



The Royal Orthopaedic Hospital **NHS**  
NHS Foundation Trust

# **INJURIES** **OF THE** **WEEKEND** **WARRIOR**

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# Injuries of the Weekend Warrior

## Objectives:

1. Define the Weekend Warrior
2. Identify Weekend Warrior activities that lead to injuries
3. Describe the history and physical exam findings of Weekend Warrior injuries
4. Discuss the appropriate management of Weekend Warrior injuries



# Who is the Weekend Warrior?

- A person who does strenuous physical activity only on the weekends or part-time
- Anyone who is not a paid athlete!  
(excluding conditioned athletes in college or university)
- Does not have to be sports activities



# Activities that lead to injuries

1. Sports related
  2. Work-out related
  3. Activity related
  4. Intellect related
- Typical clinical scenario for the common injuries



# Sports Related | *Work-out related | Activity related | Intellect related*



- 36 y/o male plays rugby with a bunch of guys on Boxing Day
- Twisting injury to his knee and he heard a “pop”
- Pain and swelling immediately
- No previous knee injuries



# ACL Tear

- **Mechanisms of Injury**

- Valgus Injuries
- Pivoting Injuries

- **Diagnosis**

- Physical Examination
  - Lachman, Anterior Drawer
  - **Acute** (1-2 hours) Bloody Effusion
- MRI

- **Treatment**

- Non-surgical vs. Surgical

- Associated with medial meniscal tear and MCL rupture – “Bloody Triad”



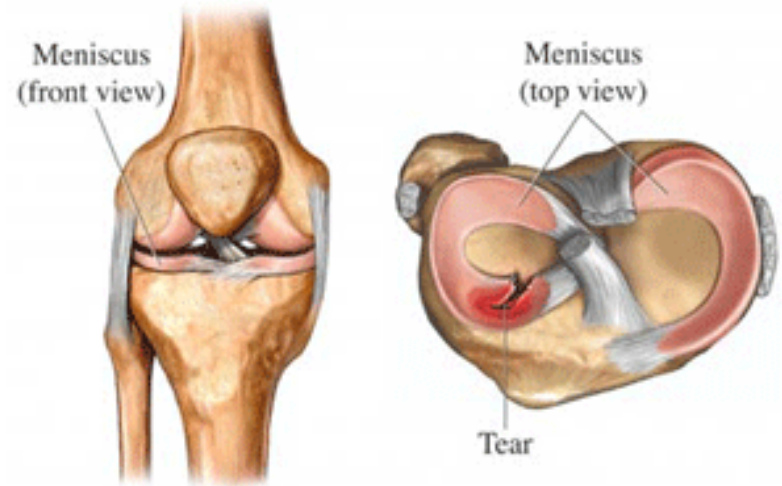
# Meniscal Injuries

## Diagnosis

- History
  - Twisting injury
  - Effusion over 1-2 days
- Exam
  - Joint line tenderness
  - McMurray's +
- MRI

## Treatment

- Conservative vs. arthroscopic repair vs. meniscectomy



# Examination of the Collateral Ligaments

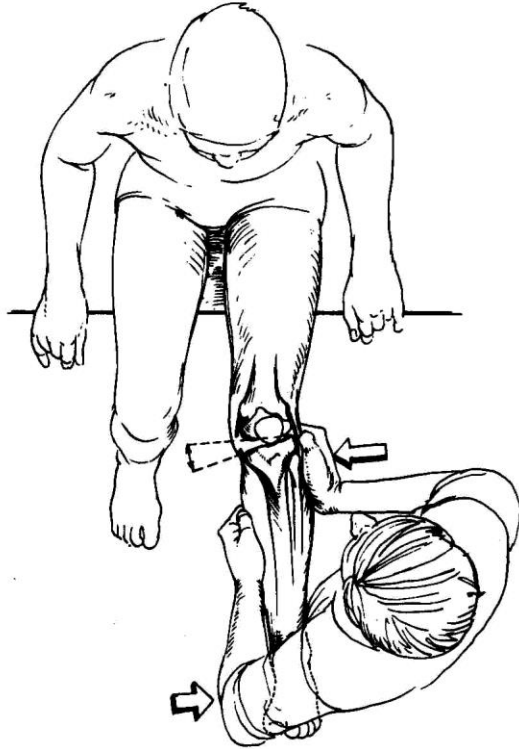


Fig 44. To test the medial collateral ligament, apply valgus stress to open the knee joint on the medial side

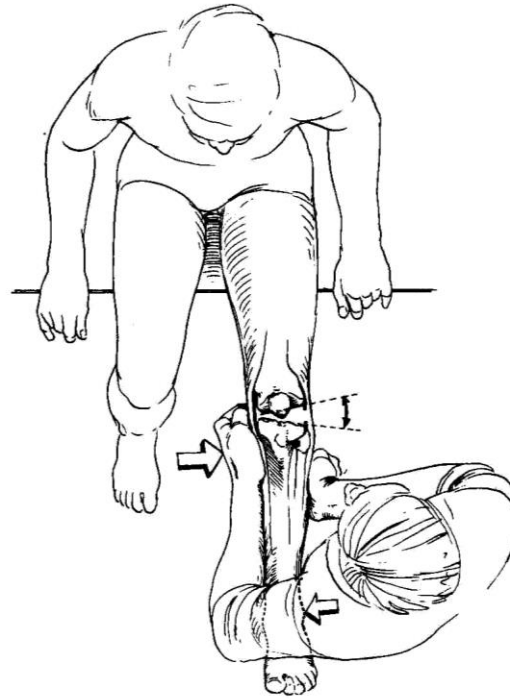


Fig 45. To test the lateral knee for stability, apply varus stress to open the knee joint on the lateral side



