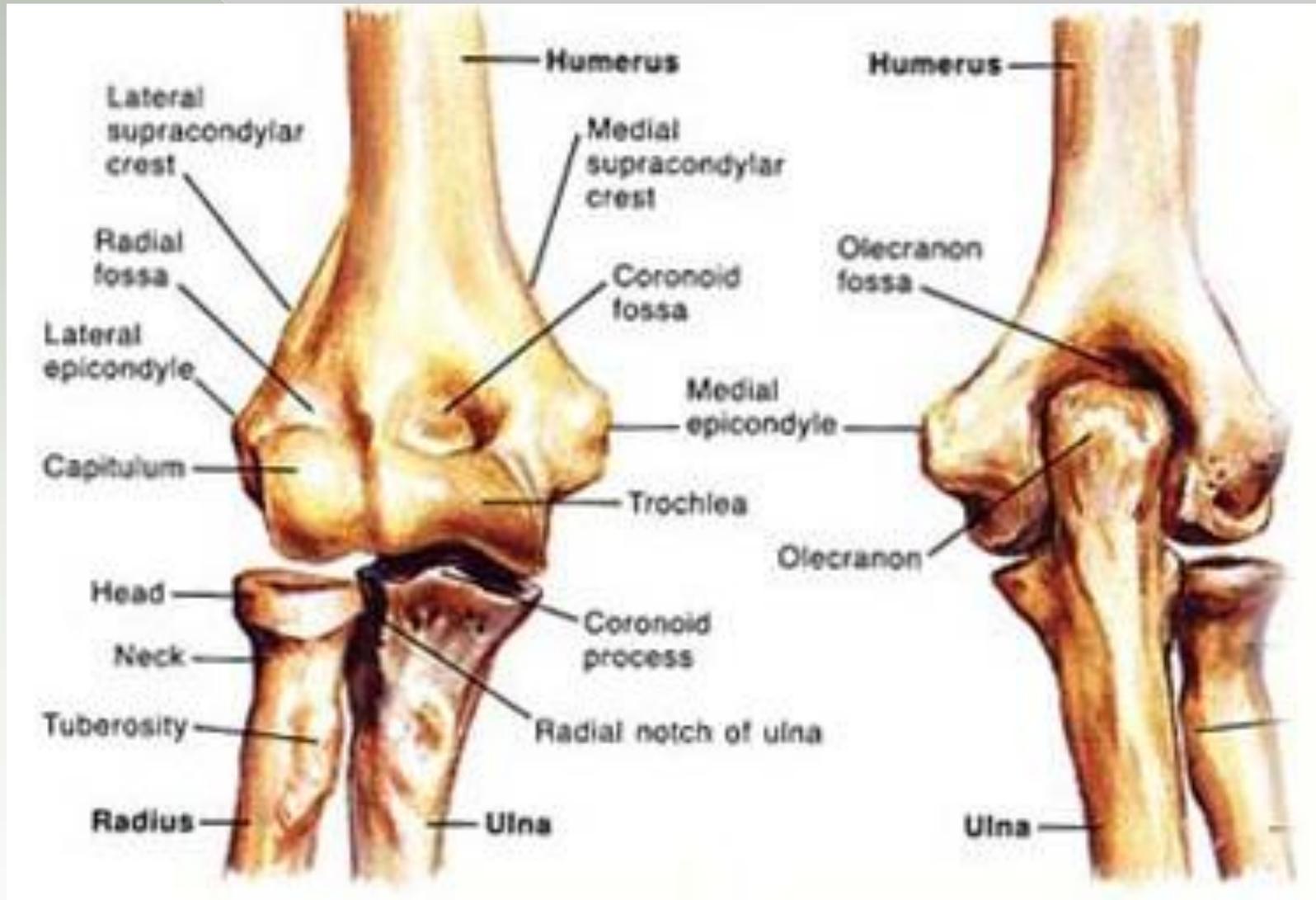


# The Elbow

# Elbow: goals and objectives

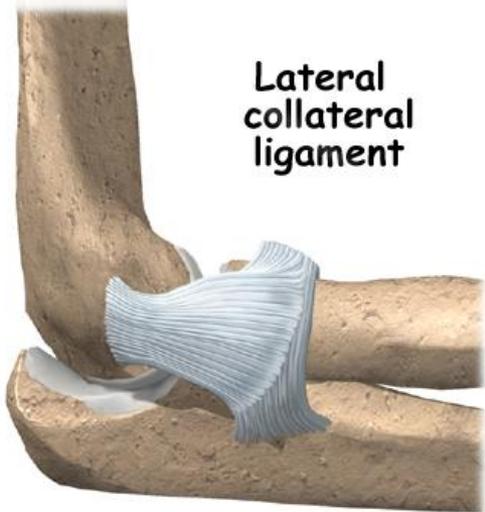
- ◎ Review anatomy of the elbow
- ◎ Discuss the physical exam
  - > Inspection
  - > Palpation
  - > ROM
  - > Provocative Tests
- ◎ Recognize common elbow injuries
- ◎ Learn some common causes of elbow pain

