Mastering Your Musculoskeletal Exam

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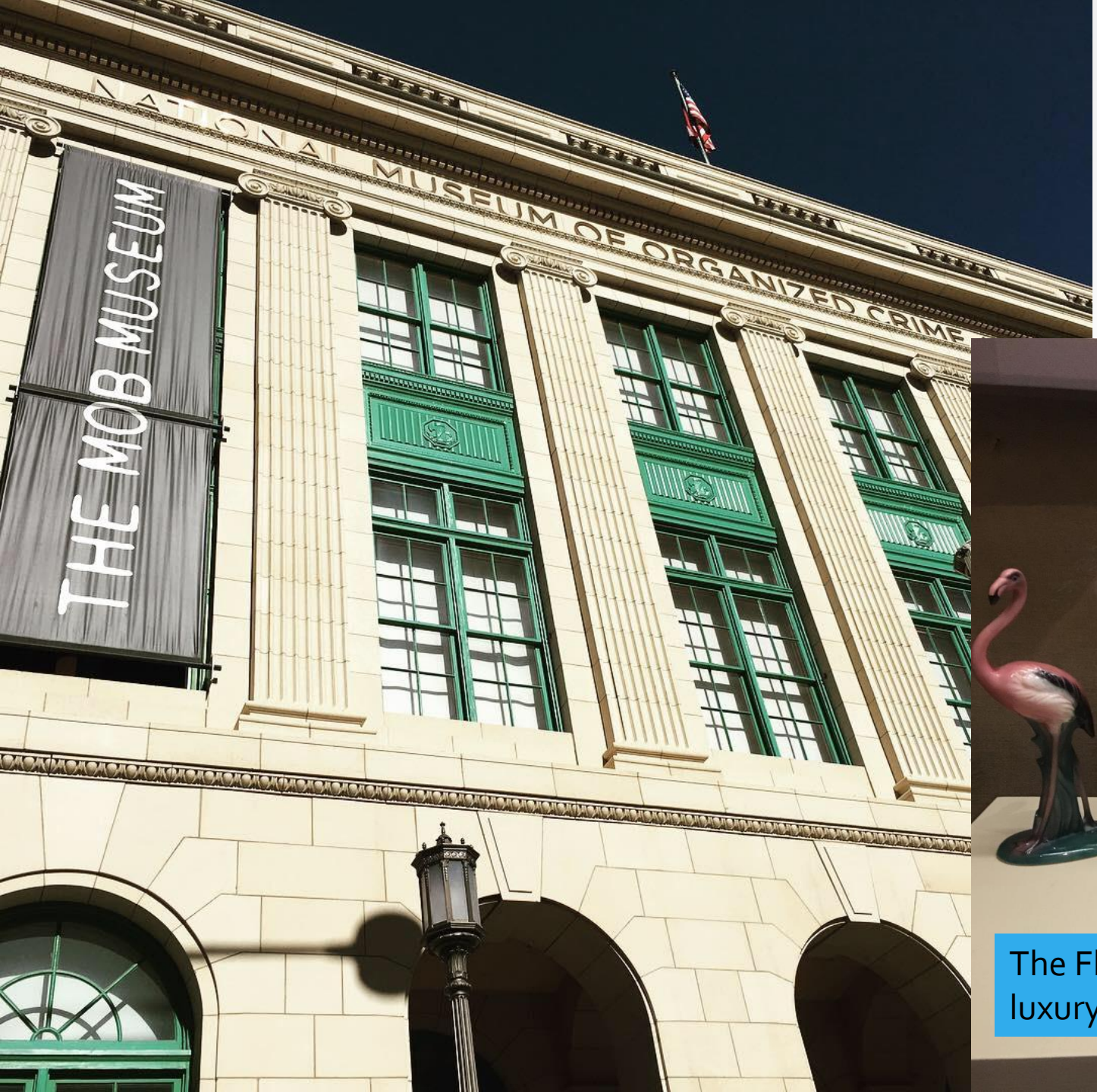


Filet Mignon…5.75
Rack of Lamb…6.00

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

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 and lower extremity
- Identify functional anatomy with clinical significant for the upper and lower limb