# Examination of the Medial Meniscus

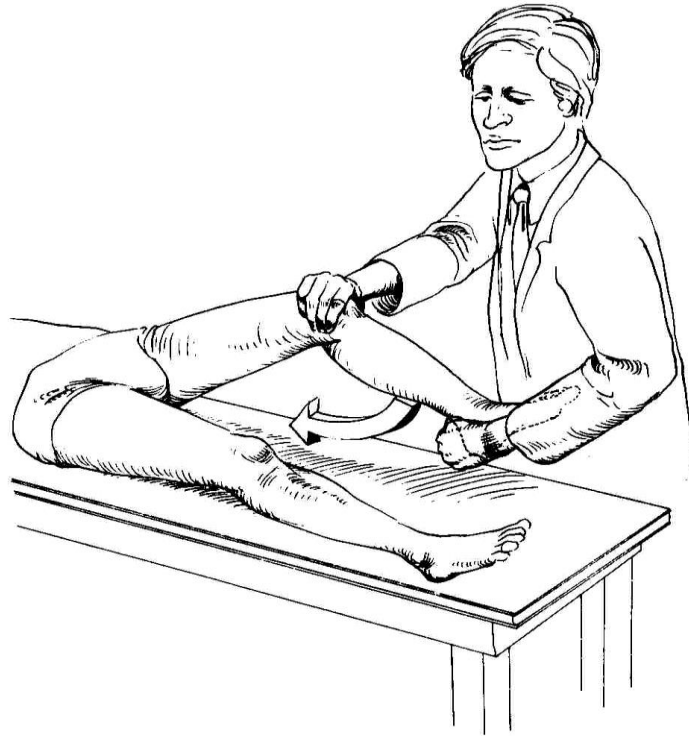


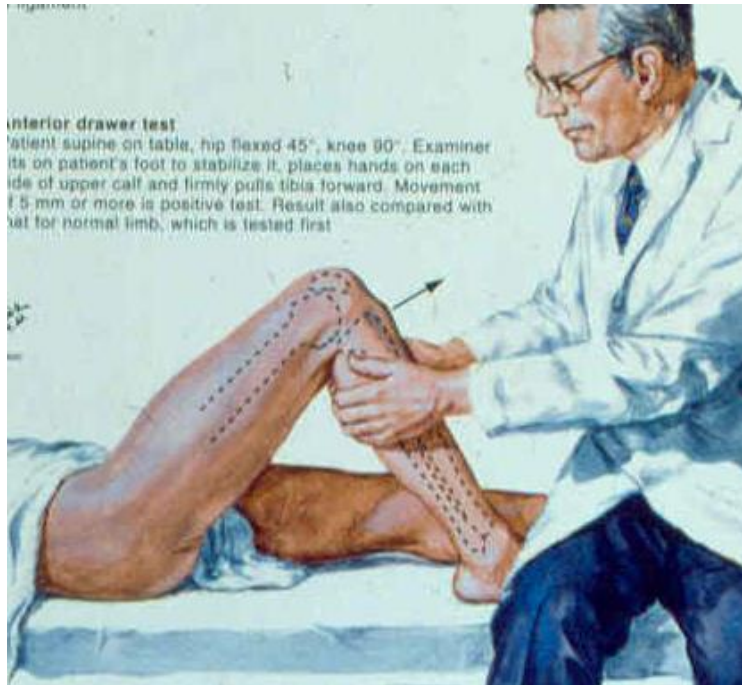
Fig 58. The McMurray test for meniscal tears. Flex the knee



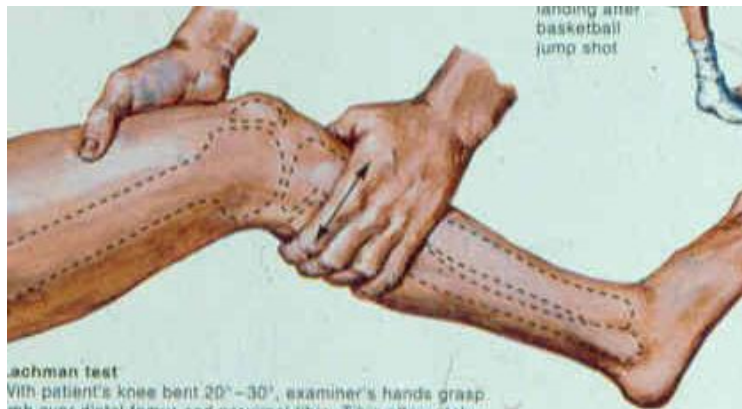
Fig 59. With the knee flexed, internally rotate the tibia on the femur



# Anterior Drawer



# Lachman's



# Sports Related | *Work-out related | Activity related | Intellect related*



- 47 y/o male playing football with some buddies
- Went for a goal kick and came down twisting his ankle
- Did not feel or hear a “pop”
- Ankle swelled and now he can’t walk on it



# Ankle Sprain

Inversion – most common

Eversion

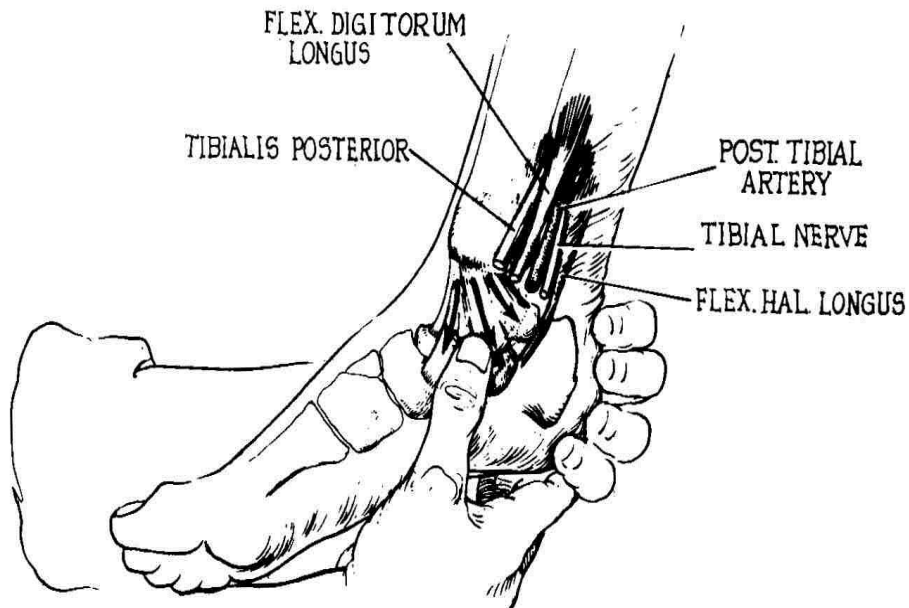
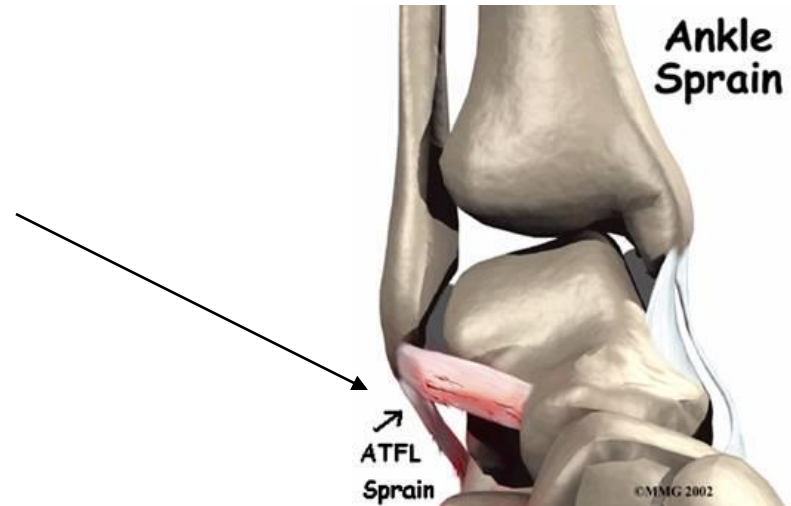


Fig. 38. The deltoid ligament.