# Anatomy: Bones



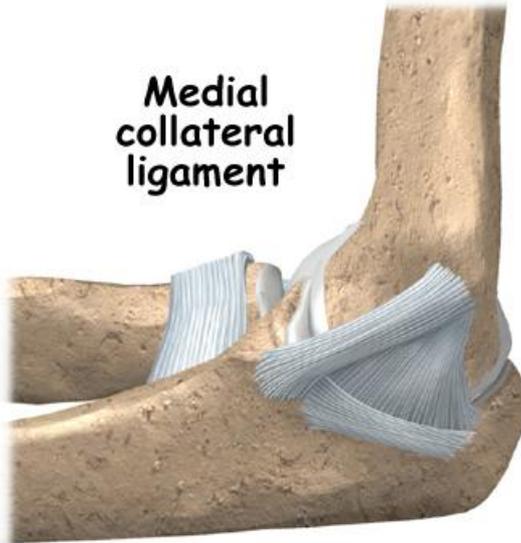
# Anatomy: Ligaments

Lateral  
collateral  
ligament



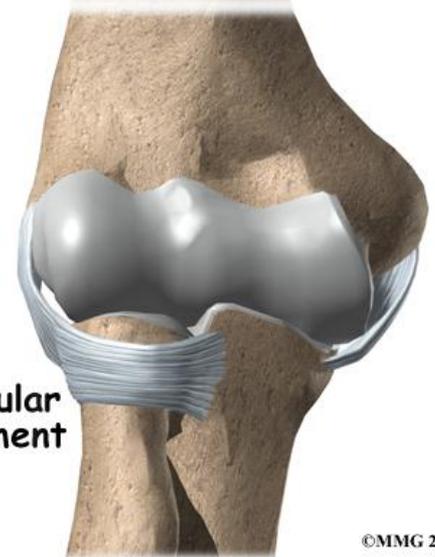
©MMG 2001

Medial  
collateral  
