Orthopedic Assessment & Treatment of Common Upper Extremity Issues in Primary Care

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Disclosure

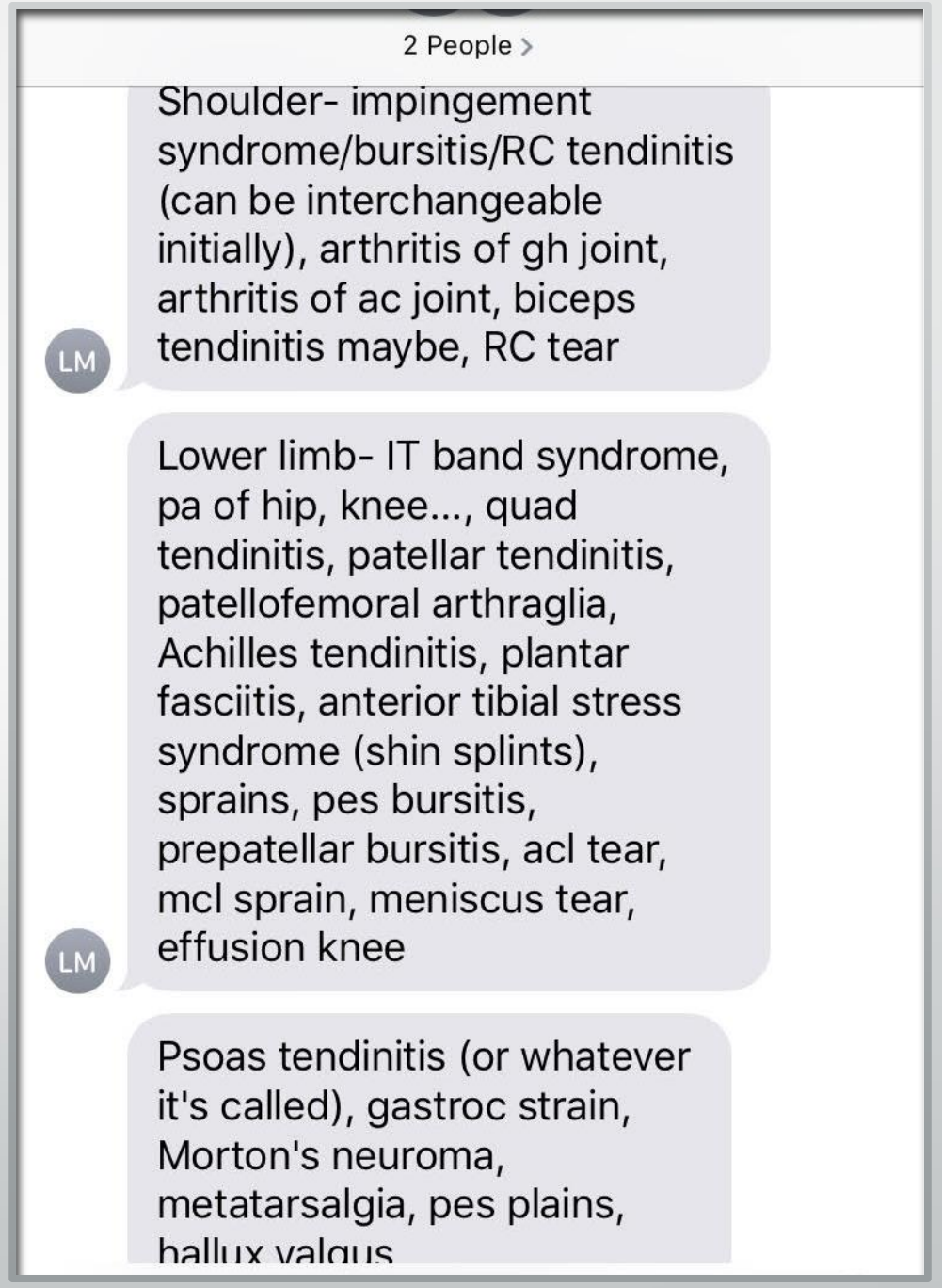
I have no current affiliation or financial interest with any grantor or commercial interests that may have direct interest in the subject matter of the CE Program.

Here's what we'll cover

- Review key components of a comprehensive musculoskeletal exam
- Describe an organized approach to exam techniques
- Identify history questions used to assess patients presenting with problems for the upper extremity
- Identify functional anatomy with clinical significant for the upper limb
- Discuss pharmacologic and non-pharmacologic treatment options for common upper limb conditions

Preparing for a Comprehensive MSK Workshop

So many topics to cover!




I smile to hide
how completely
overwhelmed
I am.



MSK Exam and Primary Care

Musculoskeletal problems are in the top reasons for PCP visits

Over half of chronic medical conditions in the U.S. are related to MSK diagnoses



Components of MSK Exam

- Observation
- Palpation
- Active & Passive range of motion (ROM)
- Strength
- Reflexes and Sensation
- Gait