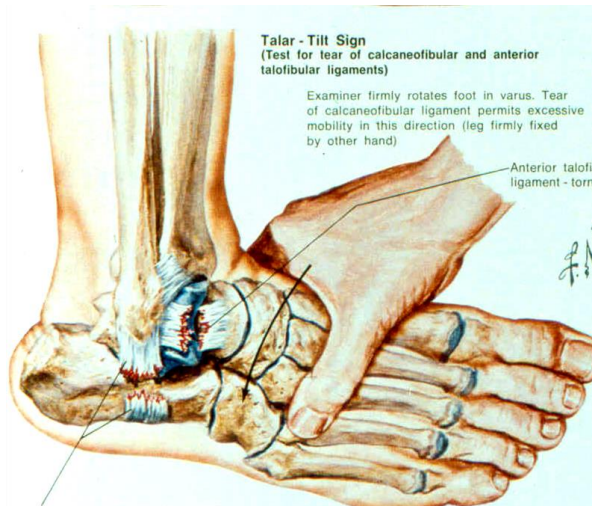
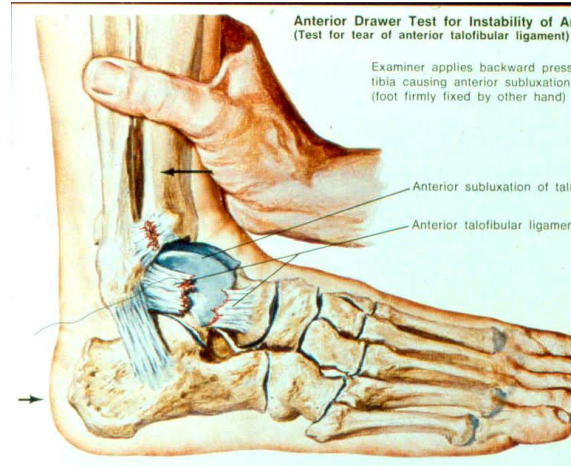




# Ankle Sprain

## PE Findings

- Drawer test
- Talar tilt test



# Ankle Sprain

## Diagnosis

- Grades I-III based on severity

Grade	Ligament Injury	Symptoms	Sign
I	Stretch	Pain Swelling	Able to walk Unable to run
II	Partial Tear	Pain Swelling Bruising	Pain with walking
III	Tear	Pain Swelling Bruising	Unable to walk



# Ankle Sprain

- **Treatment**

- Early Mobilisation
- RICE acutely
- Ankle Rehab
  - Flexibility
  - Strength
  - Proprioception



# Ankle X-rays

## Ottawa Ankle Rules (OAR)

- Get an X-ray for:
  - Malleolar pain and tenderness
  - Inability to bear weight (4 steps)
- AP, Lateral, Mortise view (weight bearing?)
  - Swelling is NOT a reliable guide to the presence of a fracture





# Ankle X-Ray



# Sports Related | *Work-out related | Activity related | Intellect related*



- 22 y/o female fell while snowboarding
- Fell backwards landing on both hands
- Now the left wrist hurts



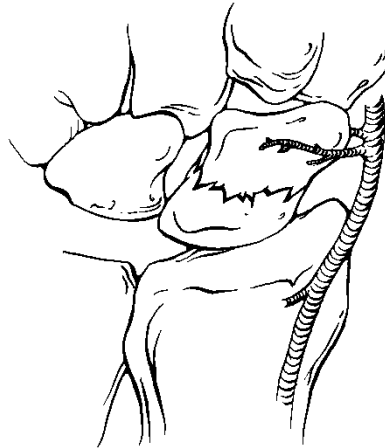
# Wrist Sprain

- Pain with ROM
- Pain with palpation of soft tissues
- No pain with palpation over bone
- X-rays negative
  - Get a grip view to look for scapho-lunate separation
- Immobilisation, rest ~ 1 week
- May take months to feel better
- Always consider re-imaging if not better



# Scaphoid Fracture

- History
  - Fall on outstretched hand
- Exam
  - Snuffbox tenderness
- X-ray
  - May be negative at first
- Complications
  - AVN



# Scaphoid Fracture



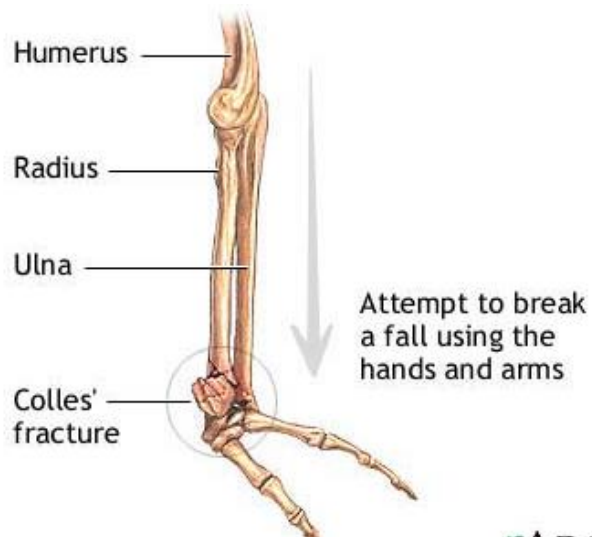
# Scaphoid Fracture

- Repeat X-ray in 7-10 days
- May get CT or MRI
- Treatment
  - Thumb spica cast or splint for 8-10 weeks
  - Surgery



# Distal Radius Fracture

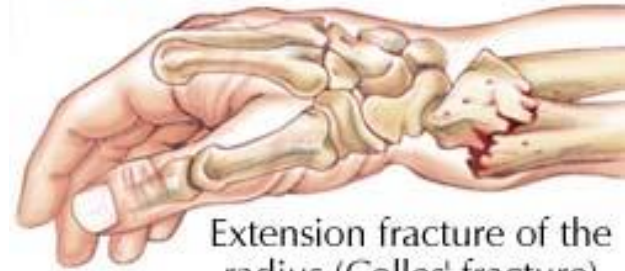
- Colles' and Smith's fracture
- Fall on the out stretched hand
- Obvious deformity on exam
  - Dinner fork deformity – Colles'
- Re-establish proper alignment



Flexion fracture of the radius (Smith's fracture)