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

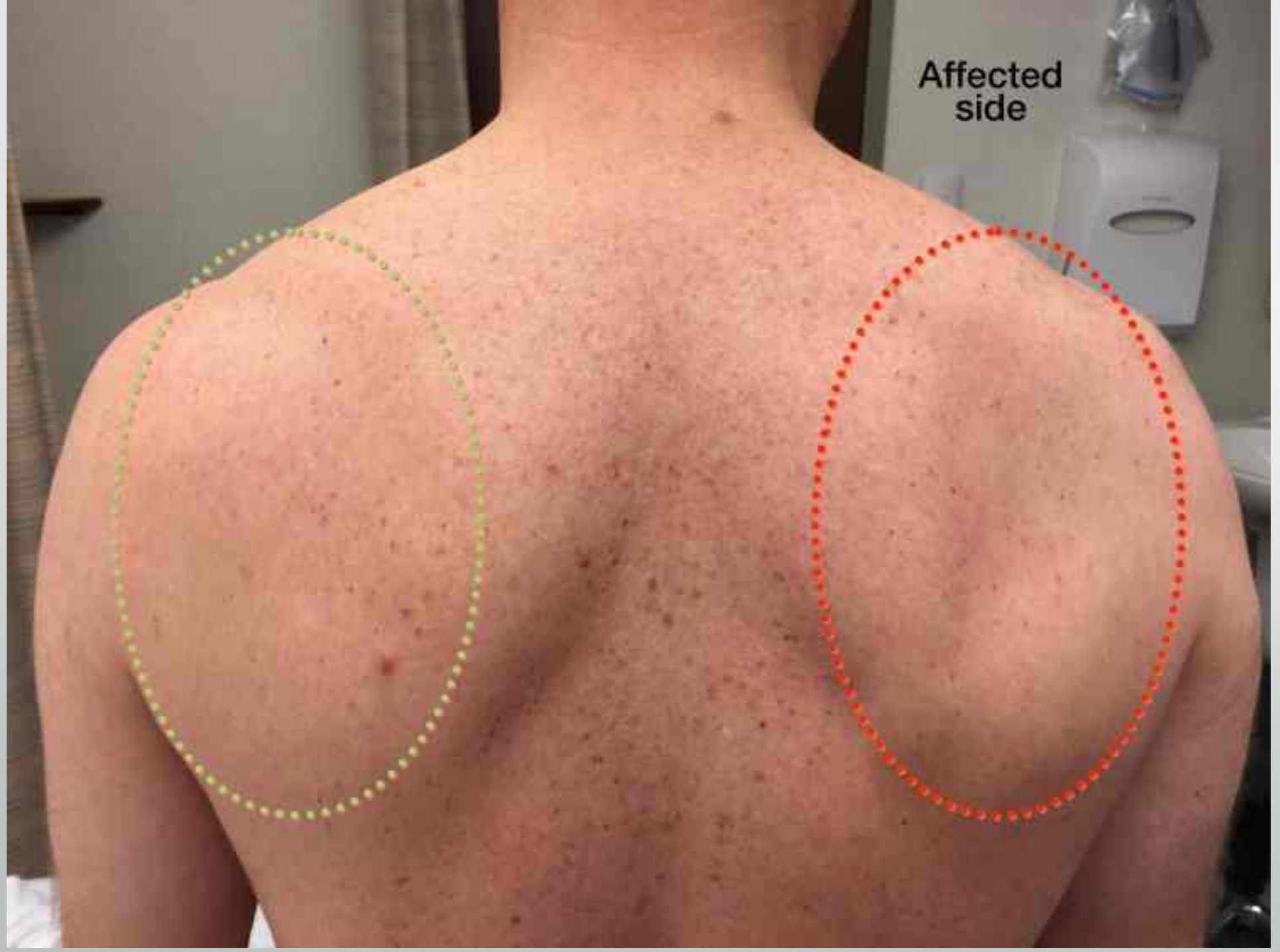
Observation

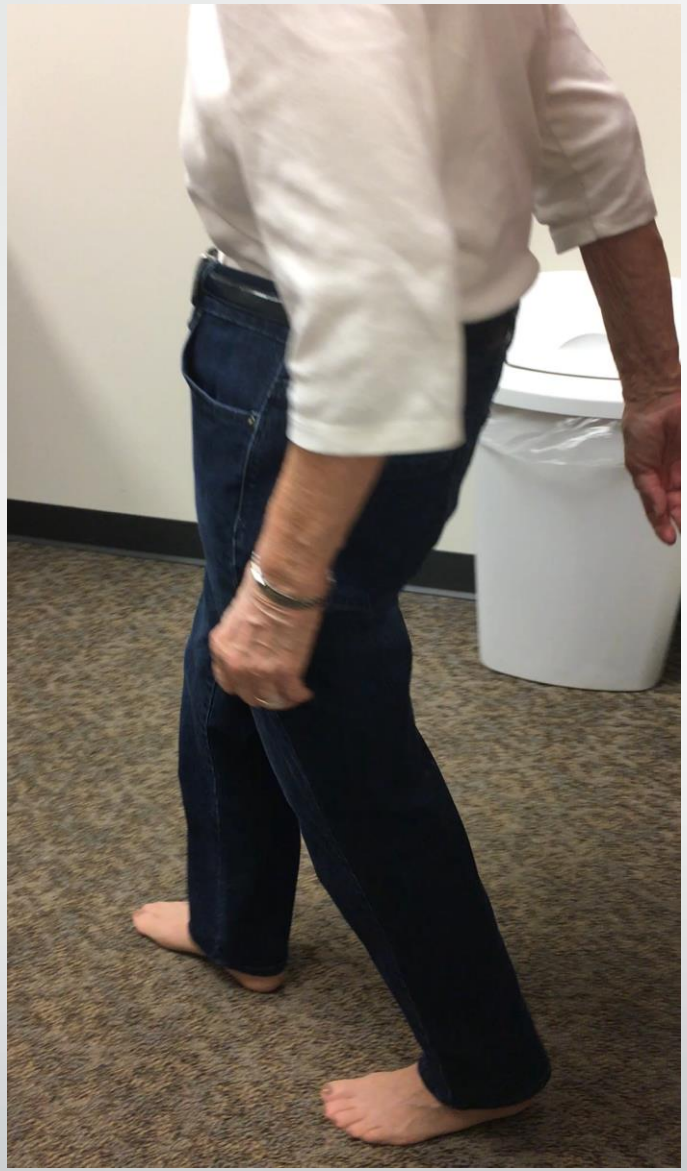
Patient's description in initial call to clinic: *Pain*, *burning*, *numbness*, *tingling*.

