"> • Overuse injury from throwing causing microfractures in humeral epiphysis • Most common in 11-16 yo athletes
Signs/ Symptoms	Progressive shoulder pain w/ throwing, localized to proximal humerus
Diagnosis	<ul style="list-style-type: none"> • Exam: TTP at proximal humerus • Imaging: AP XR of both arms in external and internal rotation; can get MRI if dx unclear
Management	<ul style="list-style-type: none"> • Rest x 3 mos (minimum) + PT, then gradual progression to throwing • Can still bat and play positions that do not require a lot of throwing
AC (acromioclavicular) Joint Injury	
Description/ Mechanism	<ul style="list-style-type: none"> • Ranges from sprain of AC ligaments to full ligamentous rupture w/ clavicular displacement • Usually fall onto or direct blow to shoulder
Diagnosis	<ul style="list-style-type: none"> • Exam: tenderness, swelling, asymmetry at AC joint, prominent distal clavicle; + scarf test • Imaging: XR (abnormal in more severe injury, may be normal if joint space not widened)
Management	<ul style="list-style-type: none"> • Less severe injury (no separation of joint capsule) → sling 1-2 weeks, ice, NSAIDs → early motion as able, including flexion/extension at elbow • More severe injury → likely surgical intervention
Clavicular Fracture	
Description/ Mechanism	Classified by location - most common is midshaft fracture > distal third > proximal third
Diagnosis	<ul style="list-style-type: none"> • Exam: arm held adducted close to body, often supported w/ opposite hand; point tenderness, crepitus <ul style="list-style-type: none"> ■ Neurovascular and respiratory exam crucial due to risk of brachial plexus and lung injury • Imaging: XR
Management	<ul style="list-style-type: none"> • Most heal well w/ sling, but indications for surgery are controversial • Any sign of neurovascular compromise → acute reduction needed