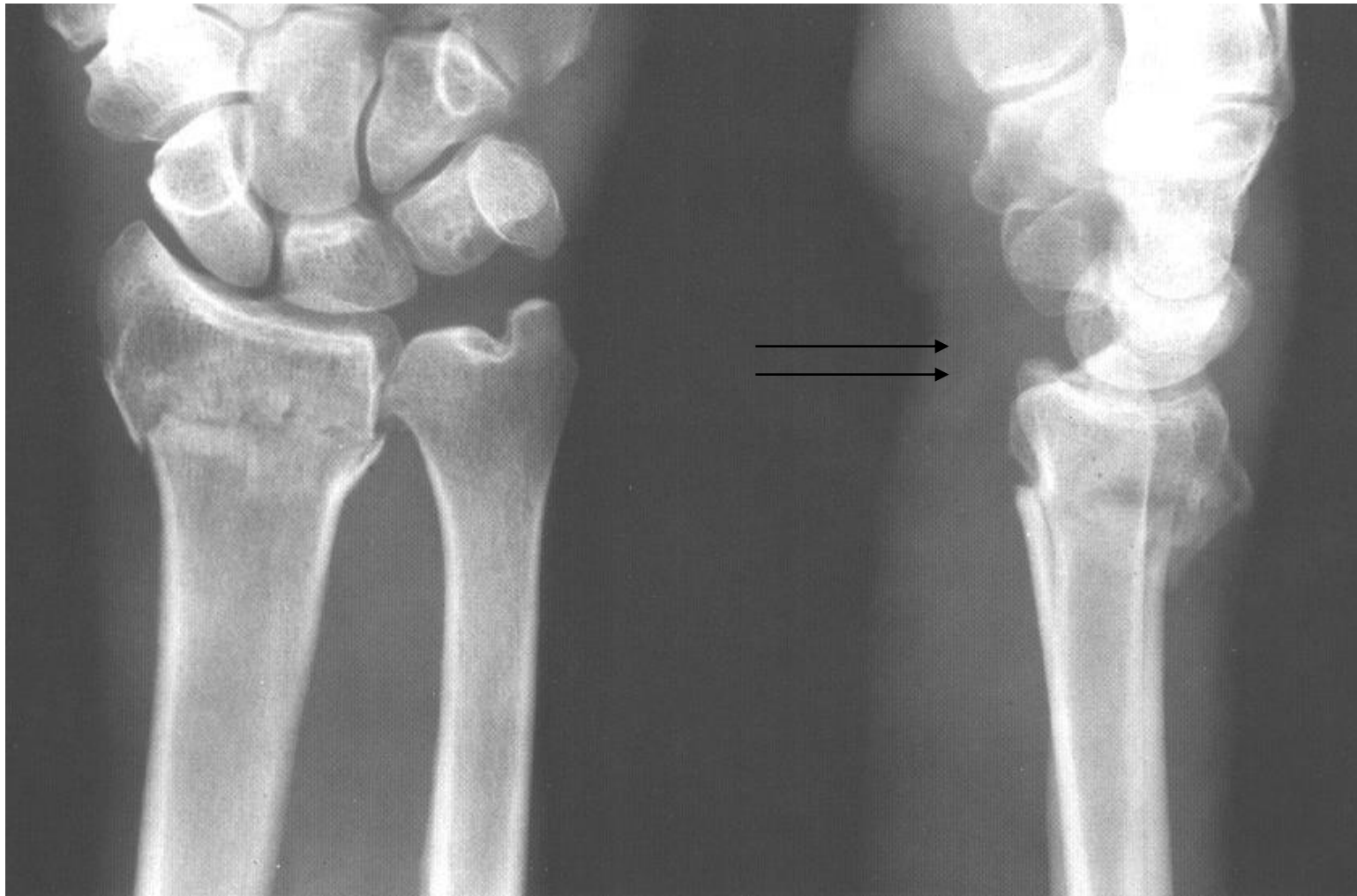


Extension fracture of the radius (Colles' fracture)





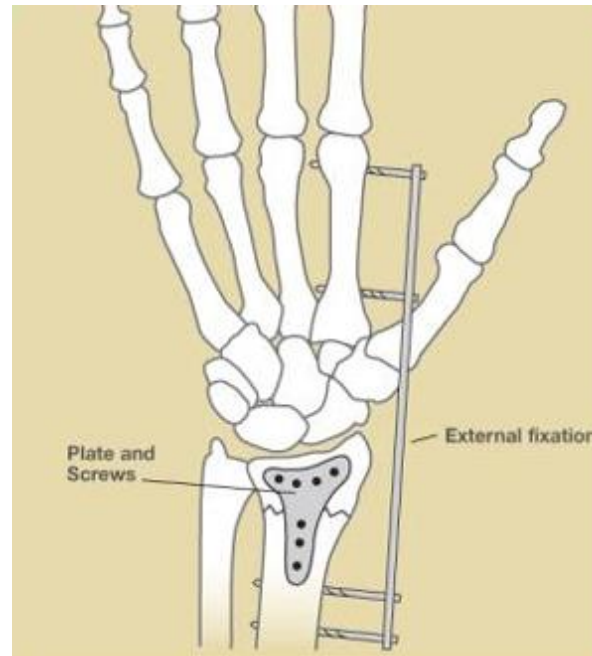
# Colles' Fracture





# Distal Radius Fracture Treatment

- Short arm cast (4-6 weeks) vs. closed reduction vs. External fixator vs. ORIF
- ROM of fingers and elbow
- Consider PT/OT



# Sports Related | *Work-out related | Activity specific | Intellect related*

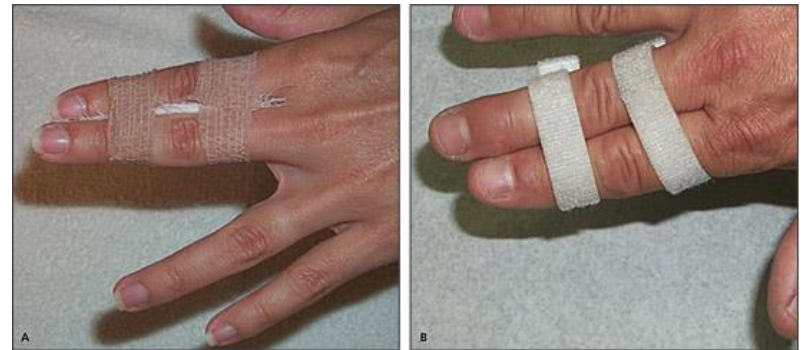


- 28 y/o male “jammed” his ring finger while playing squash a month ago
- X-rays negative for Fx at A&E
- Pain located around the PIP and increases with forced extension
- Continues to play squash
- No previous finger injuries



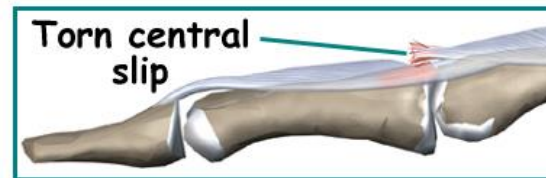
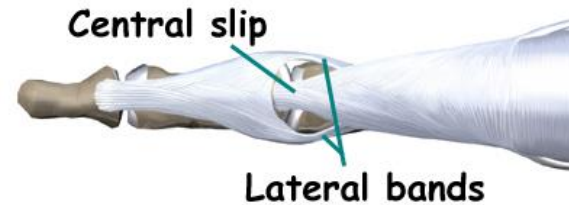
# Finger Sprain

- Globally swollen finger
- Inability to flex and extend
  - More due to swelling than tendon rupture
- Get X-rays
- Treatment
  - Buddy tape for 1-2 weeks
  - Encourage ROM



# Central Slip Injury

- Forced flexion of PIP
- Exam
  - Boutonniere deformity
  - Swelling dorsally
  - Full flexion
  - No active extension
- Treatment
  - Dynamic or static extension splint 4 weeks. No PT

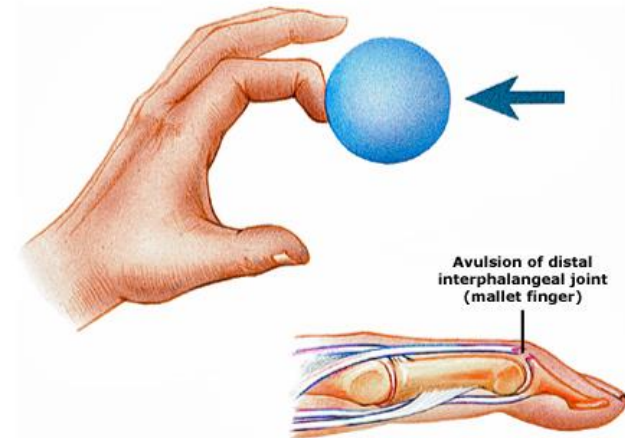


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# Mallet Finger

- Forced flexion of DIP
- Exam
  - Flexed DIP
  - Swelling dorsally
  - Good flexion
  - No active extension
- Get X-rays
- Treatment
  - DIP extension splint at ALL times for 8 weeks