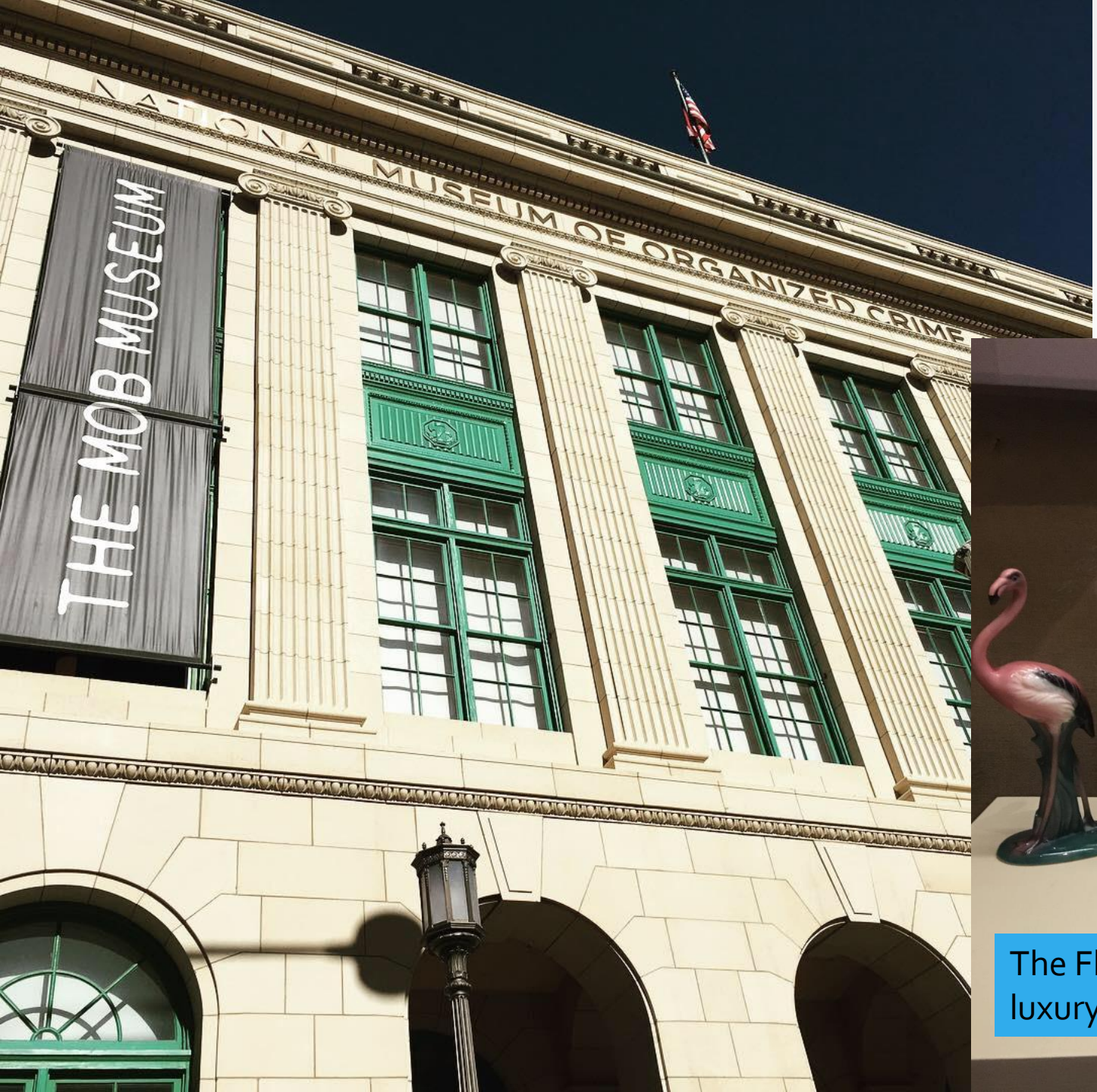
Helpful Terms

- Abduction
- Adduction
- Proximal
- Distal
- Origin
- Insertion
- Volar
- Dorsal
- Valgus
- Varus

Observation



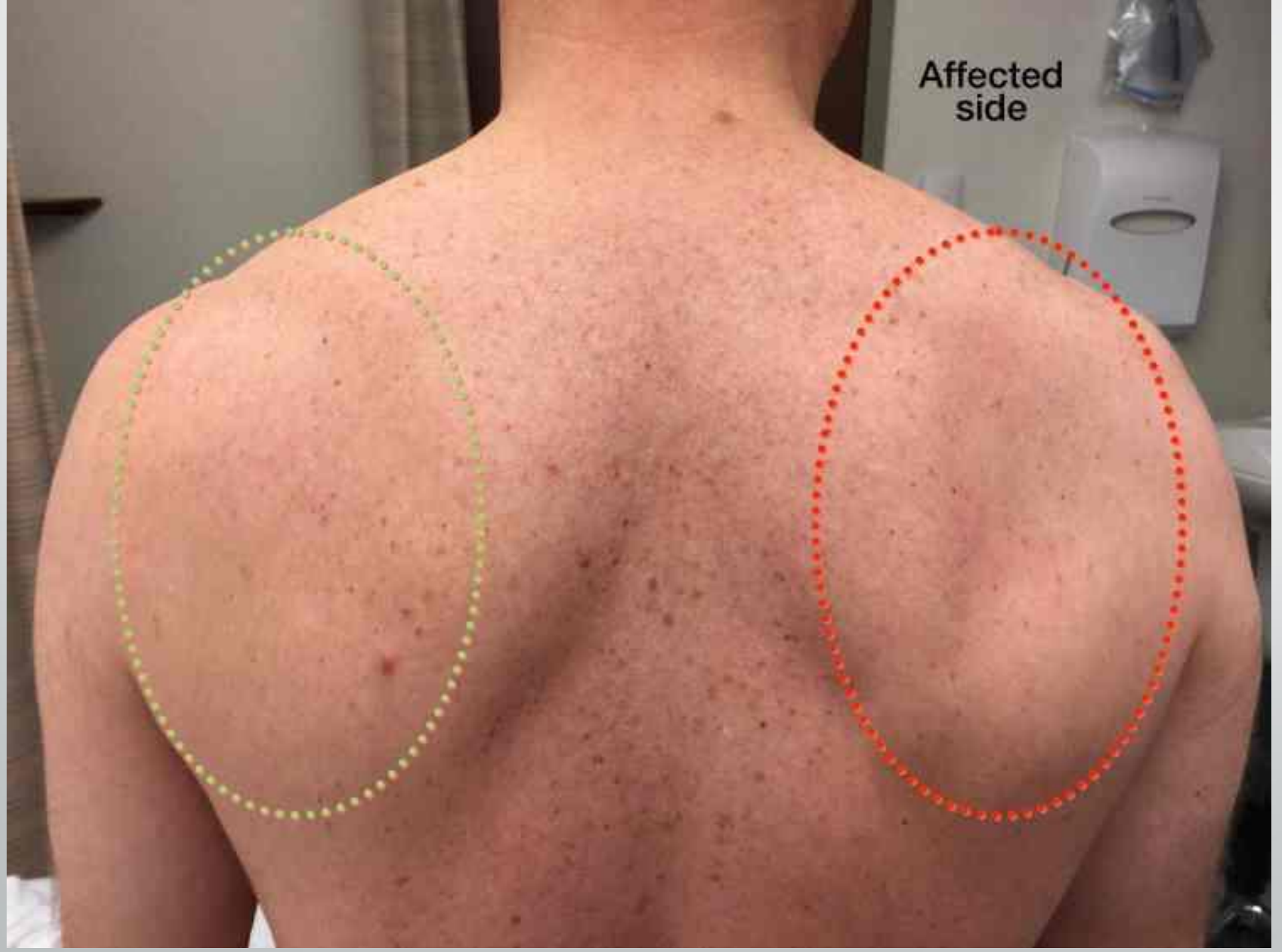
- Skin appearance- breakdown, color, scar
- Swelling, edema, erythema
- Symmetry or asymmetry
- Posture
- Patient affect



Filet Mignon…5.75
Rack of Lamb…6.00



The Flamingo- Las Vegas's first luxury resort in 1946!

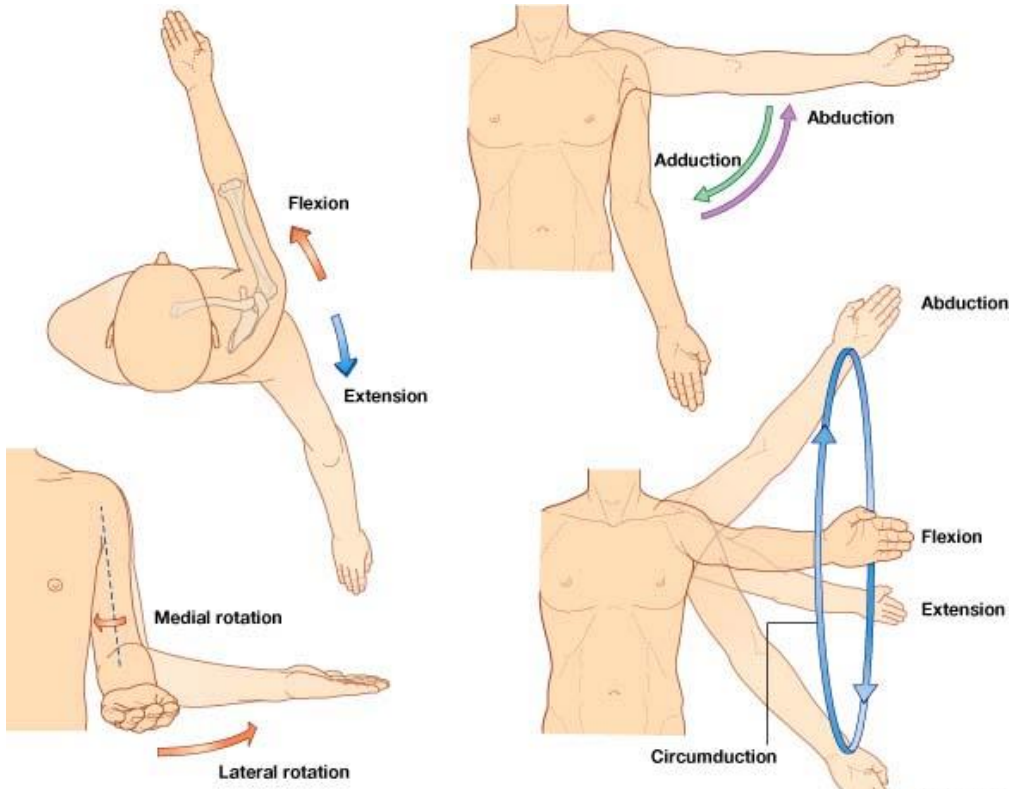

Affected
side





- Pressure level: light prior to firm
- Identify location: tendon attachment, muscle, joint?
- Type of pain provoked
- Focal vs. radiating pain





Range of Motion

Range of Motion

- Passive vs. Active
- Types of joints
- Is range limited due to pain/guarding, weakness, or muscle/joint issue?
- Always check the unaffected side first for comparison
- Is there pain associated with the reduced range of motion?