When he is seen for his appointment, he has developed this rash with blisters and itching:

Observation

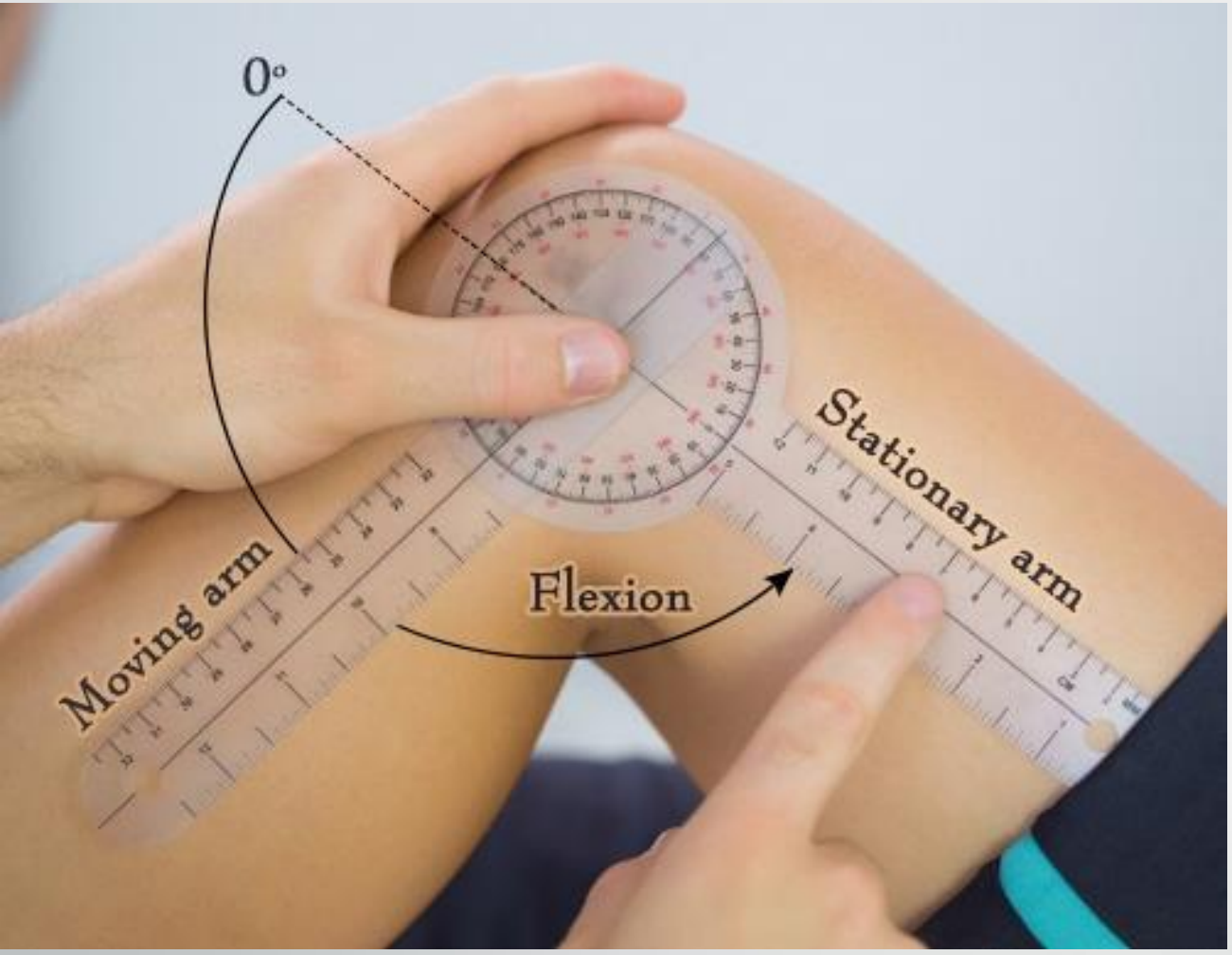
- Skin appearance- breakdown, color, scar
- Swelling, edema, erythema
- Symmetry or asymmetry
- Posture
- Patient affect


Affected
side



Palpation

- 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

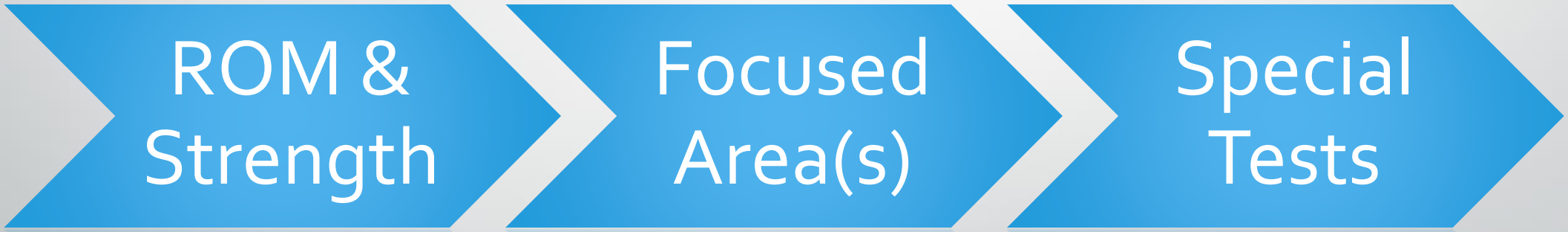
American Spinal Injury Association Strength Grading

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)