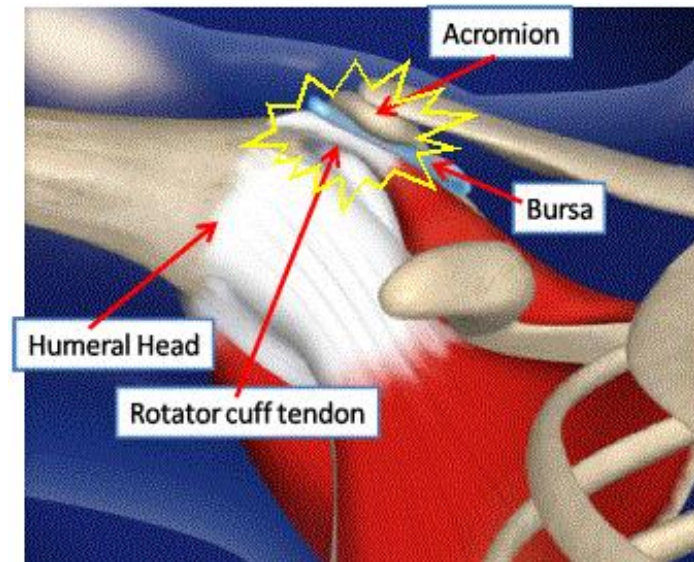
- 44 y/o female who is in the midst of training for her first triathlon
- Running and biking have been going well
- Swimming has been tough
- Her right shoulder hurts when ever she swims and then aches for hours after
- Can't sleep on right side



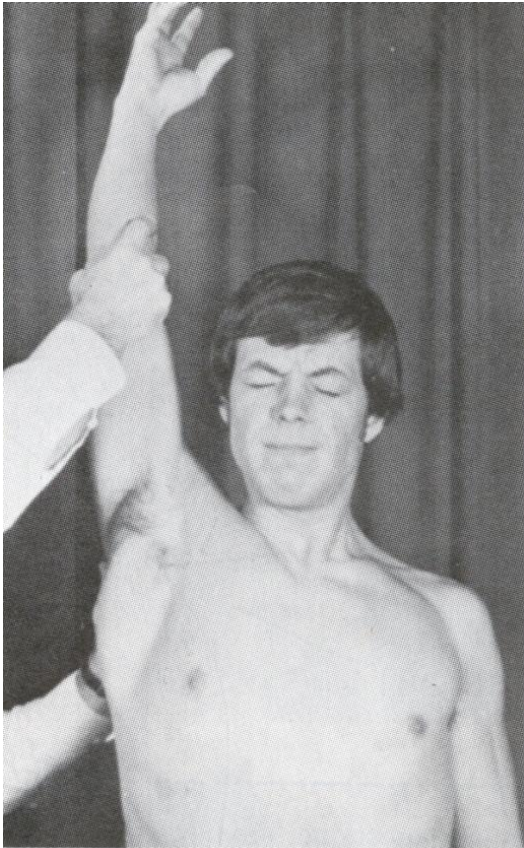


# Sub-Acromial Impingement

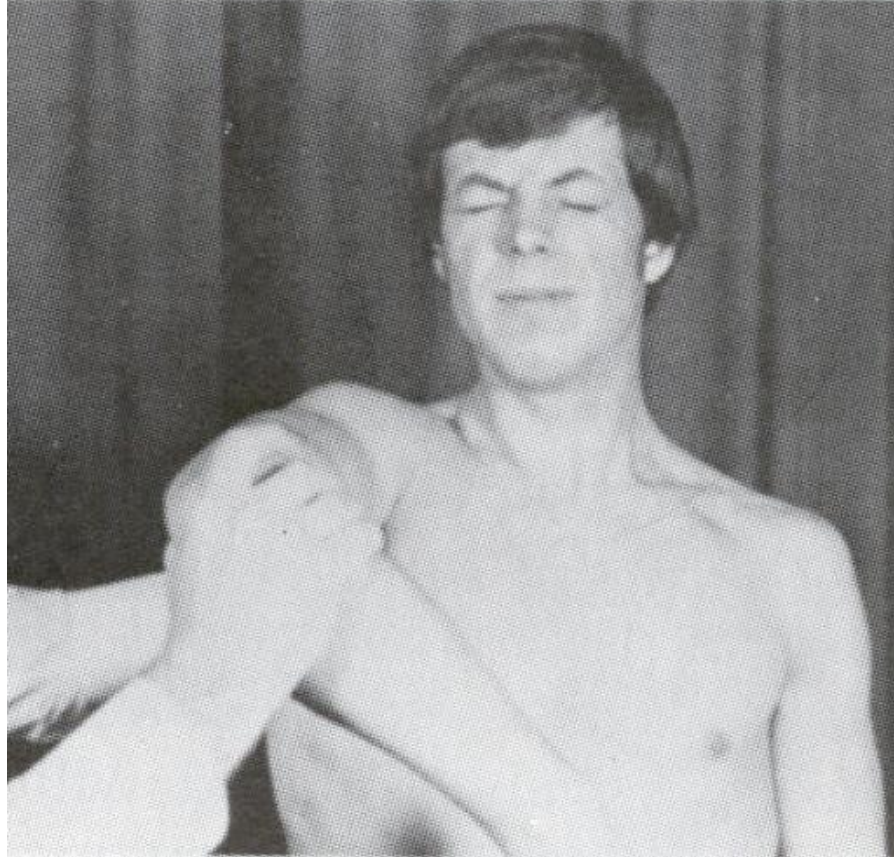
- Continuum of Impingement – Bursitis – Strain – Partial Tear – Complete Tear
- History
  - Repetitive overhead motion
- Symptoms
  - Diffuse anterior pain
  - Pain worse in arc of 60-120°
- Exam
  - Impingement tests
  - Tender along the Acromion
- X-ray
  - Shape of Acromion
- MRI