ligament



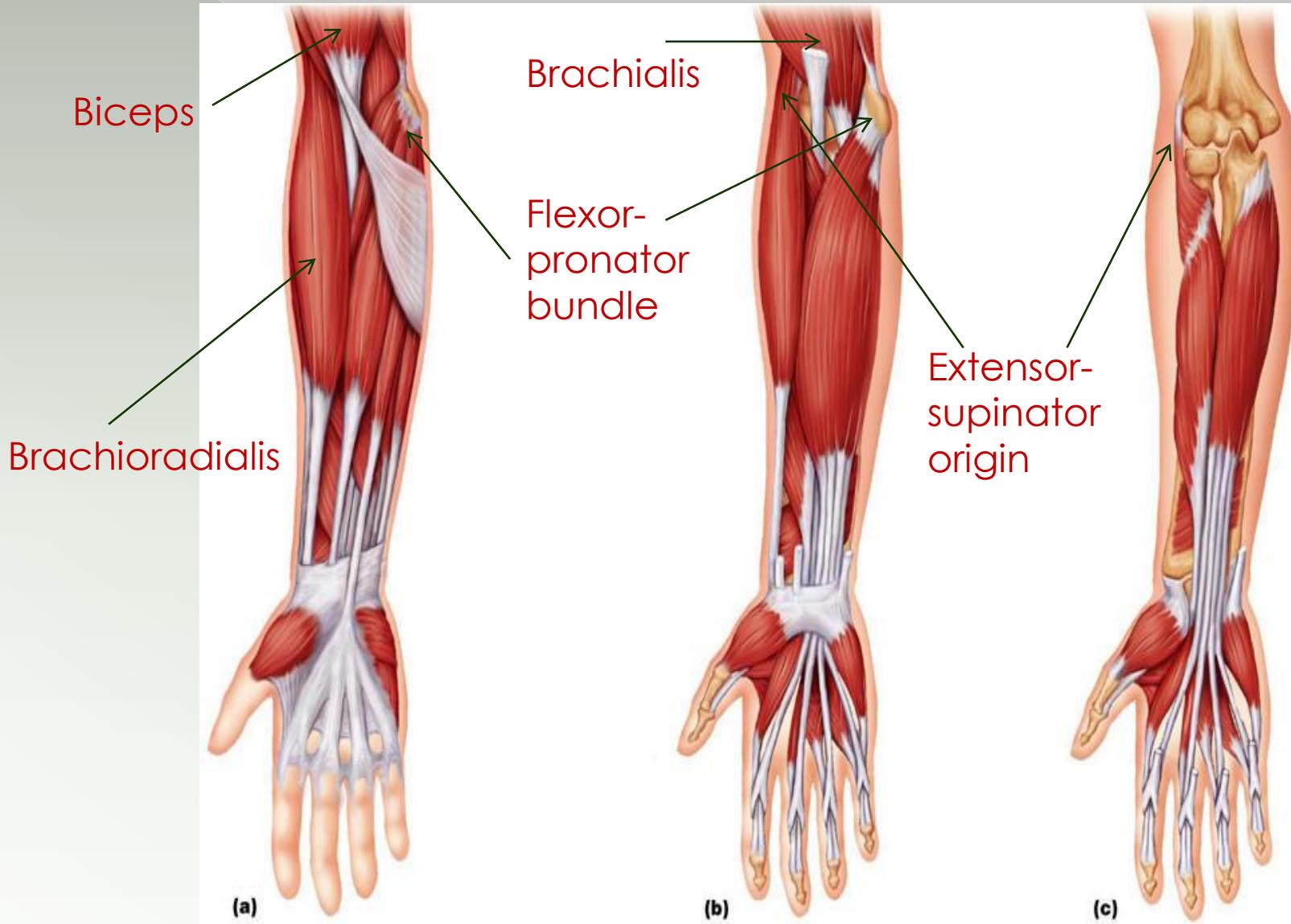
©MMG 2001

Annular  
ligament



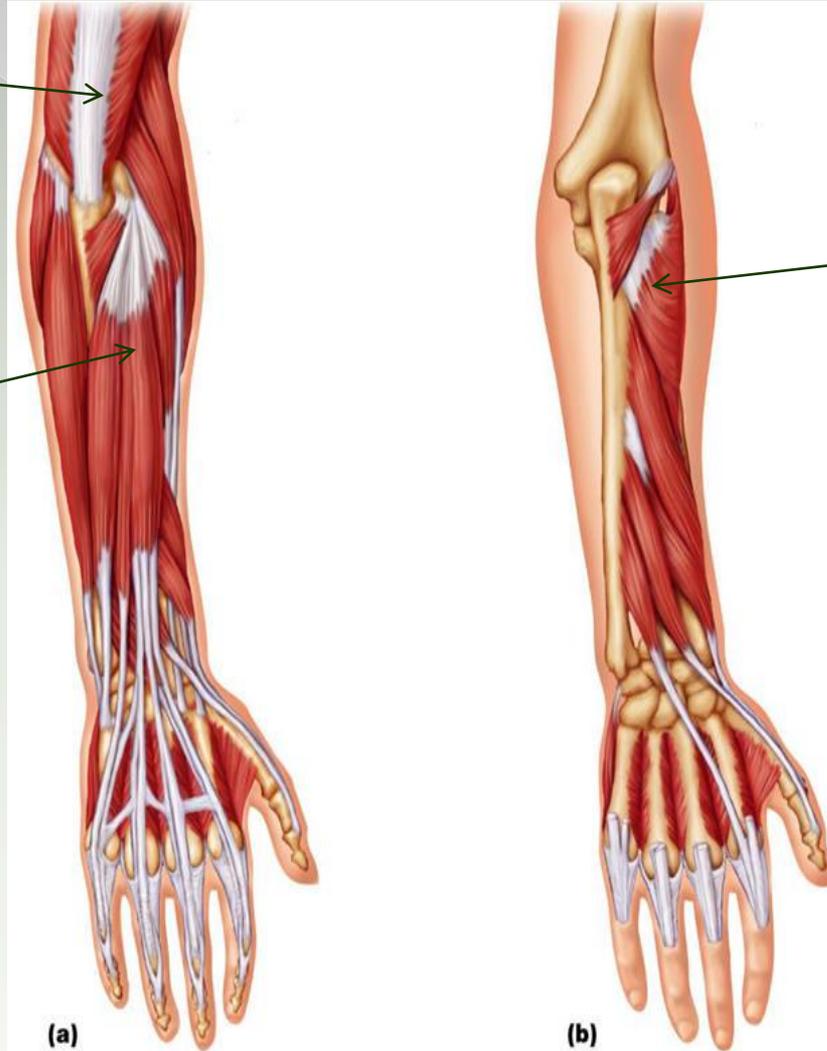
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# Anatomy: Muscles