Approach to Exam



Upper Limb

Shoulder

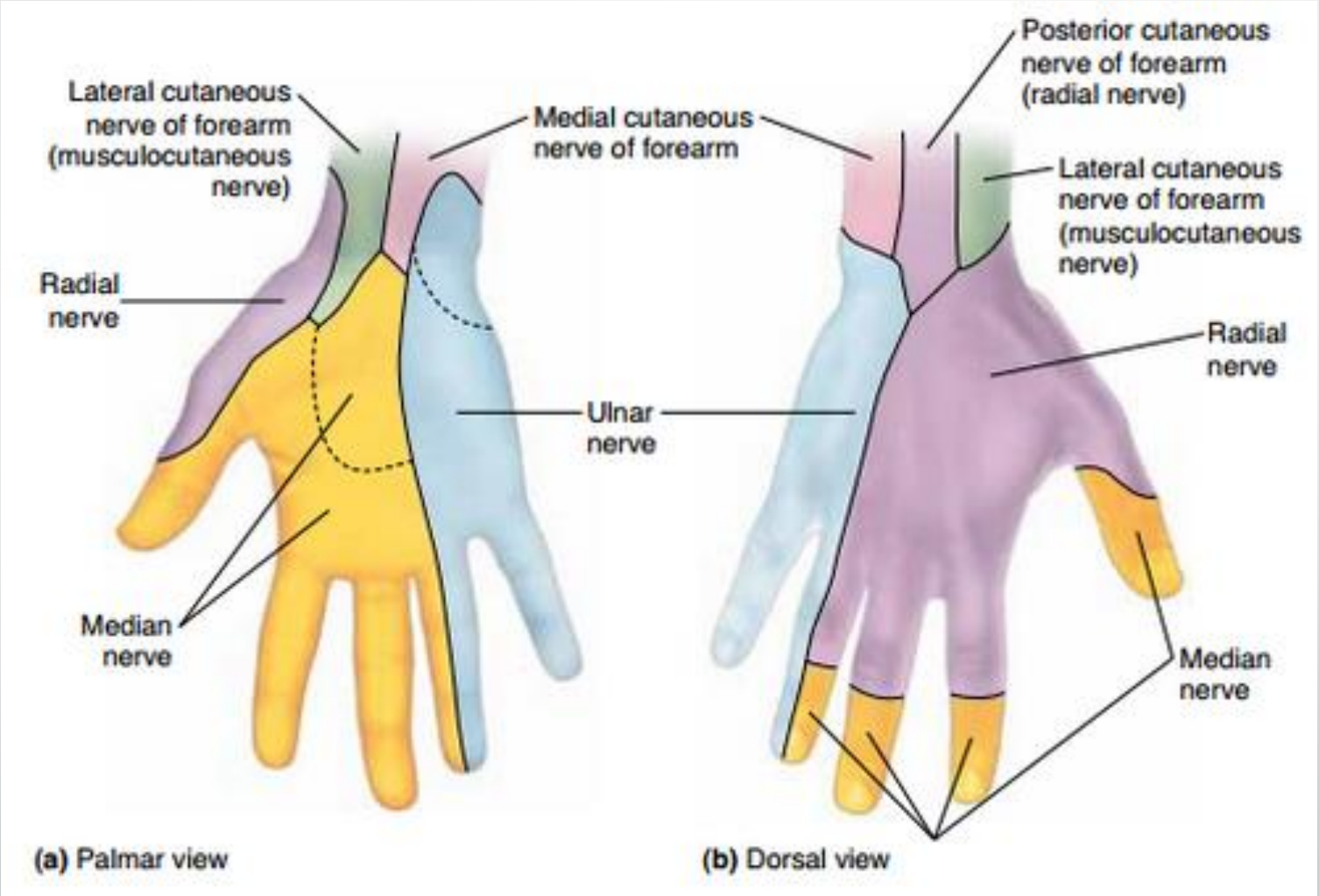
- Very mobile joint with shallow glenoid fossa
- Stability depends on muscles and connective tissue
- Assess posture!
- Special tests: Impingement, Drop Arm, Apprehension, Wall Push-up

Elbow

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

Wrist/Hand

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


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

Prayer sign

Dupytren's contracture

Thenar atrophy


I smile to hide
how completely
overwhelmed
I am.