# Impingement Tests



Neer Test



Hawkins Test

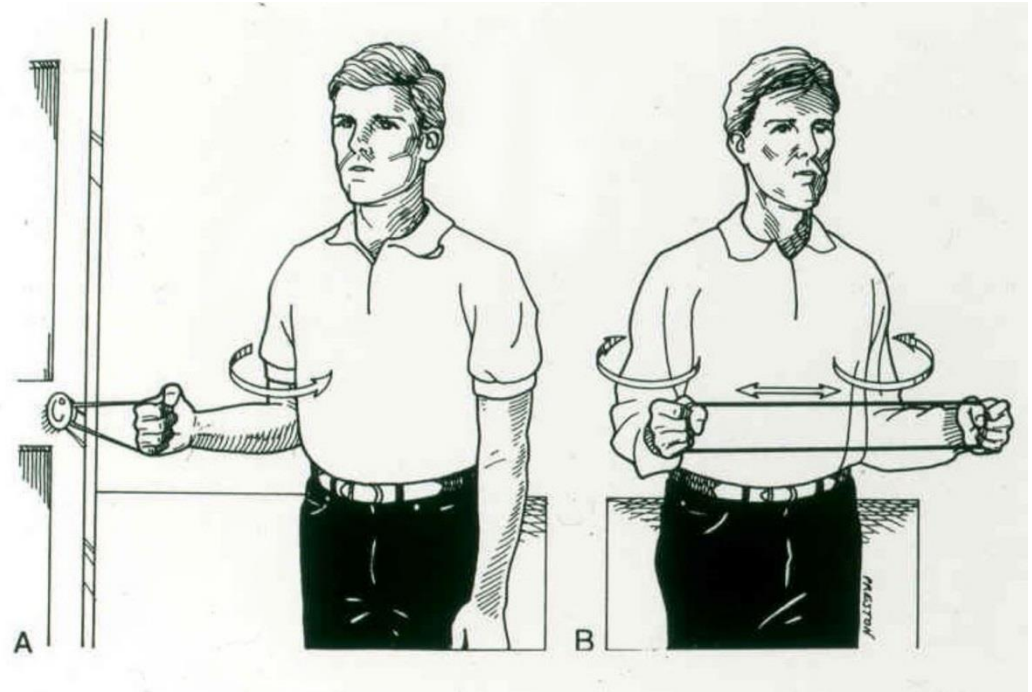




# Sub-Acromial Impingement

## Treatment

- Rest
- Sub-acromial injection
- PT



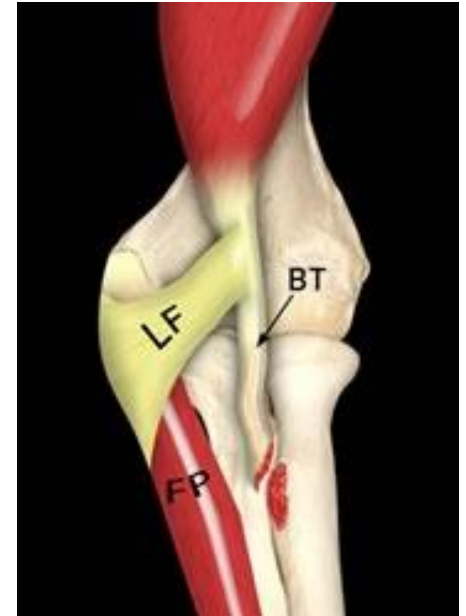
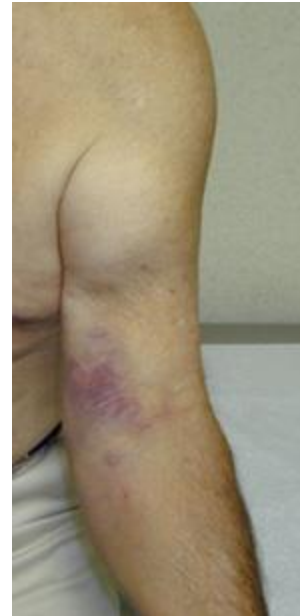


- 42 y/o male helping his friend move
- While lifting a heavy box he felt a “pop” at the elbow
- Pain and swelling
- Weakness with flexion and supination



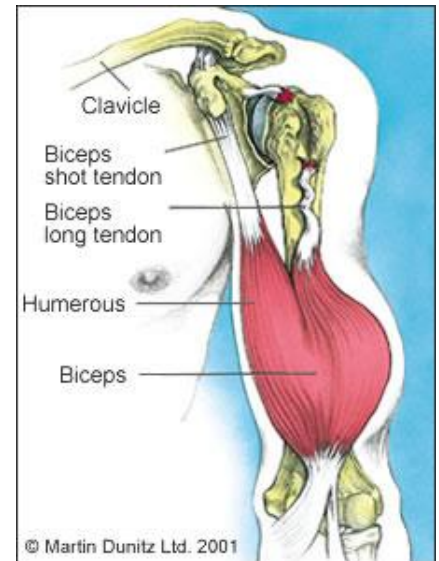
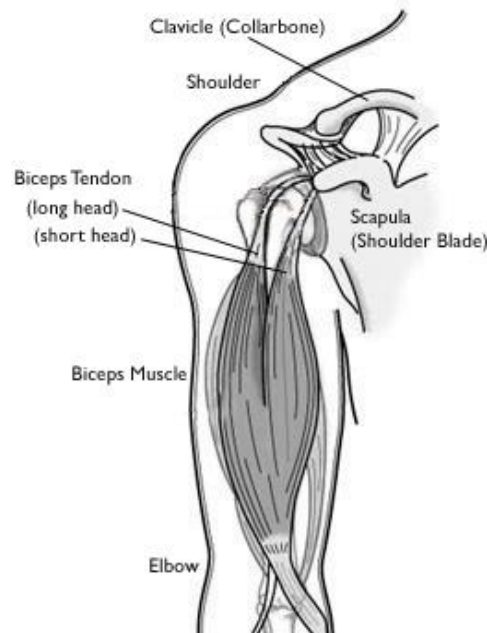
# Distal Biceps Tendon Rupture

- Much less common (3%)
- Forced extension of elbow
- Exam
  - “Popeye” muscle proximally
  - Palpate a gap
  - Weakness with flexion and supination
- Imaging +/-
- Treatment
  - Splint in flexion and supination
  - Surgical repair
    - Loose 20-50% of strength if not repaired



# Proximal Biceps Tendon Rupture

- Much more common (97%)
- Older adults with rotator cuff disease
- Exam
  - “Popeye” muscle distally
  - Some shoulder weakness
- Imaging - MRI
- Treatment
  - Non-surgical
  - Gradual return to ROM
  - PT for strengthening



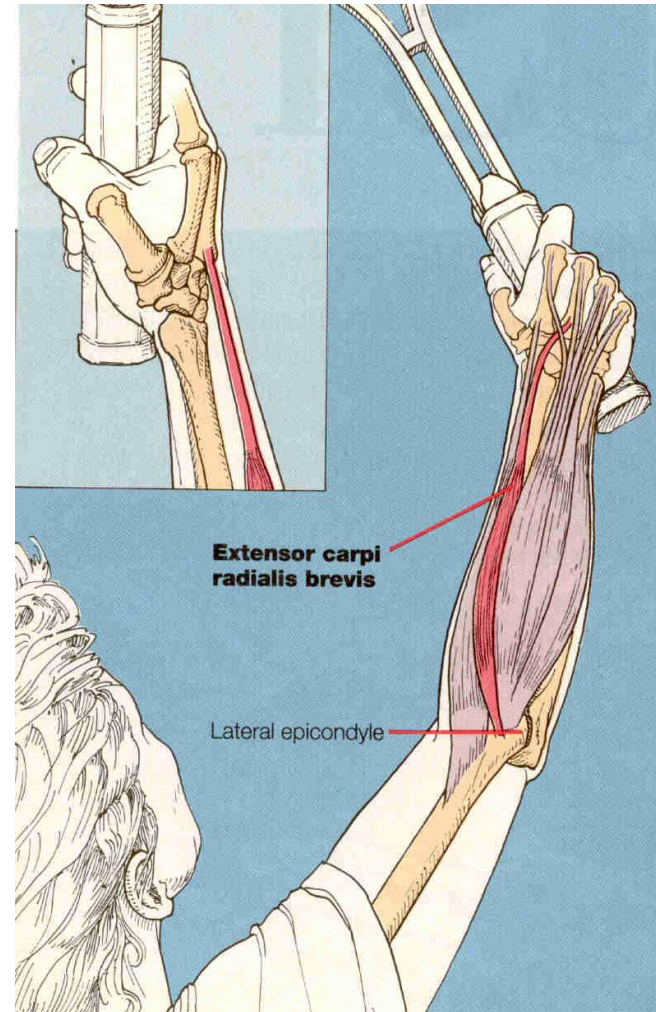


- 56 y/o male spent the last 2 weekends in a row demolishing his old deck and installing a new one
- His drill broke half way through the job and he was using a good old screwdriver to finish securing the top decking
- He developed right elbow pain and now can barely turn the keys to start his car