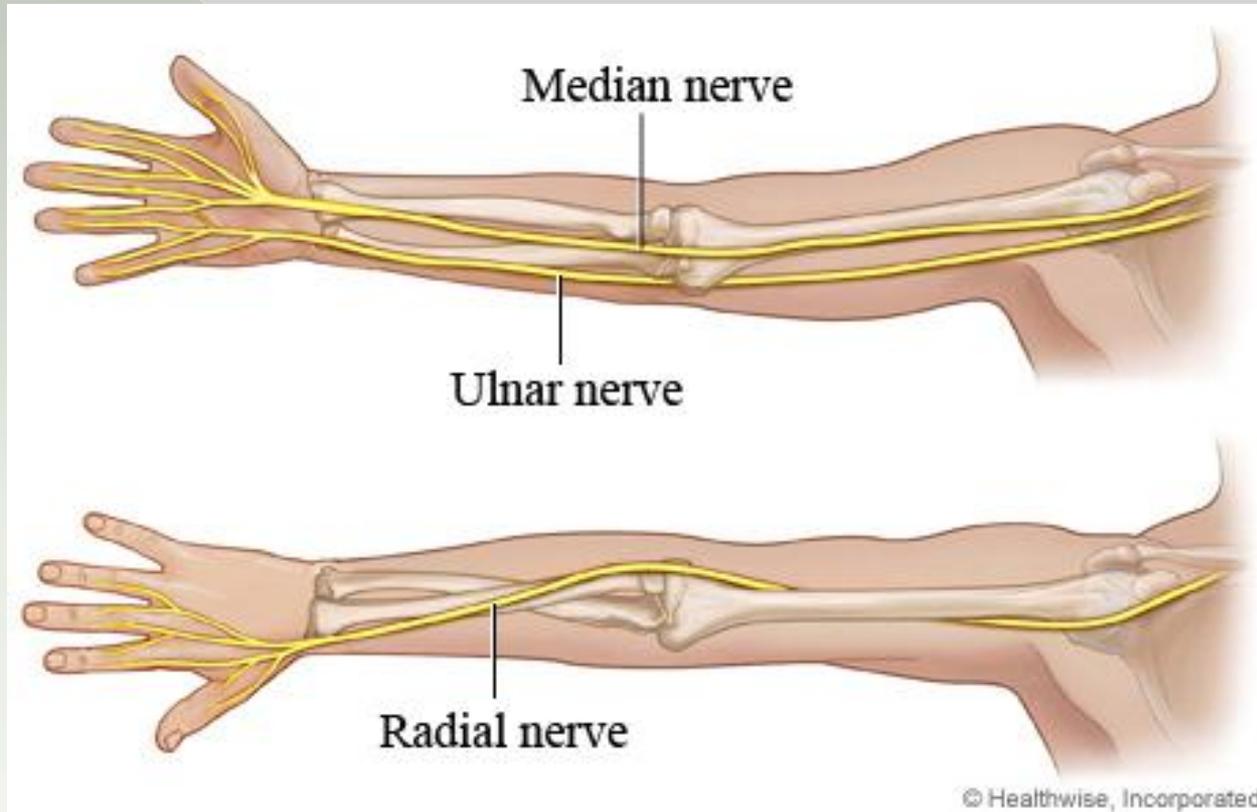
# Anatomy: Muscles

Triceps  
Extensors



Supinator

# Anatomy: nerves

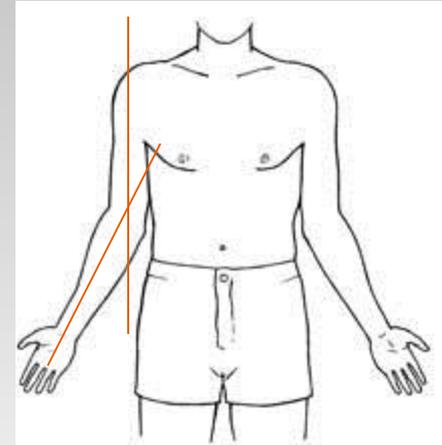