Lower Limb

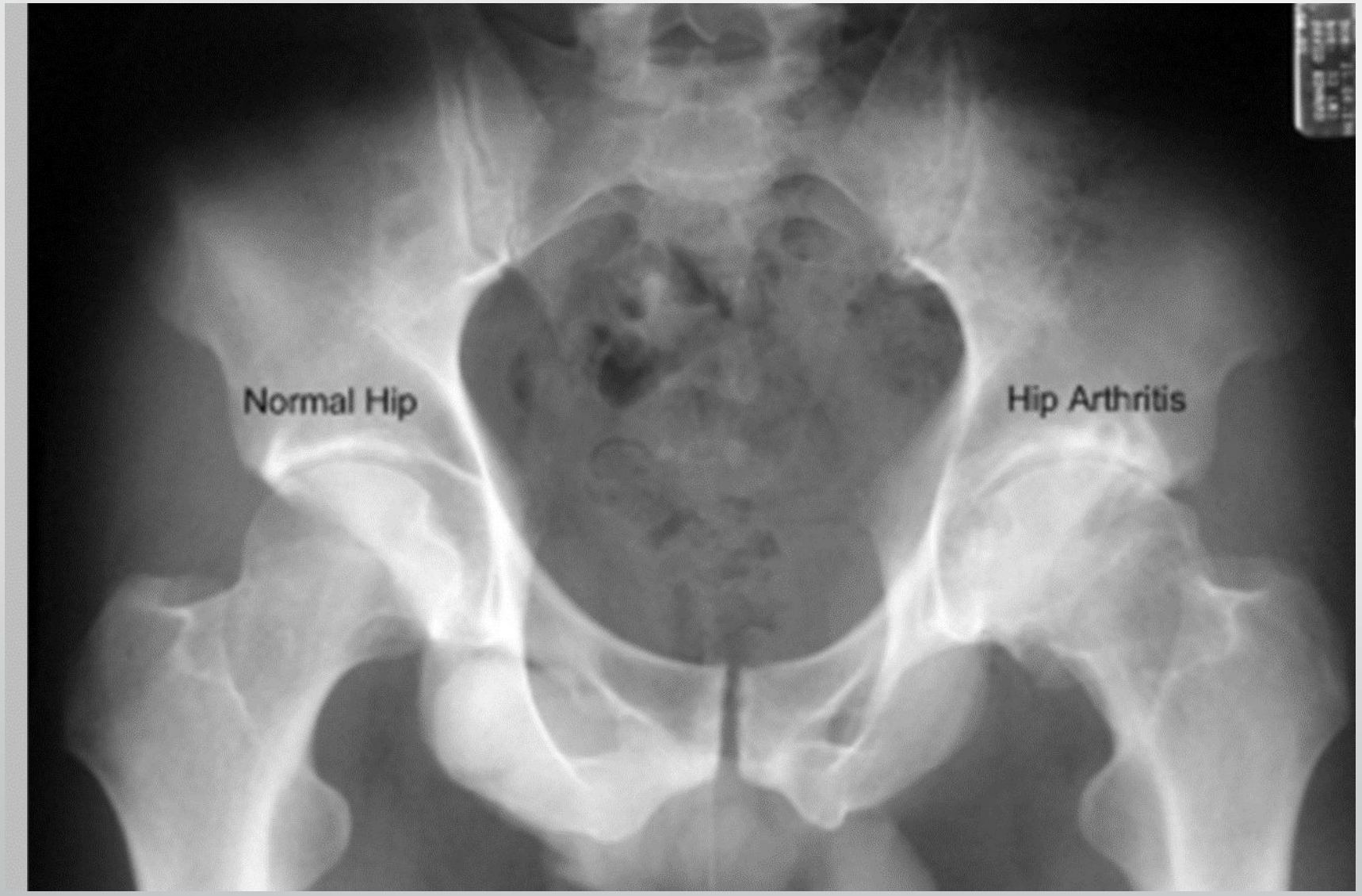
Hip

Pelvic Girdle: 3 joints

Hip joint

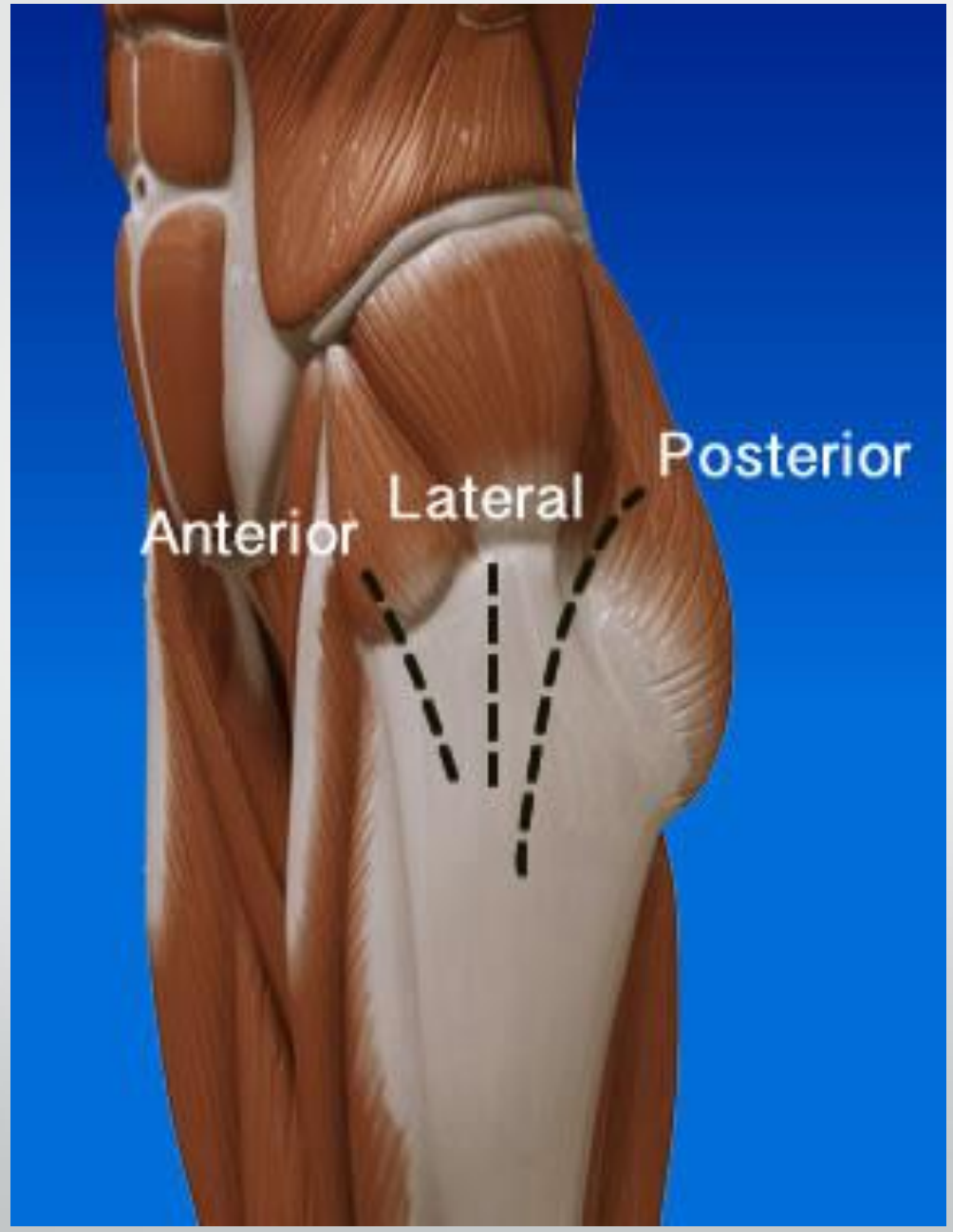
Sacroiliac joint

Pubic symphysis

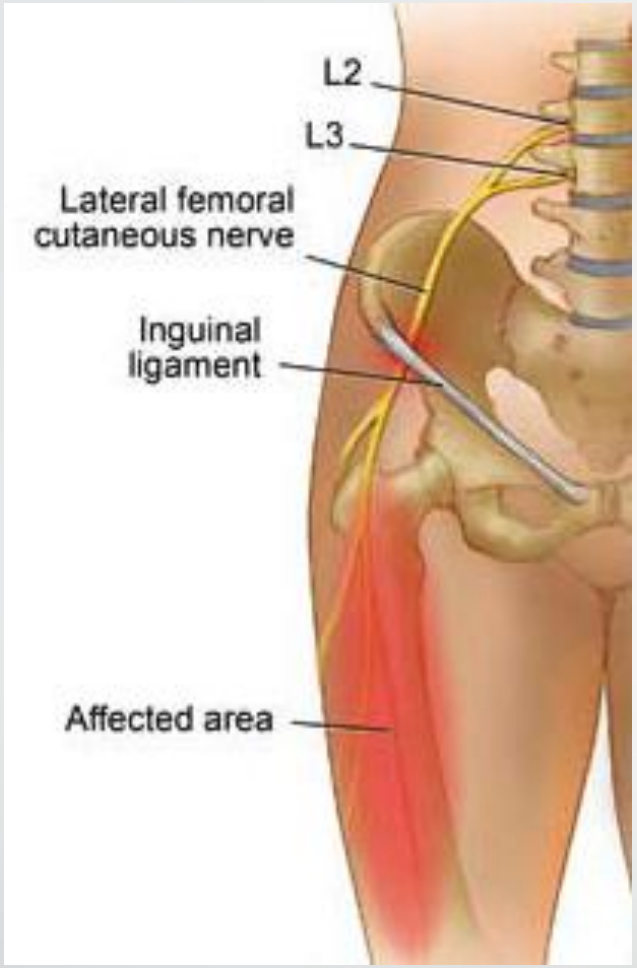

Normal Hip
Hip Arthritis

Hip

- Key point: Identify if pain is from hip joint, a surrounding area, or lumbar spine
- Assess anterior, lateral, and posterior hip