10
5

American Spinal Injury Association Strength Grading

0 Total paralysis

1 Palpable or visible contraction

2 Active Movement

3 Active movement against gravity

4 Active movement against gravity with some degree of resistance

5 Active movement with full resistance (normal)

Reflex Grading

0 No response

1+ Slight by definite response (may or may not be normal)

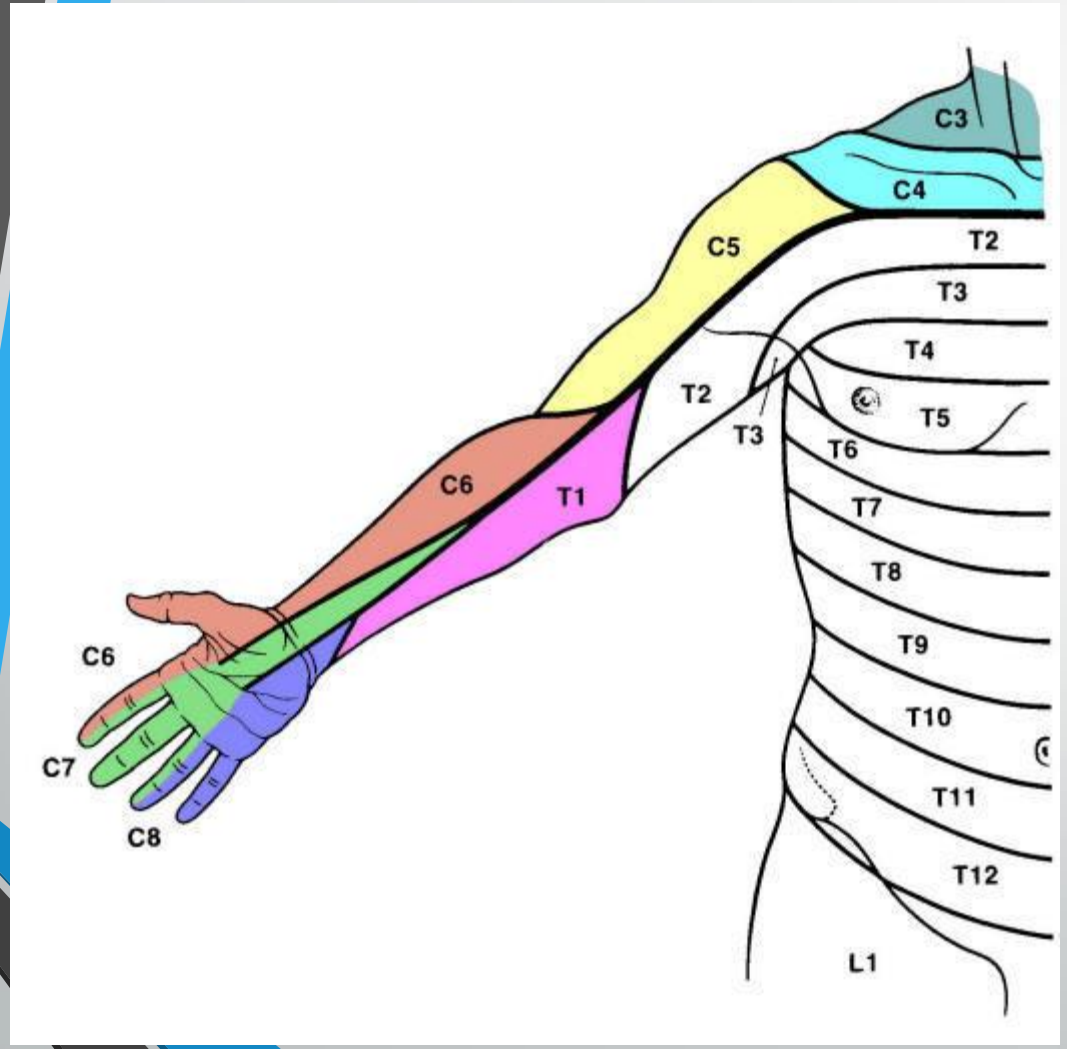
2+ Brisk response (normal)

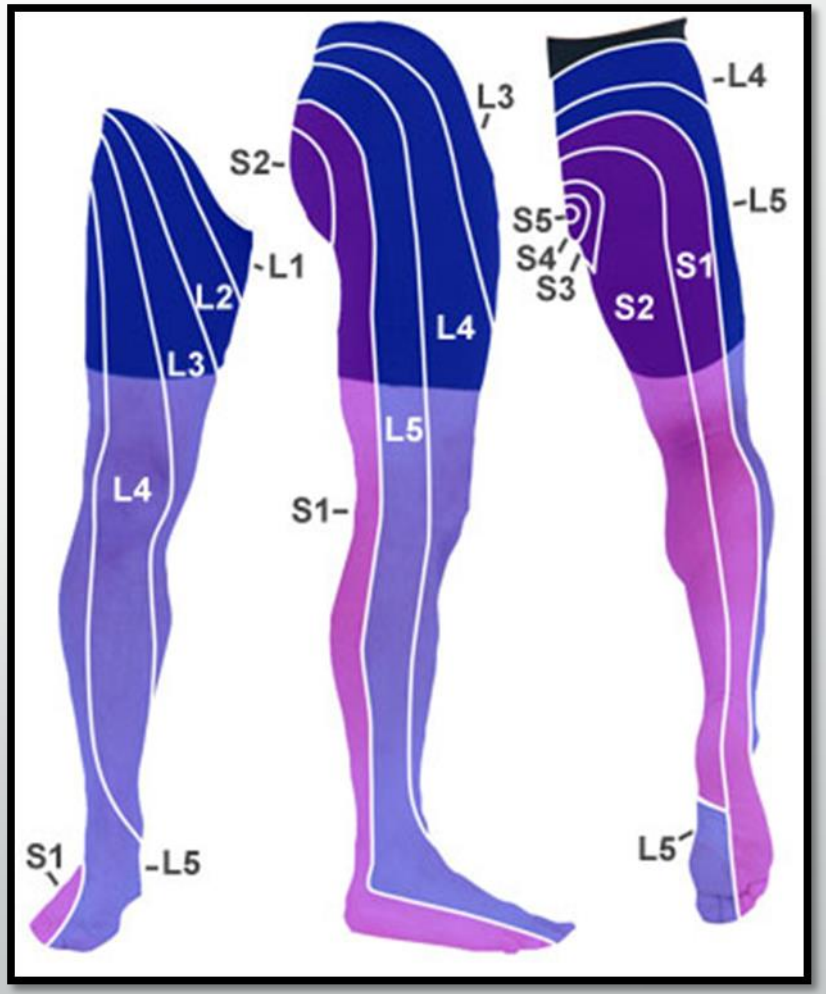
3+ Very brisk (may or may not be normal)