# Lateral Epicondylitis (Tennis Elbow)

- Anatomy
  - Wrist Extensor attachment
- Causes
  - Repetitive wrist extension
  - Repetitive gripping





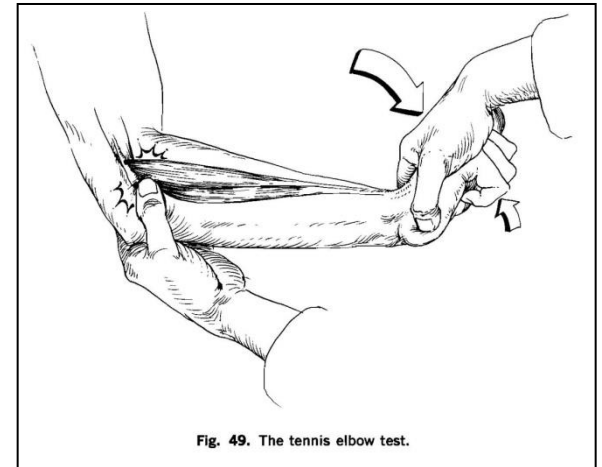
# Lateral Epicondylitis (Tennis Elbow)

- Exam

- Tender over lateral epicondyle
- Shaking hands
- Pain with resisted wrist and middle finger extension

- Treatment

- Rest
- PT
- Compression wraps
- Injection





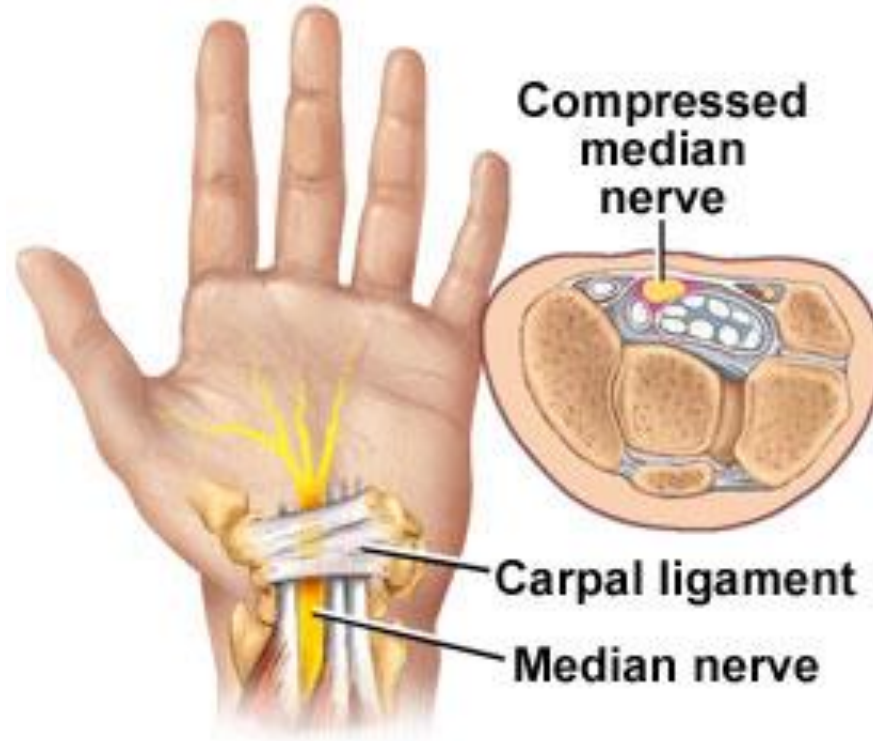
- 49 y/o male contractor is putting an addition on to his house (evenings, weekends, free time)
- After several months of using hammers, saws drills, etc he comes in stating his hands are “falling asleep”
- Awakes him at night
- Has to shake them to restore feeling in the AM





# Carpal Tunnel Syndrome

- Transverse Carpal Ligament
- 9 flexor tendons
  - 4 superficiales
  - 4 profundus
  - flexor pollicis longus
- Median Nerve



# Carpal Tunnel Syndrome

- Repetitive wrist/finger movement
- Forceful loading of tendons in carpal tunnel
- Extreme wrist flexion/extension
- Vibration
- Non-occupational factors
  - Diabetes
  - Connective Tissue Disease
  - Pregnancy
  - Mal-union of a wrist fracture
  - Anatomically small carpal tunnel



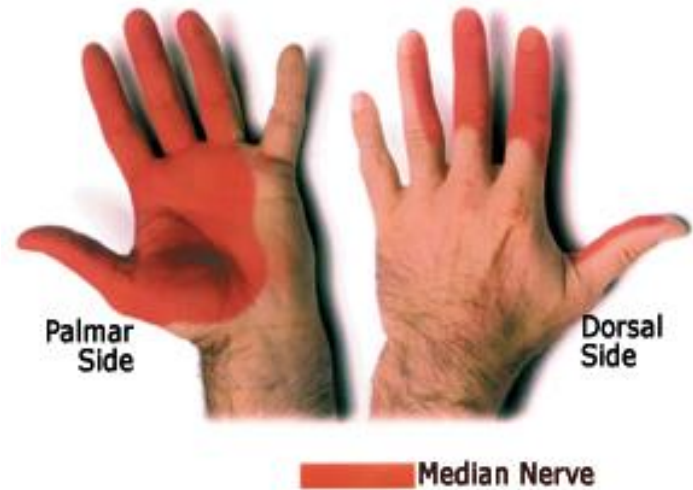
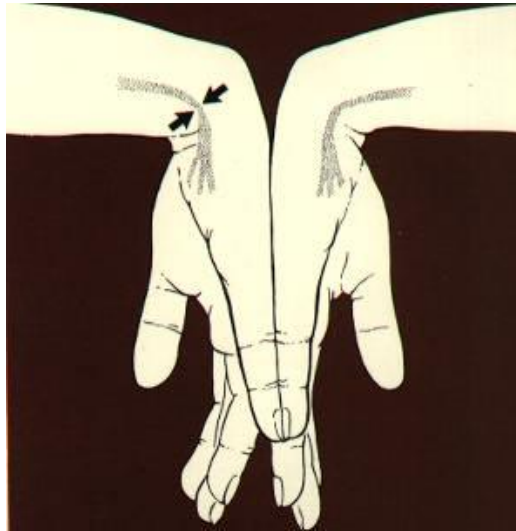
# Carpal Tunnel Syndrome

## Signs

- Positive Phalens test (flexion)
- Positive Tinel's test (tap)
- Positive compression test
- >6mm 2-point discrimination