# Physical Exam

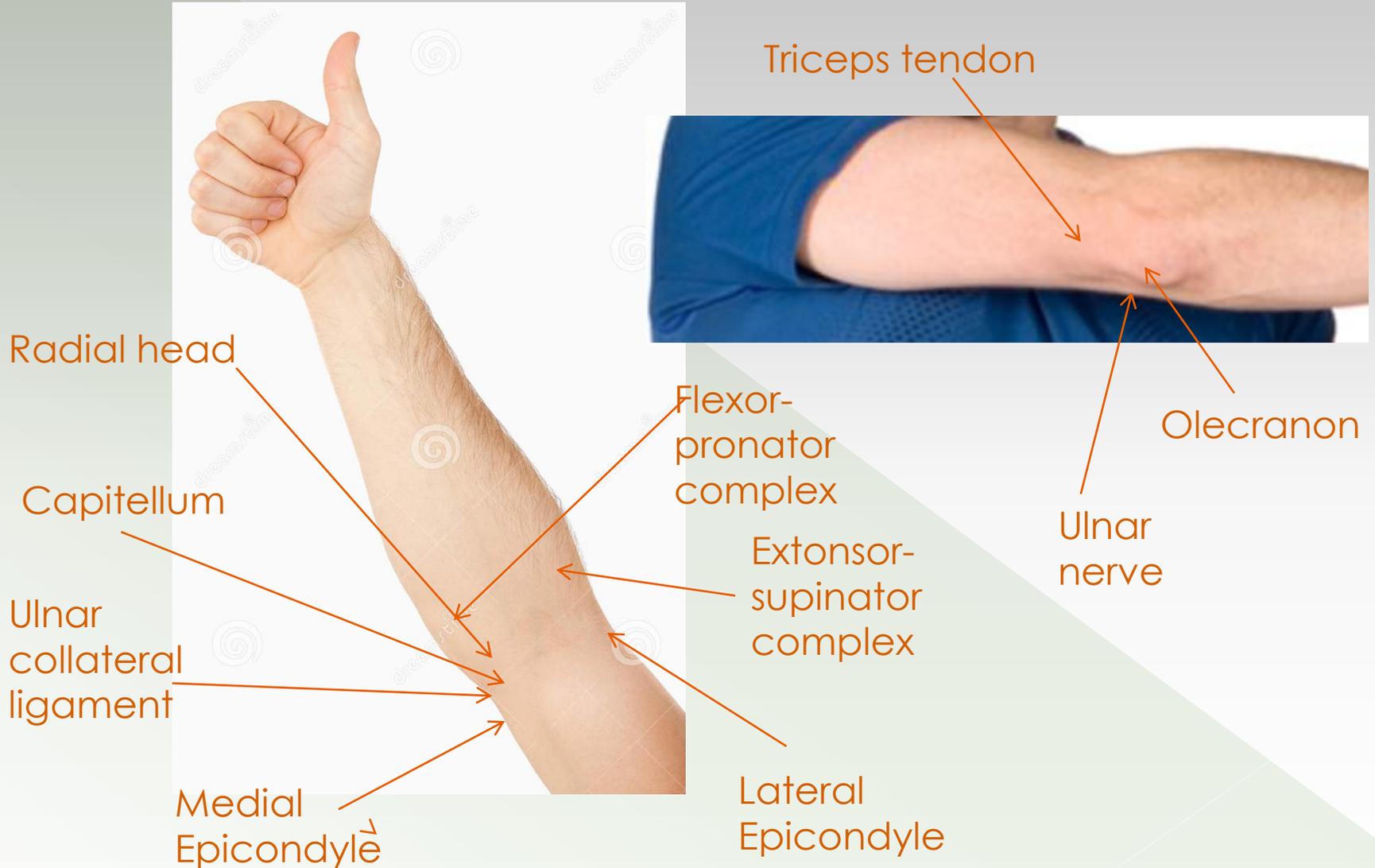
- ◎ Inspection
- ◎ Palpation
- ◎ Range of Motion
  - > Active
  - > Passive
  - > Resisted
- ◎ Provocative Tests