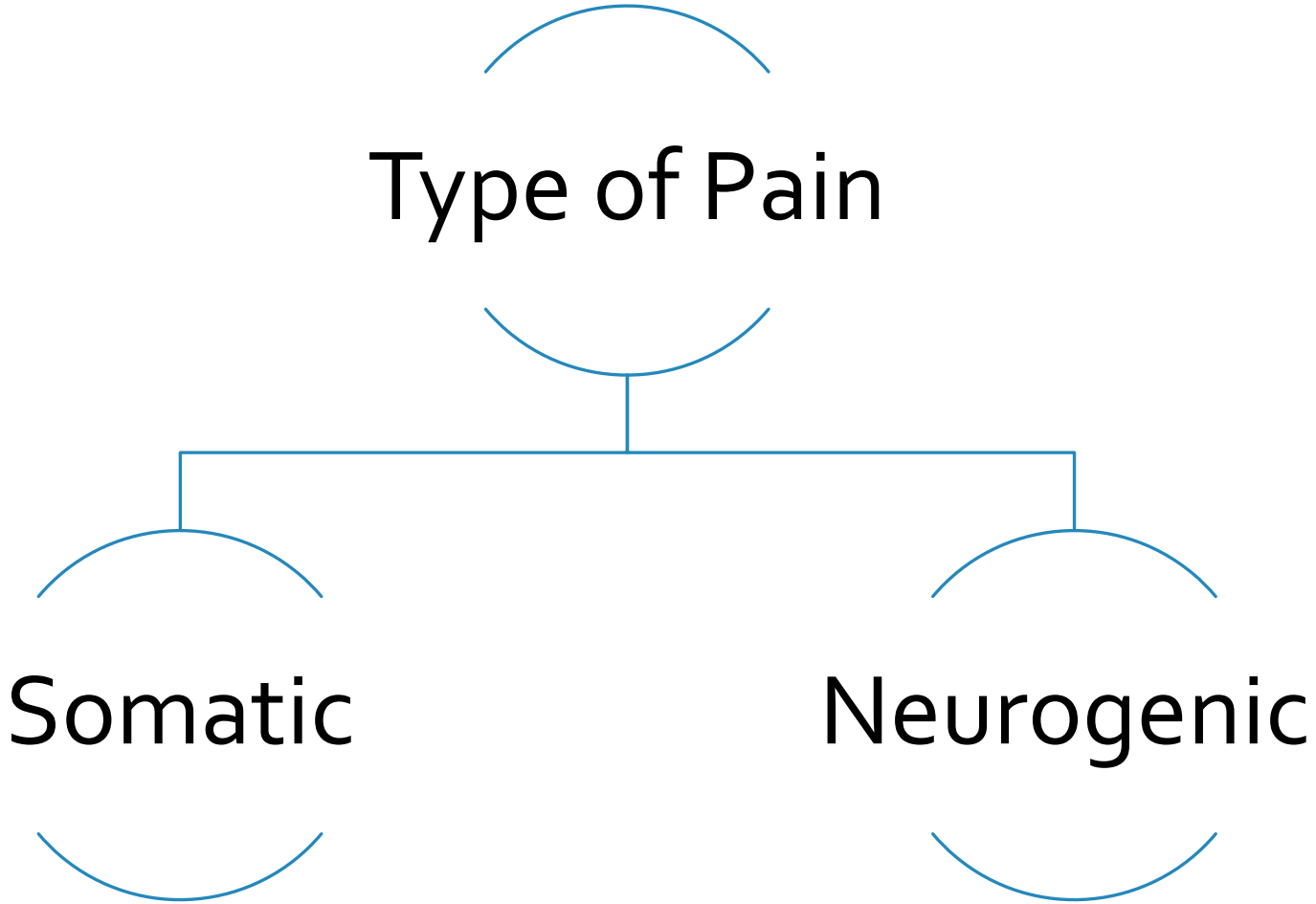
4+ Repeating response/clonus (always abnormal)



Dermatome Review!

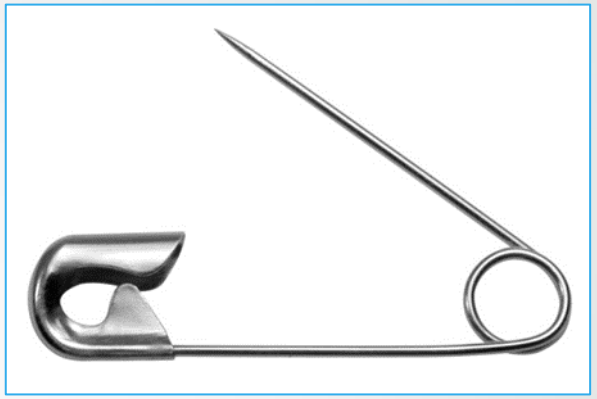





Type of Pain
Somatic
Neurogenic

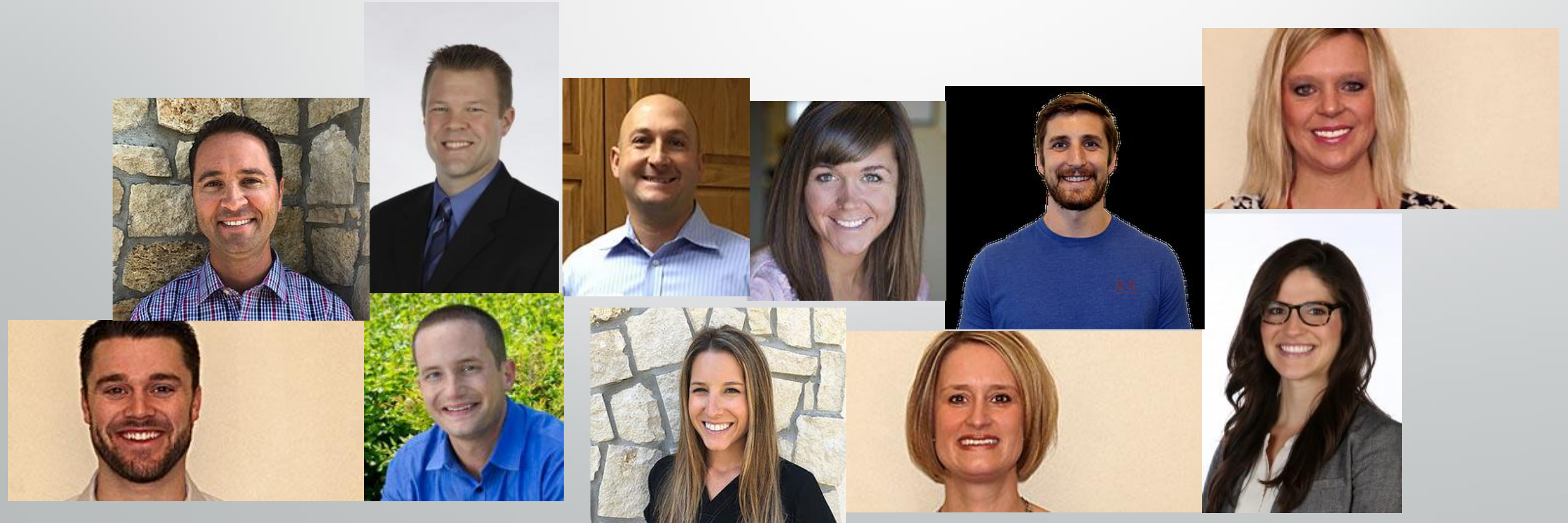
Consistent Physical Exam!





ROM & Strength → Focused Area(s) → Special Tests

Make friends with a physical therapist!