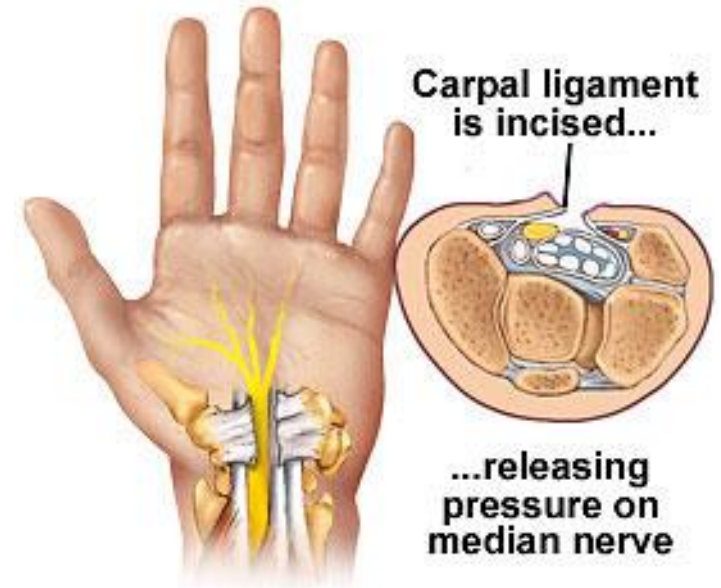
## Symptoms

- Numbness (worse in AM)
- Grip
- Thumb-finger opposition
- Thenar atrophy
- **Bilateral symptoms think systemic disease**



# Carpal Tunnel Syndrome

- Nerve Conduction Studies
  - If other disease is suspected
- Conservative Approach
  - Activity Modification
  - NSAIDS
  - Splinting
  - Injection
- Surgical Decompression





- 18 y/o male who decides he and his friend are going to have a wrestling match on the living room floor
- He remembers getting slammed onto the ground directly onto his shoulder
- Immediate shoulder pain

# Acromioclavicular (AC) Joint Separation

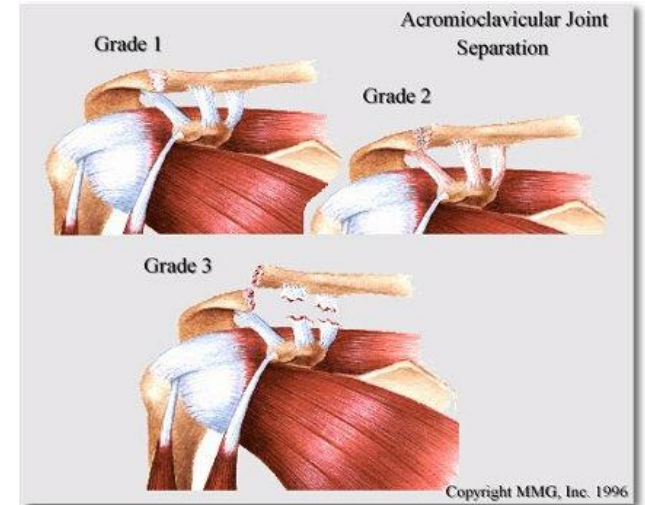
- Injury to the ligaments that stabilize the acromion, clavicle and coracoid
- Fall on the point of the shoulder
- Exam
  - Tender over AC joint
  - Clavicle may be ballotable (> grade III)
  - Increased pain with crossover and pulling down arm
- X-ray – 10-15 lbs of hanging weight
  - Helps distinguish between grades II & III



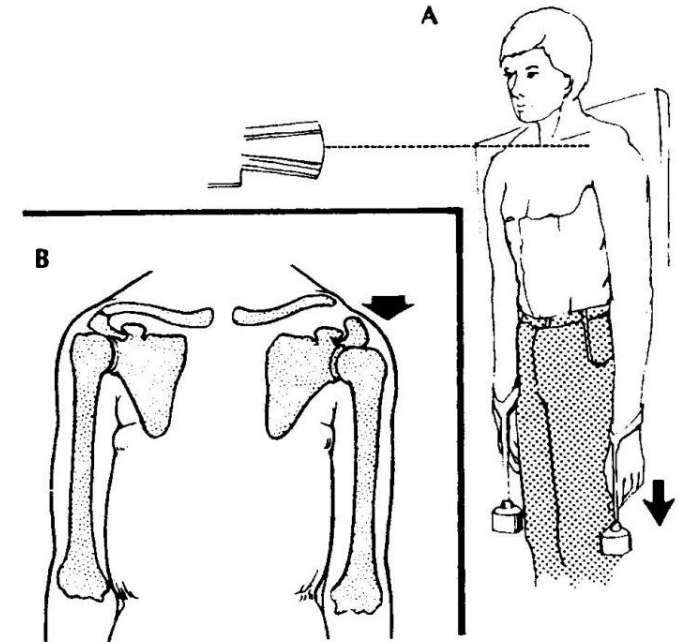


# Acromioclavicular (AC) Joint Separation

- Grade I – partial tear of the AC ligament
- Grade II – complete tear of the AC, with some elevation of the dist clavicle
- Grade III – also tear of coraco-clavicular ligament
- Grade IV – complete disruption with posterior displacement through the trapezius
- Treatment
  - Sling 2-6 weeks – grades I – III
  - Surgical repair – grade IV



# Acromioclavicular (AC) Joint Separation





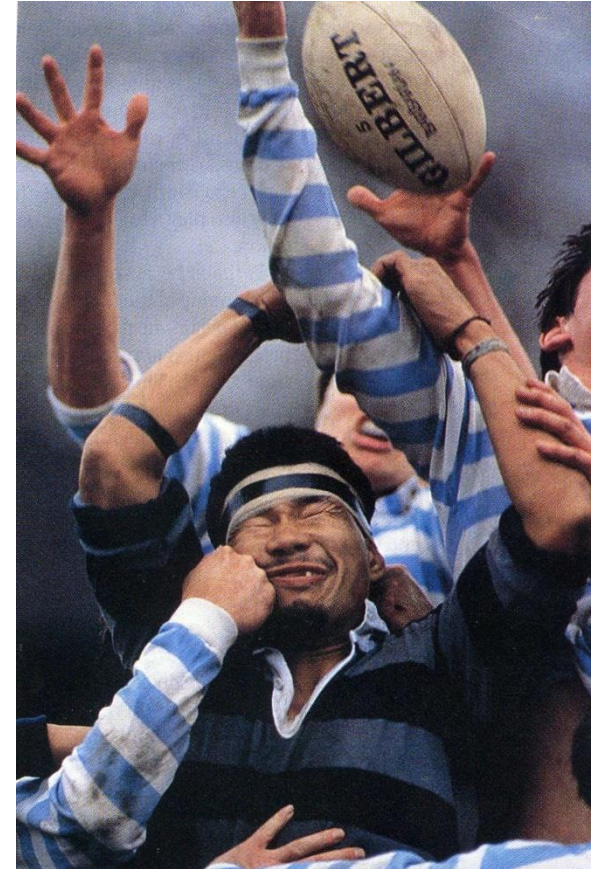
- 21 y/o male out with friends for a “few drinks”
- Became agitated and punched something
- Right dorsal hand pain, ulnar sided, swelling
- Can’t make a fist

# Boxer's Fracture



# Boxer's Fracture

- Fracture of the 5<sup>th</sup> MC neck (not base)
- Pain and deformity dorsally
- X-rays
  - Can accept 40° of dorsal angulation
- Treatment
  - Ulnar Gutter Cast
  - MCP flexed ~ 90°
  - 4-6 weeks



# Thank you.

## Any questions?





# Fix the Fracture

- Orthopaedics in a nutshell



Fix the Fracture.htm