# Physical exam: inspection

- Bruising
- Swelling
- Carrying angle
- Masses
  - > Biceps tendon rupture
  - > Rheumatoid nodules



# Physical Exam: Palpation



# Physical Exam: ROM

- Elbow

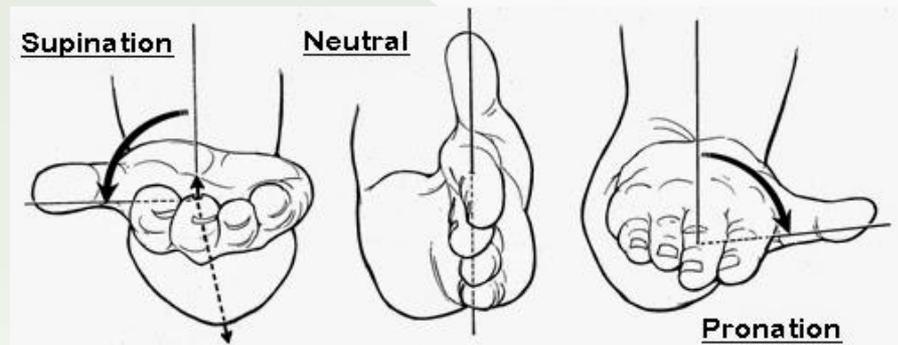
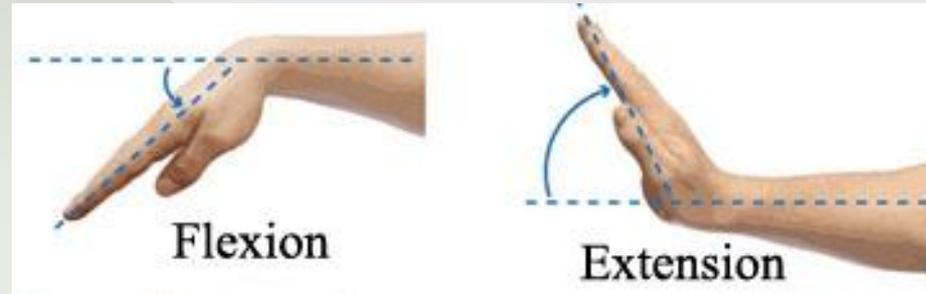
- > Flexion
- > Extension

- Radio-ulnar/wrist

- > Supination
- > Pronation

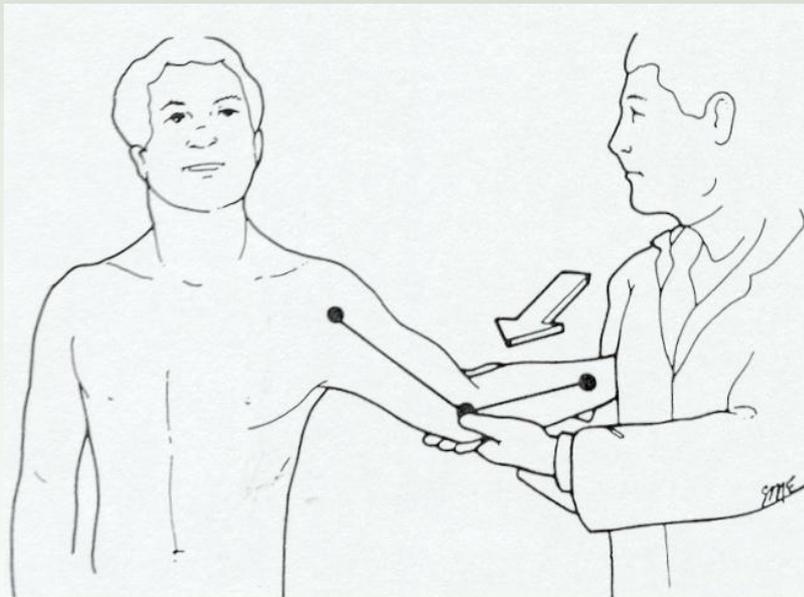
- Wrist

- > Flexion
- > Extension



# Physical Exam: Provocative Tests

- ◉ Valgus stress: stability of UCL
  - > Increased opening
  - > Milking maneuver