Upper Limb

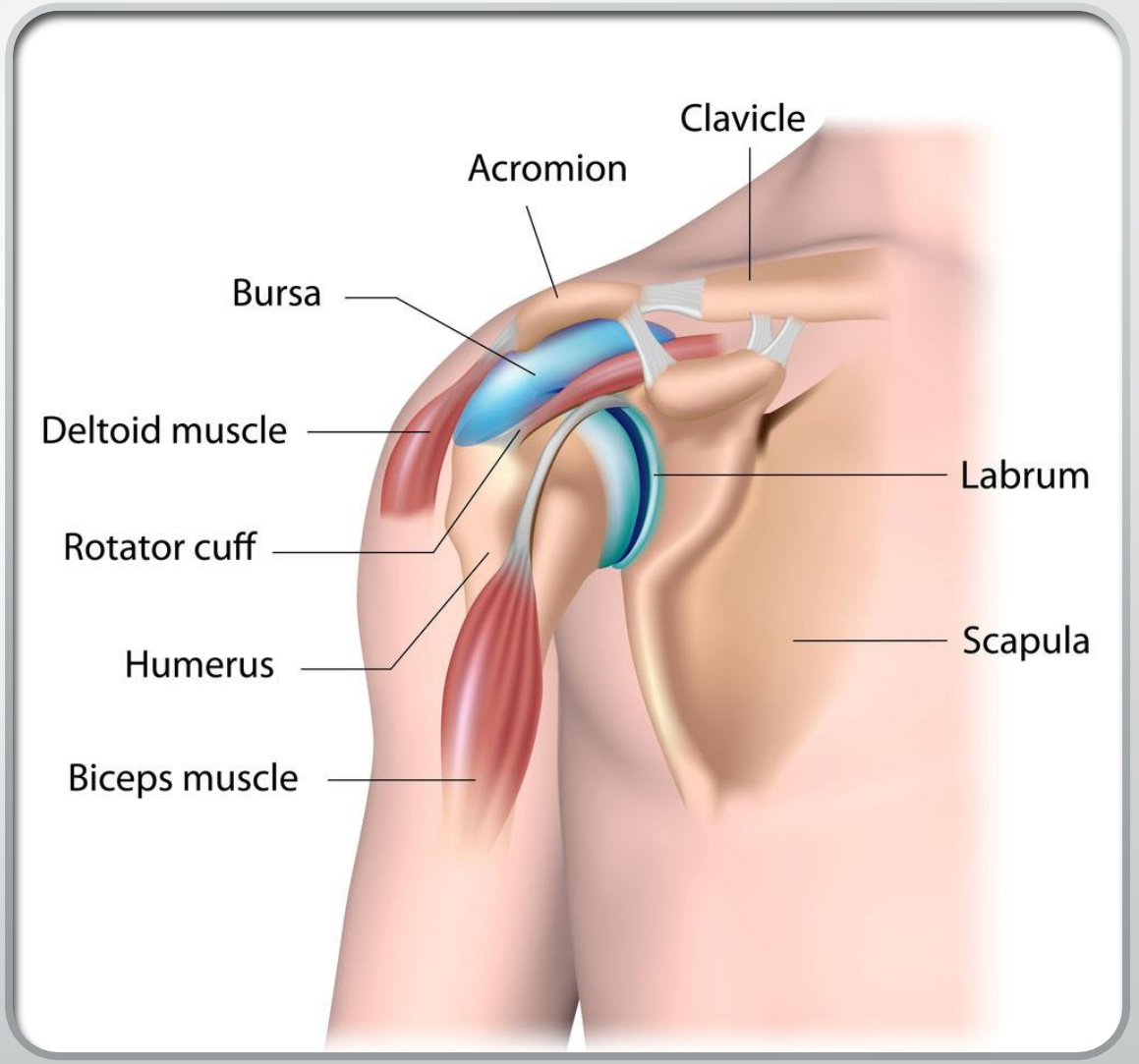
Shoulder Anatomy

3 Bones

- scapula
- clavicle
- humerus

Rotator cuff muscles (SITS)

- **S**upraspinatus
- **I**nfraspinatus
- **T**eres Minor
- **S**ubscapularis



Shoulder

- Very mobile joint with shallow glenoid fossa
- Stability depends on muscles and connective tissue
- Assess posture!
- Inspection, palpation, muscle testing, special tests

Special Shoulder Tests

- Impingement signs: Neer, Hawkins, Empty Can
- Cross body adduction
- Apprehension sign
- Drop arm test
- Wall push-up

Shoulder Diagnostic Testing
Will the test change your treatment plan?

- X-ray
- MRI
- EMG (especially if numbness/tingling, weakness)
  - http://www.abemexam.org/Verify-Certification/ABEM-Directory
- Consider visceral causes (e.g. cardiac, gallbladder, etc)
- Always assess for cervical spine symptoms



Shoulder Case Study

- History of intermittent impingement syndrome
- Patient enjoys cycling, fell while on a summer ride
- Began physical therapy ~1 month after symptoms began
- MRI completed due to lack of progress ⟹ RTC tear
- Surgery completed in January, started post-op rehab when cleared by surgeon



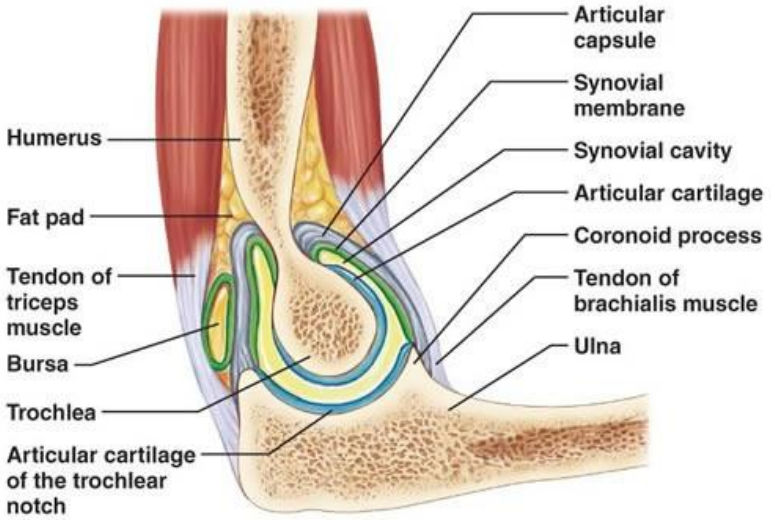
Common Shoulder Diagnoses

- Impingement syndrome- also referred to as separate diagnoses of bursitis, rotator cuff tendinosis
- Osteoarthritis (glenohumeral and/or acromioclavicular joint)
- Biceps tendinosis (tendon rupture less common)
- Rotator Cuff Tear (partial or complete)

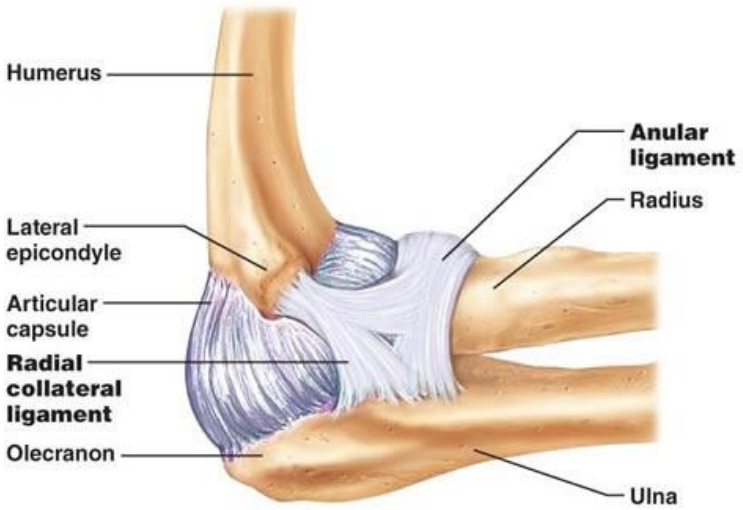
“Universal” Conservative Treatment

- NSAIDs- oral and/or topical
- Ice/HEAT
- Physical Therapy
- Home Exercises
- Cortisone injection
- Refer if significant weakness of RC or lack of progress with 2-3 months of rehab