- Special tests: Stinchfield (resisted flexion with extended knee), Faber, Gaenslon, Ober


Anterior
Lateral
Posterior

Meralgia Paresthetica



Trendelenburg Sign

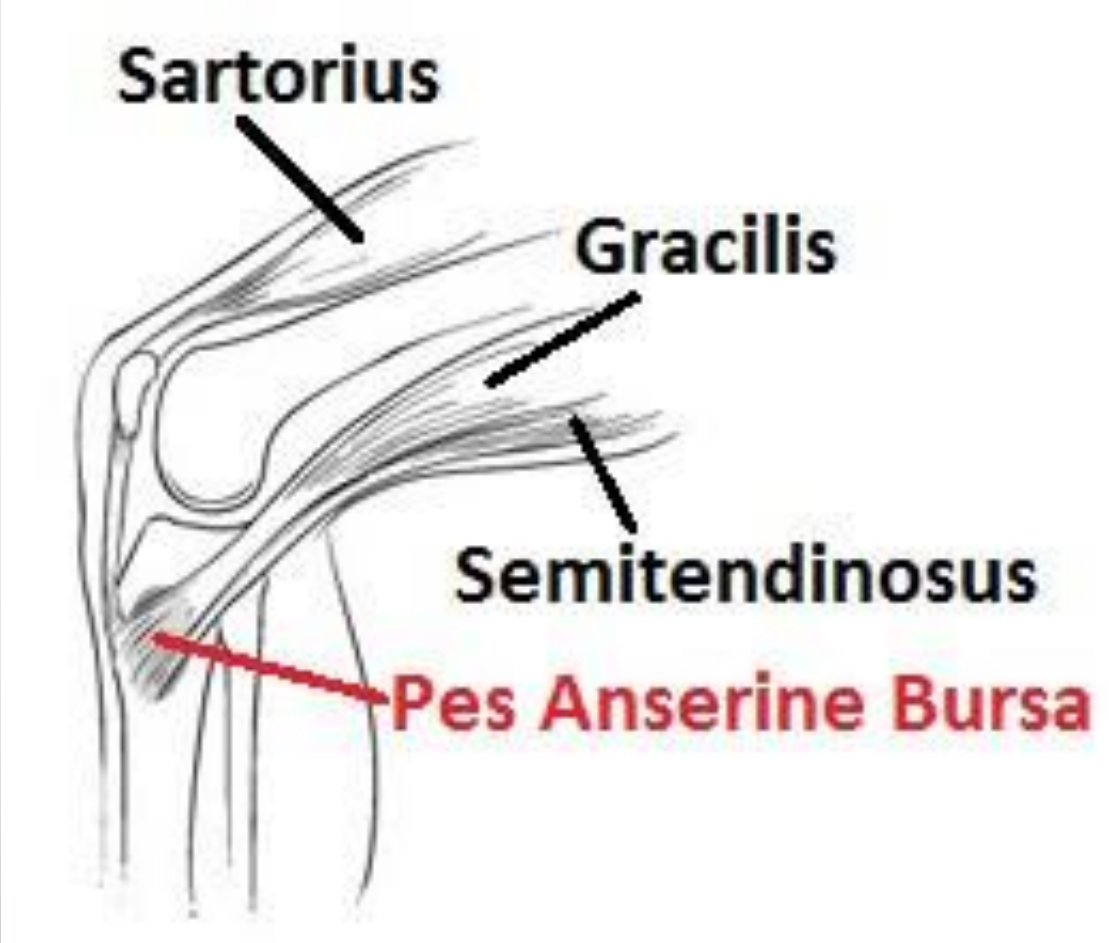
Knee

- Largest joint in the body
- Modified hinge joint
- Greatest range of motion is flexion
- More exposed joint, therefore higher risk of injury