# Elbow Injuries: fractures

- ◎ Beware of normal ossification



# Elbow Injuries: fractures

## ◎ Supracondylar fractures

- > Mechanism: FOOSH or direct trauma
- > Risk on neurovascular injury if displaced
- > Imaging findings: fat pad, sail sign, assess anterior humeral line



# Elbow Injuries: fractures

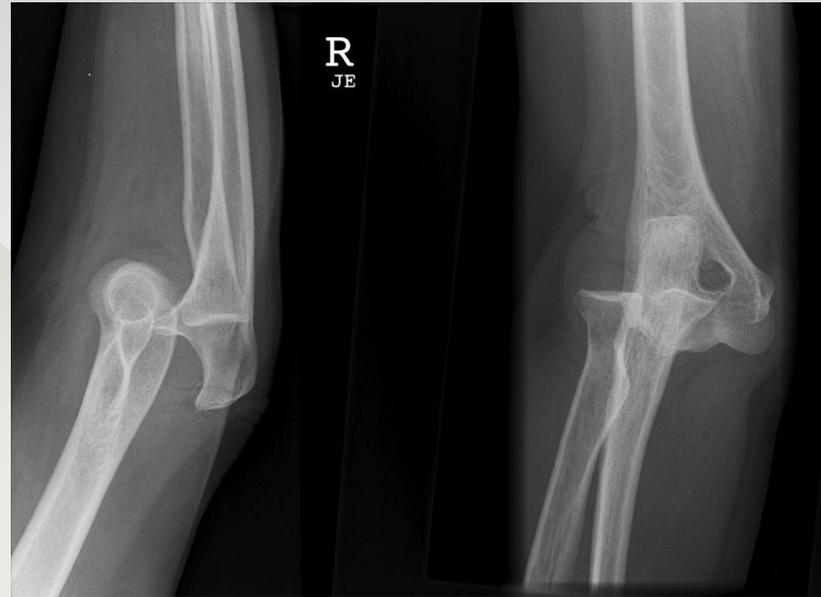
## ◉ Monteggia fracture

- > Ulnar fracture with radial head dislocation
- > Radius should align with capitellum