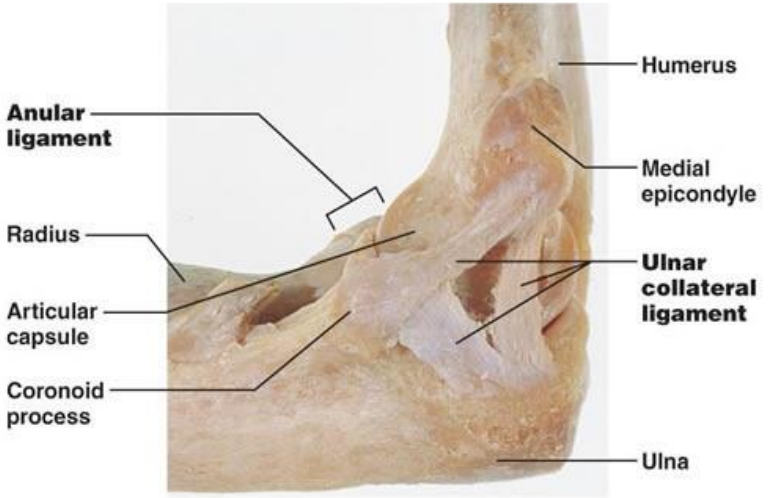




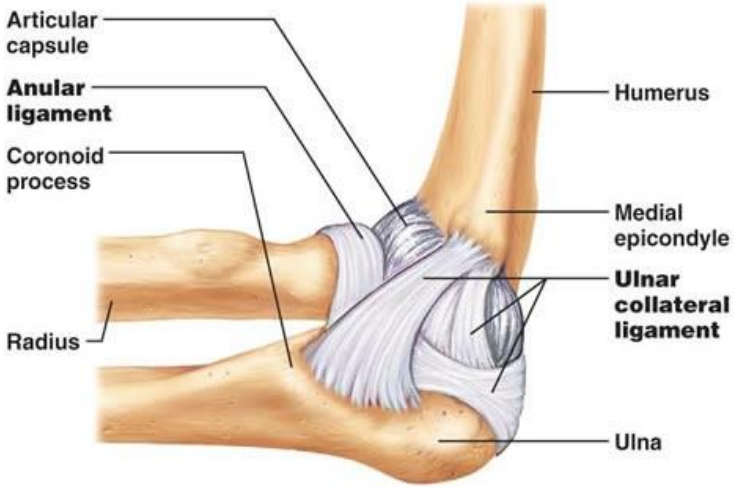
(a) Median sagittal section through right elbow (lateral view)