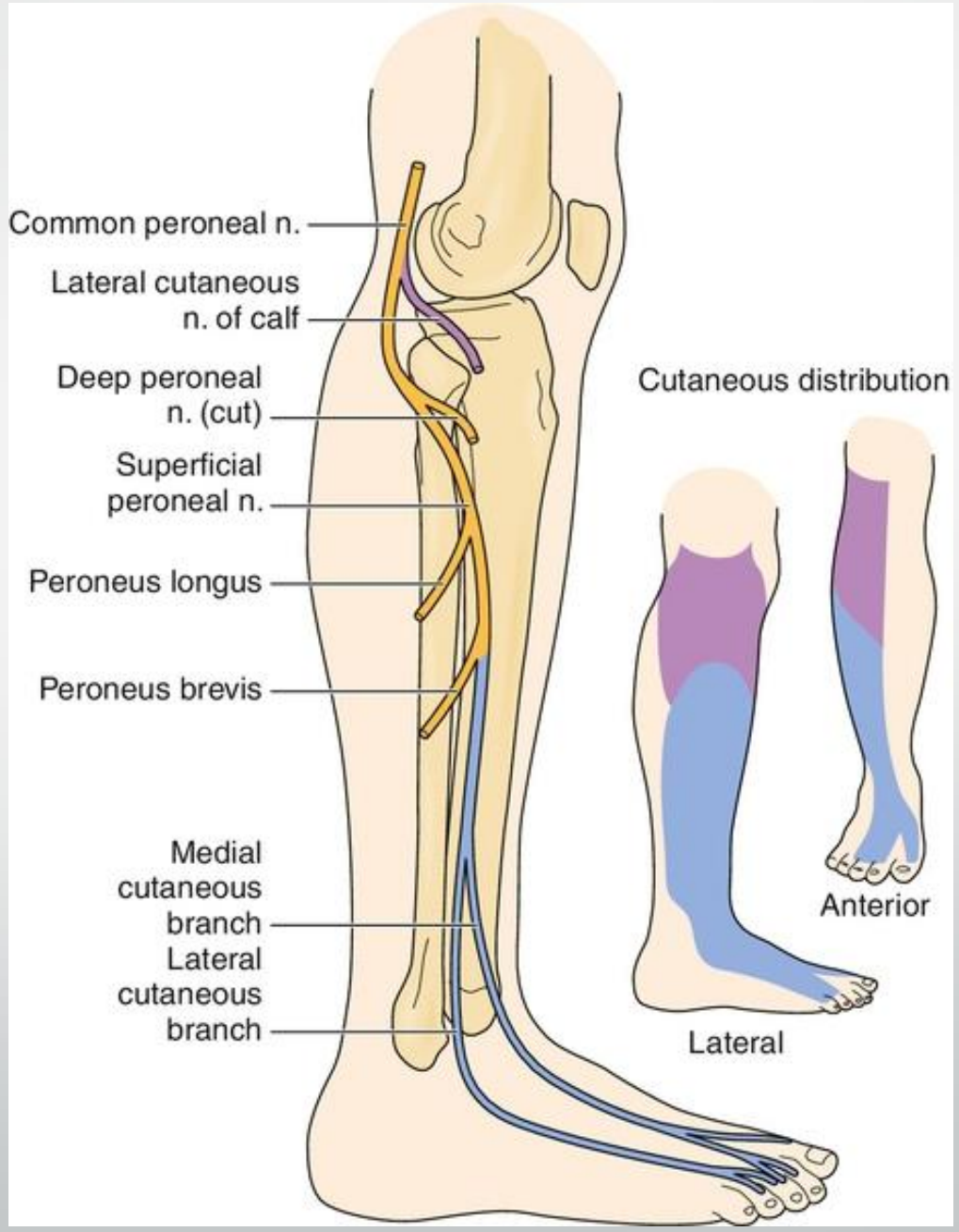
- Meniscal tear testing (McMurray, Apley)
- Ligament stability testing:

  Anterior and posterior cruciate ligaments

  Medial and lateral collateral ligaments


Sartorius
Gracilis
Semitendinosus
Pes Anserine Bursa

Peroneal Neuropathy



Foot/Ankle

- Foot and ankle are focal points of support for the body to weight bear and ambulate
- Heel and toe pads act as shock absorbers for walking and activity
- Complex joints allow for balance on variable terrain

Foot and Ankle

- Include inspection of shoes
- Sensation
- Proprioception
- Arches

Deformed Joint

Pes Planus

Charcot Joint

Foot and Ankle

- Plantar fasciitis: tenderness over the medial tuberosity of the calcaneus, tightness with dorsiflexion
- Morton's Neuroma: Squeeze test- usually between 3rd and 4th metatarsal heads
- Tendinitis: posterior tibial tendon, Achilles tendon
- Bursitis: retrocalcaneal bursa
- Metatarsalgia
- Pes Planus

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:

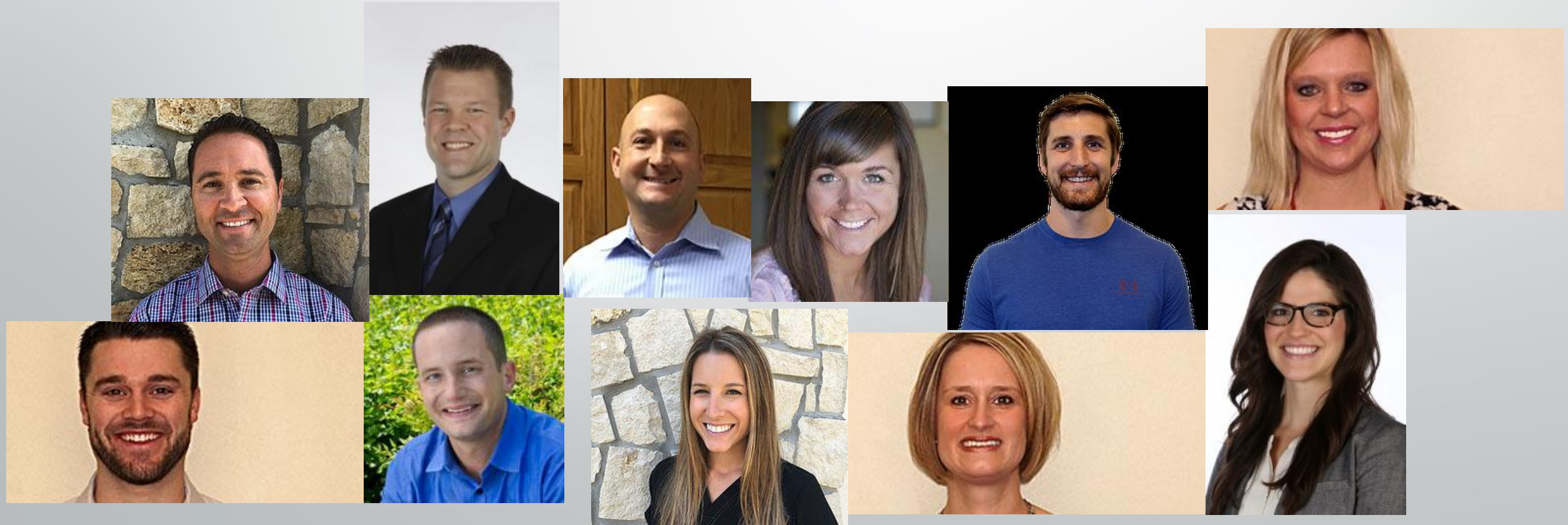
Tenderness at: trochanteric bursa, piriformis, SI joint.

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.

Make friends with a physical therapist!



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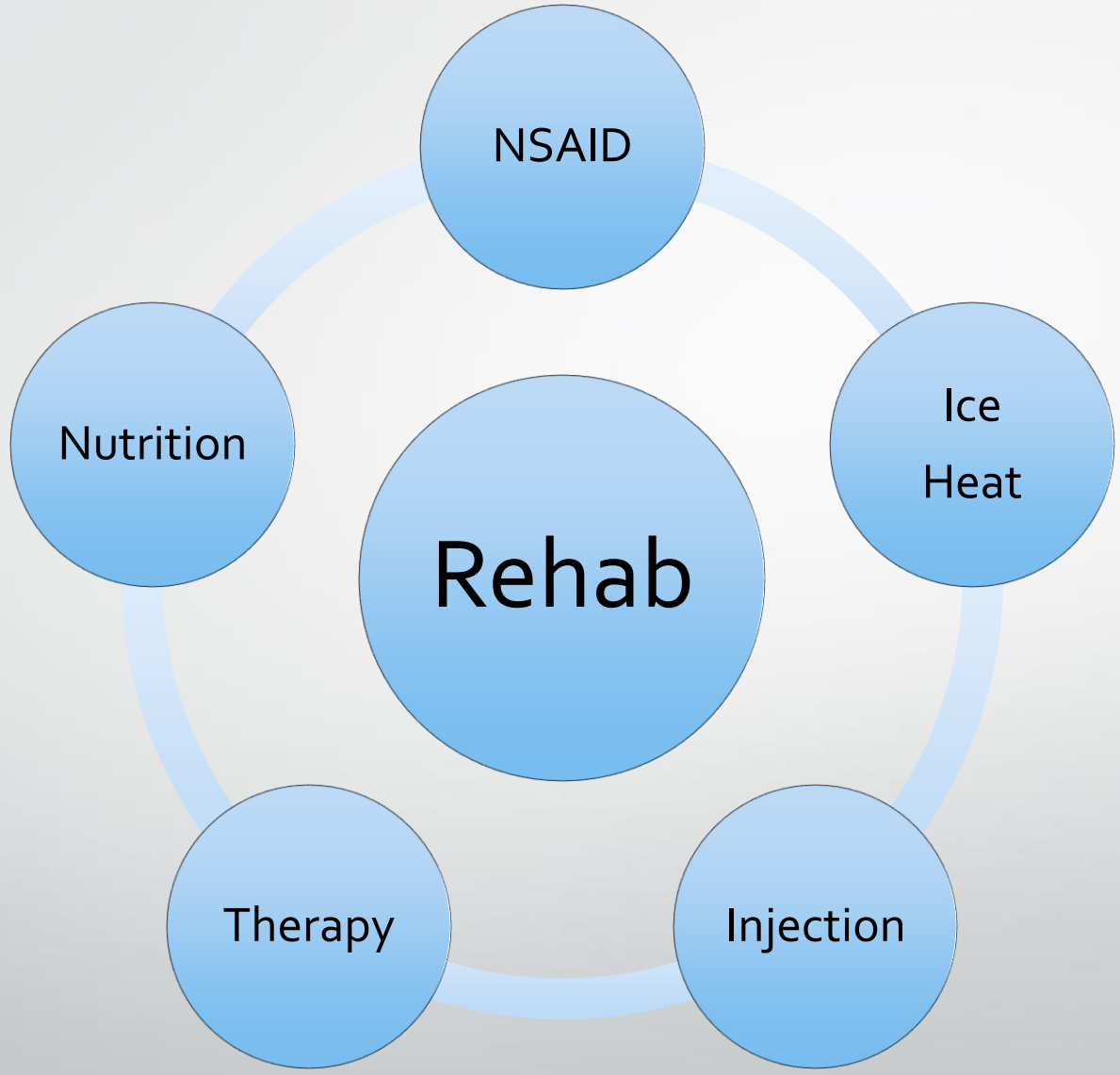
NSAID
Ice
Heat
Injection
Therapy
Nutrition
Rehab