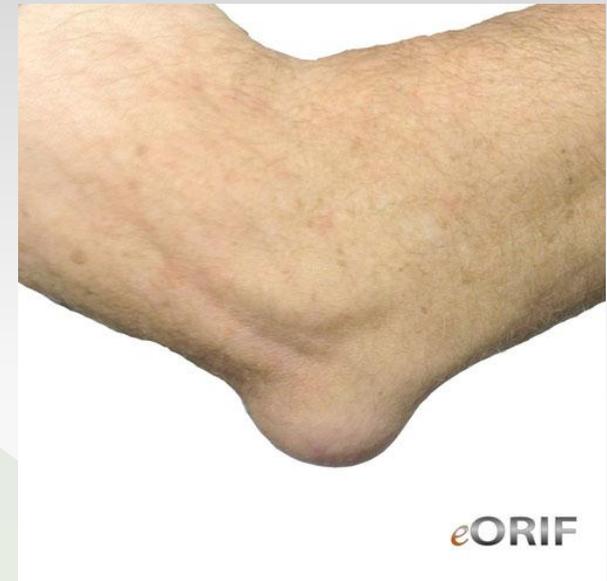
# Elbow Injuries: dislocations

- ◎ Posteriolateral most common



# Elbow injuries: olecranon bursitis

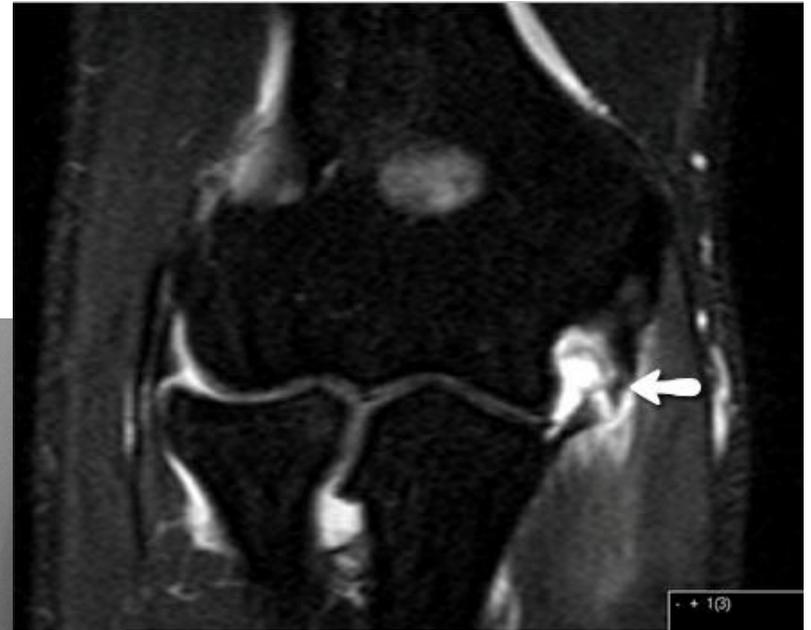
- Can be traumatic or from prolonged pressure; can be infected
- Associated with rheumatoid arthritis or gout
- Swelling at posterior elbow
- Treatment: protection, NSAIDs, drainage and/or steroid injection



# Elbow pain: little league elbow

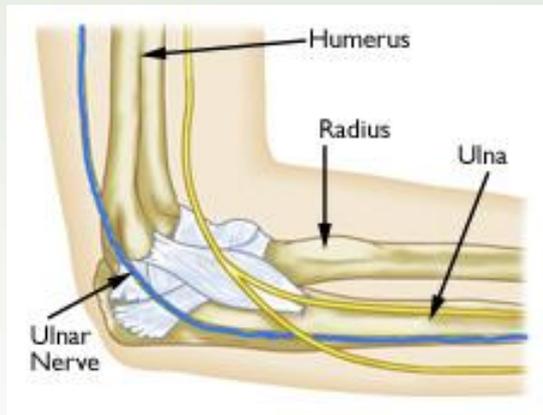
- Injuries depend on age and bone maturity
  - > Children: medial epicondyle apophysitis
  - > Adolescents: medial epicondyle avulsion
  - > Young adults: UCL tear
- Symptoms: medial elbow pain, decreased throwing velocity
- Positive pain +/- laxity with valgus stress, positive milking maneuver

# Elbow pain



# Elbow Pain: ulnar neuritis

- Compression of the ulnar nerve as it travels across the elbow
  - > From prolonged elbow flexion or leaning on elbow
  - > Compression from bone spur, cyst, or swelling
- Symptoms: ulnar nerve tingling/numbness or weakness of hand muscles



# Elbow Pain: ulnar neuritis

- ⦿ Exam: positive tinnel's over cubital tunnel
- ⦿ Treatment: NSIADs, splints, cortisone injections, splints
- ⦿ Surgery: cubital tunnel release, ulnar nerve transposition

# Elbow Pain: osteochondritis dissecans

- Most commonly in the capitellum
- Occurs in adolescents, associated with overuse (throwers and gymnasts)



# Elbow Pain: osteochondritis dissecans

- Symptoms: pain, mechanical
- Exam: lateral pain, swelling, loss of ROM
- Treatment: conservative vs. surgical

# Elbow Pain: Lateral epicondylitis

- Aka Tennis elbow
- Mechanism: repetitive pronation and supination with elbow in extension
- Microtears of extensor muscles at their origin (most commonly ECRB)
- May involve radial nerve



# Elbow Pain: Lateral epicondylitis

- Symptoms: pain with wrist extension or grip, decreased grip strength
- Exam: pain over or just distal to lateral epicondyle, pain with resisted wrist extension with elbow in extension, pain with finger extension
- Treatment: modify activity (looser strings on racket, larger grip), NSAIDs, PT, steroid injections, strap, surgery



# Elbow: summary

- ⦿ Remember anatomy as you think through a differential
  - ⦿ Use your physical exam to determine the location and provocation of the pain
  - ⦿ Keep in mind normal development
- ⦿ Questions!