(b) Lateral view of right elbow joint



(c) Cadaver photo of medial view of right elbow



(d) Medial view of right elbow

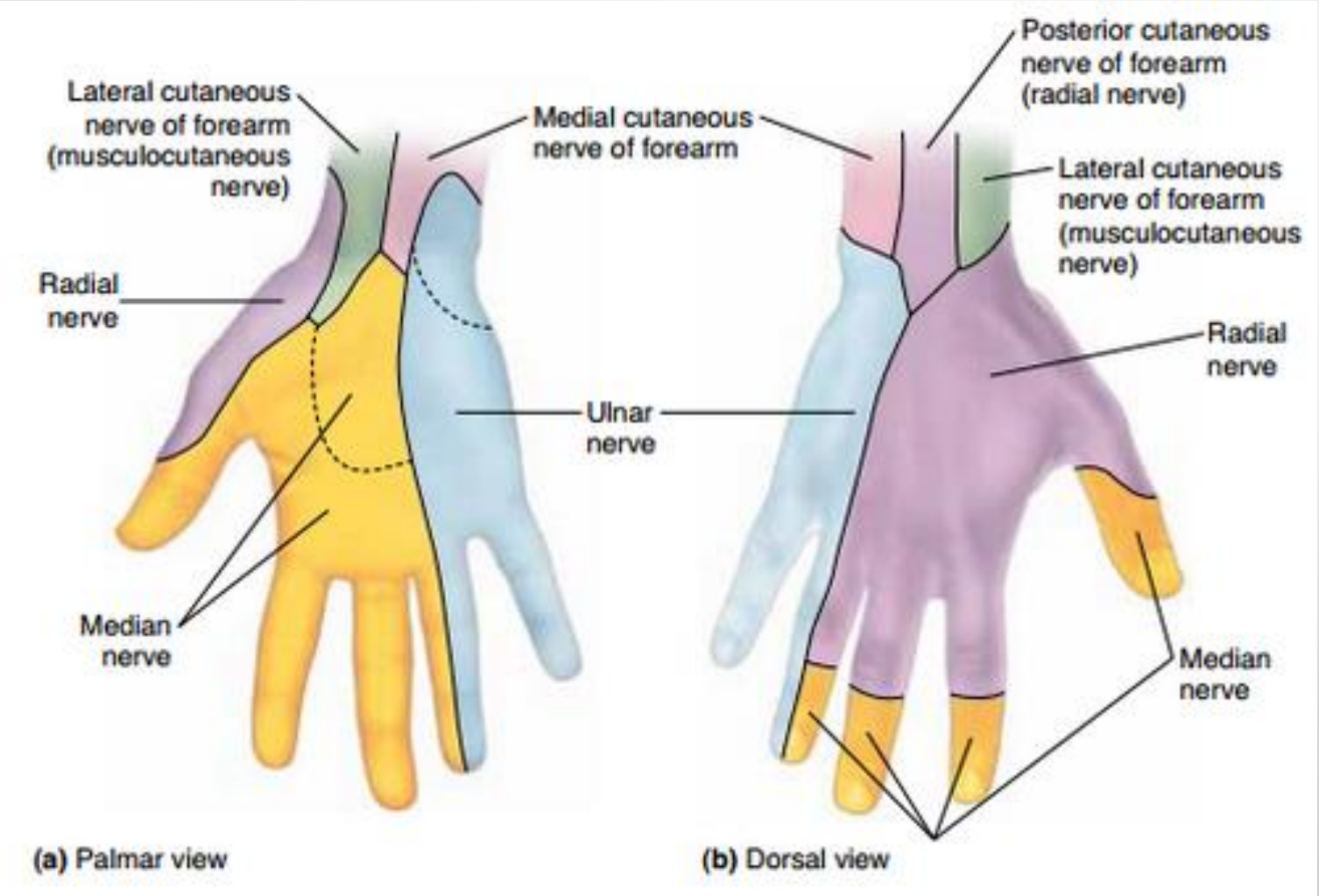
Elbow

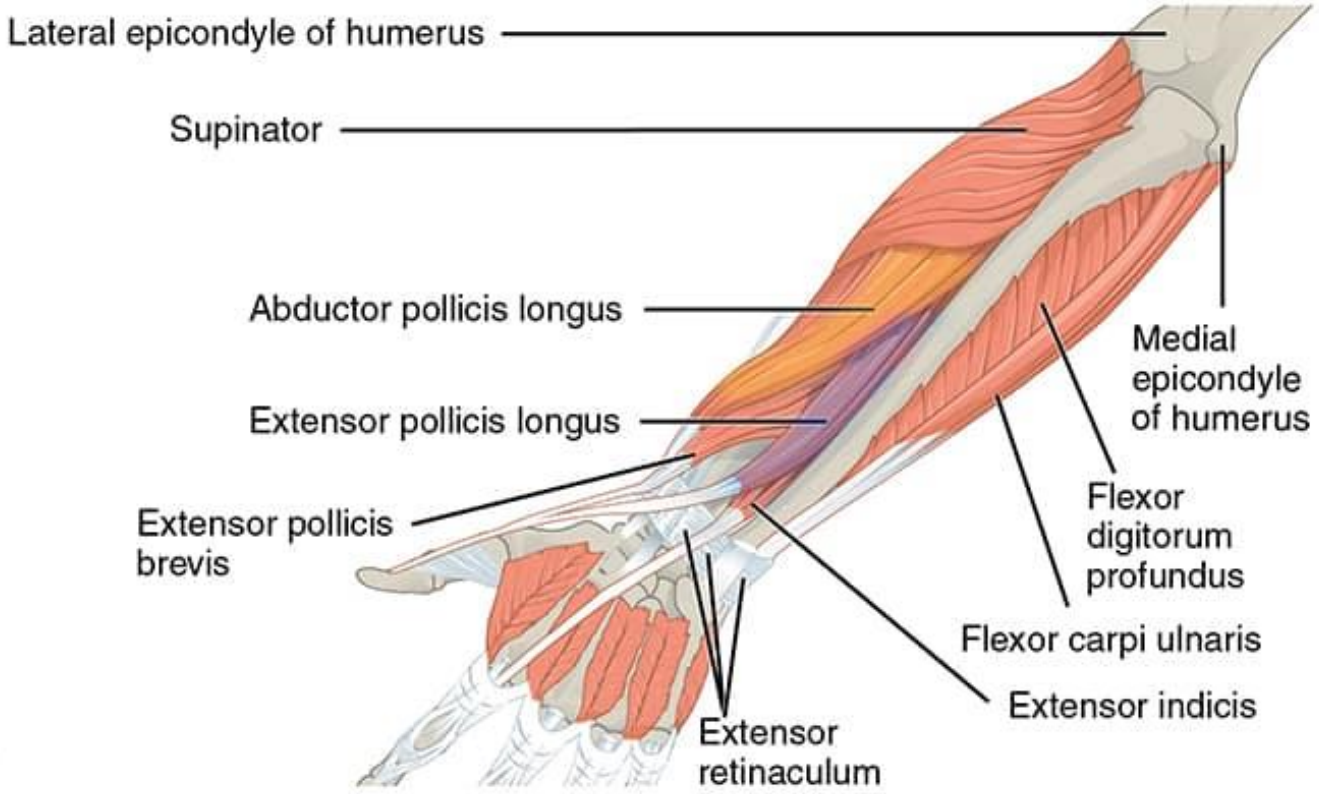
- Hinge joint
- Stable with firm bone support
- Joint articulations include the humerus, radius, and ulna
- Special tests: Resisted supination/pronation, resisted middle finger, Resisted wrist extension/flexion, Tinel at the ulnar groove

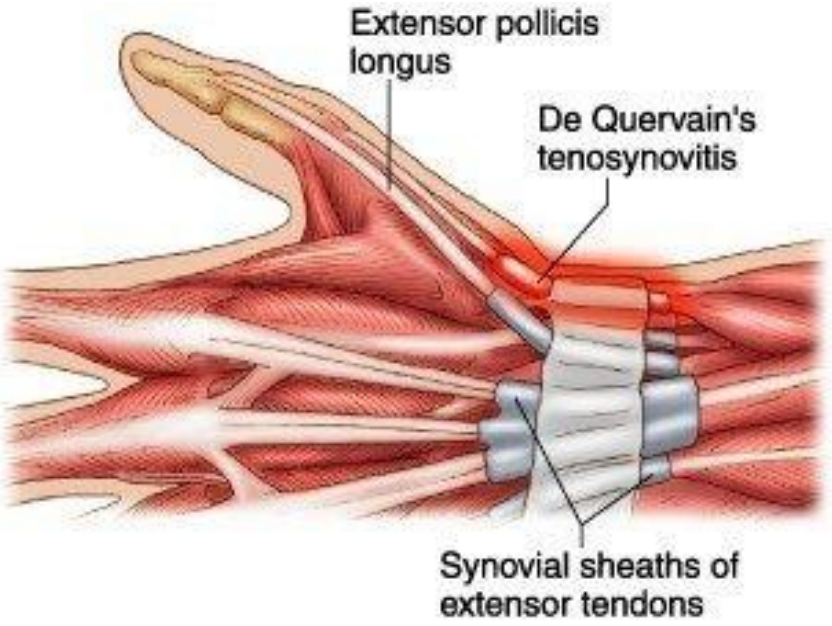
Common Elbow Diagnoses

- Lateral-Tennis Elbow
  - Tendonitis of extensor carpi radialis brevis
    - extensor – supinator group
- Medial- Golf Elbow
  - flexor – pronator group

- Bursitis
- Cubital tunnel syndrome (ulnar neuropathy)
- Fracture of radial head
- Osteoarthritis of elbow
- Radial tunnel syndrome (posterior interosseous nerve)
- Triceps tendinosis


Lateral cutaneous nerve of forearm (musculocutaneous nerve)
Medial cutaneous nerve of forearm
Radial nerve
Ulnar nerve
Median nerve
(a) Palmar view
Posterior cutaneous nerve of forearm (radial nerve)
Lateral cutaneous nerve of forearm (musculocutaneous nerve)
Radial nerve
Median nerve
(b) Dorsal view


Lateral epicondyle of humerus
Supinator
Abductor pollicis longus
Extensor pollicis longus
Extensor pollicis brevis
Medial epicondyle of humerus
Flexor digitorum profundus
Flexor carpi ulnaris
Extensor indicis
Extensor retinaculum


Extensor pollicis longus
De Quervain's tenosynovitis
Synovial sheaths of extensor tendons

Wrist/Hand

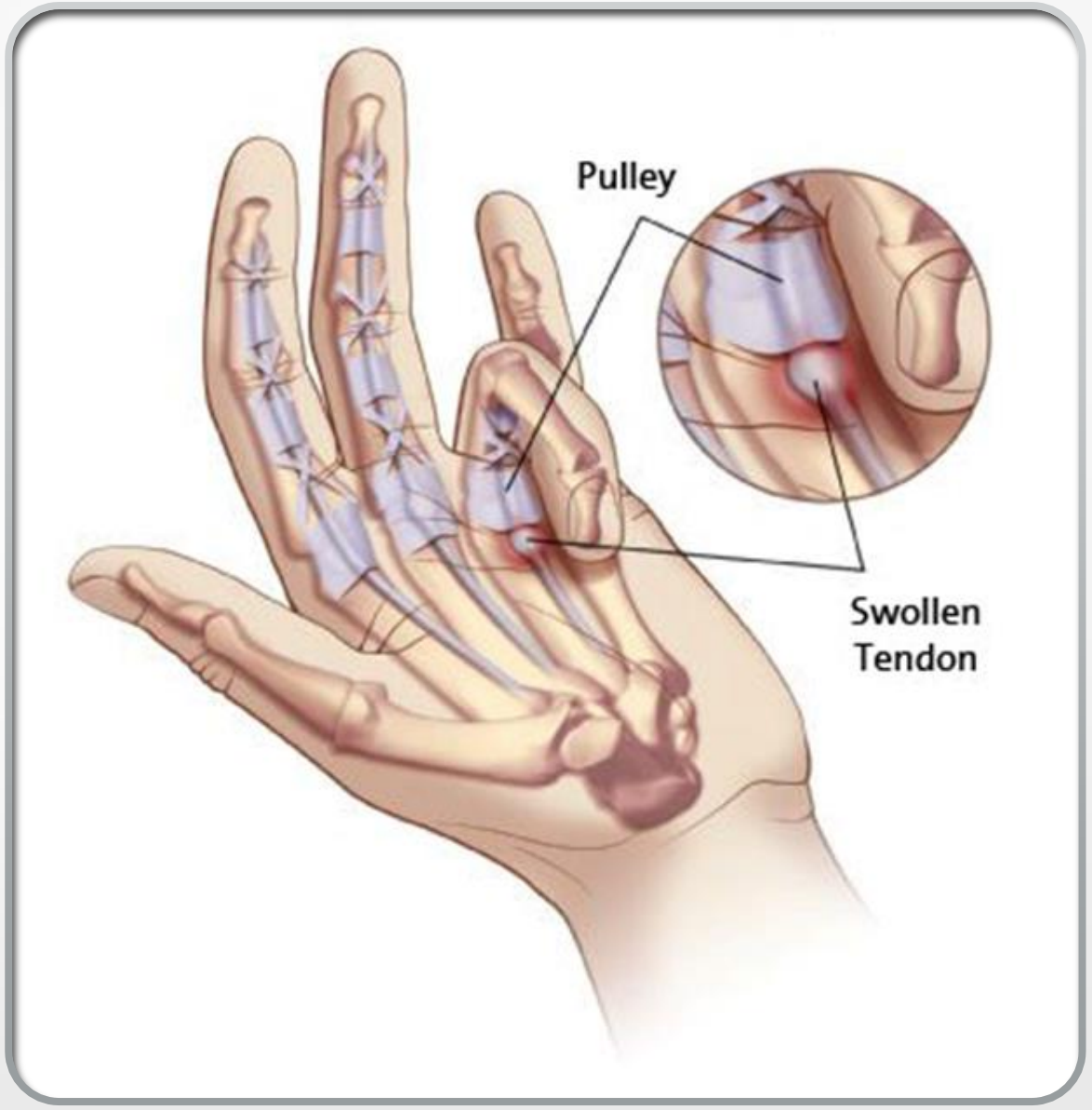
- Bilateral comparison to look for asymmetry
- Inspect for atrophy, joint swelling, triggering of finger
- Special Tests: Tinel (wrist AND elbow), Phalen, Median nerve compression, Finkelstein, CMC grind
- Include exam of shoulder and elbow to determine etiology (e.g. cervical radiculopathy vs. carpal tunnel syndrome)

Common Wrist/Hand Diagnoses

- Carpal tunnel syndrome
- Osteoarthritis (especially CMC joint)
- DeQuervain's Tenosynovitis ("texting thumb")
  - Ice, thumb spica splint, injection, avoid aggravating activity
- Ganglion cyst
- Trigger Finger
- Dupuytren's contracture

Trigger Finger

- Snapping or triggering at the MCP (A1 pulley)
  -Tender, swollen nodule at the A1 pulley
  -Often history of repetitive grasping or pinching
  -Triggering transmitted to DIP, locking
- NSAIDs, injection, mixed results with splinting
- Often requires surgical release if persistent



Carpal Tunnel Syndrome Treatment

- Splinting (nighttime)
- Injection – can be diagnostic and used prior to surgery
- Surgical intervention for median nerve release
  - EMG can assess severity
  - Refer patient for consult if symptoms are progressive and/or if exam shows weakness, sensory changes

Prayer sign





Dupytren's contracture

Thenar atrophy





"Universal" Conservative Treatment

- NSAIDs- oral and/or topical
- Ice/HEAT
- Physical Therapy and Home Exercises
- Cortisone injection
- PRP and newer therapies (?)
- Refer if significant weakness, neurologic findings, or lack of progress with 2-3 months of rehab

SHOULDER EXAM: No atrophy. Normal strength of rotator cuff and shoulder girdle. Special tests are negative.

Range of Motion: Pain with Internal Rotation, External Rotation, Abduction. Painful arc of motion 80-120 degrees (supraspinatus/impingement).

Special Tests: Positive impingement testing.

ELBOW EXAM: No atrophy, no effusion, redness or warmth. ROM is pain-free and within functional limits, normal strength. Inspection/Palpation:

Tenderness at: lateral epicondyle.

Special Tests: Positive resisted middle finger extension, resisted supination.

WRIST/HAND EXAM: No swelling, redness or warmth. No skin breakdown or nail abnormalities. No palmar or dorsal atrophy. Range of motion is pain free and within functional limits, normal strength.

Inspection: thenar atrophy.

Special Tests: Positive Phalen's, Tinel's, Median nerve compression.

HIP EXAM: No atrophy.Inspection/Palpation:

Tenderness at: trochanteric bursa, piriformis, SI joint.

Special Tests: Negative FABER's, Stinchfield's (resisted hip flexion).

KNEE EXAM: No atrophy, no effusion, redness or warmth. ROM is pain-free and within functional limits, normal strength. Good ligamentous stability.

ANKLE/FOOT EXAM: No swelling, redness or warmth. No skin breakdown or gross deformity. No atrophy. Range of motion is pain free and within functional limits, normal strength. Special tests are negative.

Thorough Exam

PT/OT

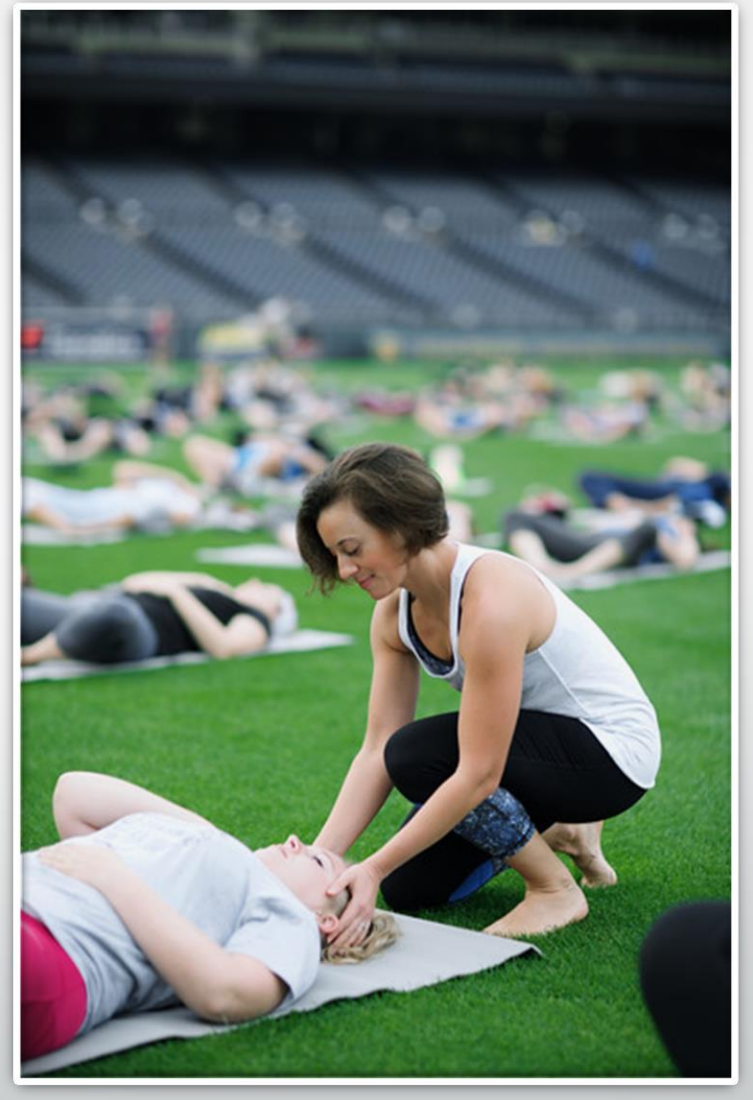


Modify Activity

NSAID/Ice/Injection

Challenge Yourself, Practice These Skills, & Achieve Confidence with MSK Issues!

- ✓ Functional Anatomy
- ✓ Good Exam
- ✓ Partner with the Patient
- ✓ Reassess



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