

Soft tissue disorders



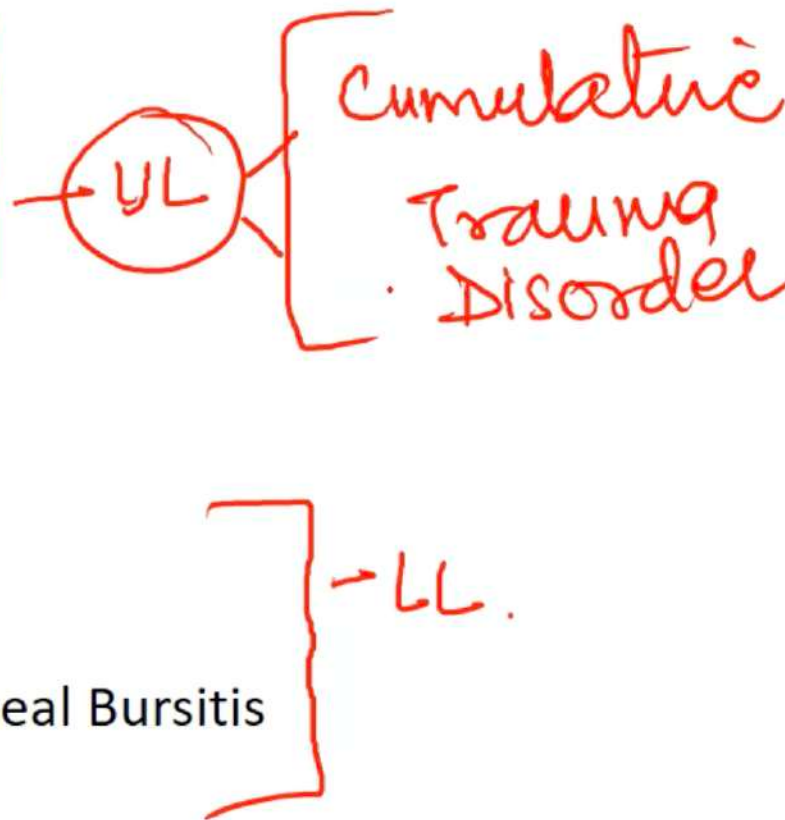
DR ANURAG TIWARI

MS (Ortho), DNB, MNAMS, FASM, FIJR (USA)

Faculty, TargetOrtho

Soft tissue disorders

- Torticollis
- Rotator cuff injury
- Biceps tendinitis
- Lateral/ Medial epicondylitis
- Carpal Tunnel syndrome ✓
- de quervain tenosynovitis
- Intersection syndrome
- Trigger finger/ thumb
- Dupuytren's contracture
- Bursitis
- Baker's cyst
- Achilles tendinitis/ Retrocalcaneal Bursitis
- Plantar fascitis



Cumulative Trauma Disorders (CTD)

- Force + Repetitions + Posture + Duration = Cumulative trauma disorder
- Risk factors – Prolonged exposure

- Single event injuries- Traumatic Injury
- Multi event injuries- Cumulative Trauma
- Repetitive movements, constrained postures and general mental stress
- Can affect tendons, tendon sheaths, nerves, vessels etc
- Occupational disease

Definition

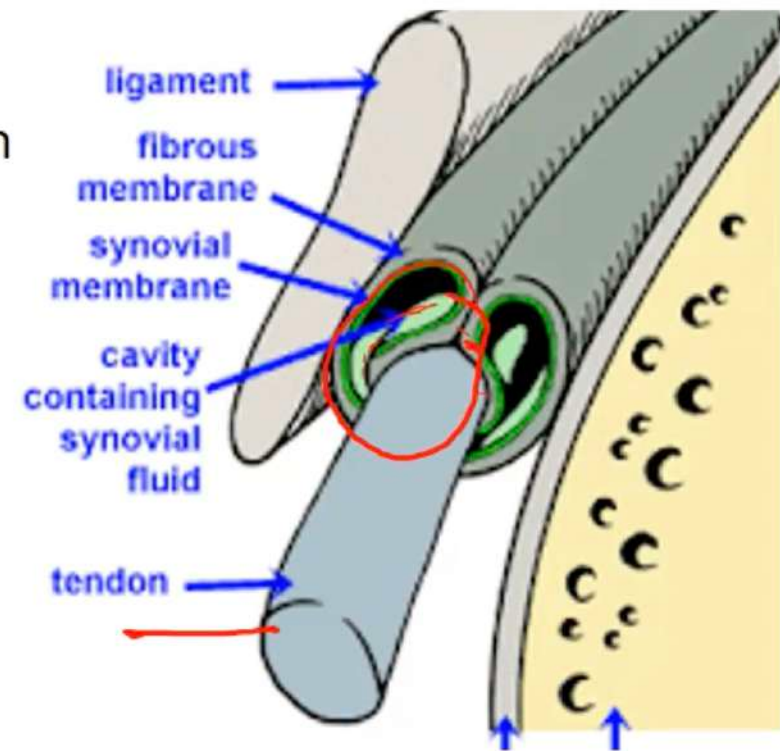
- Injuries of the musculoskeletal and nervous systems caused by
- repetitive tasks,
- forceful exertions,
- vibrations,
- mechanical compression or
- sustained or awkward positions
- which causes ill defined and disabling pain around wrist and forearm.

Other names

- Regional musculoskeletal disorders
- Repetitive motion disorders (RMDs)
- Overuse syndromes,
- Repetitive motion injuries,
- Repetitive strain injuries (RSI).

Mechanism

- Body movements are produced by contracting and relaxing musculotendinous unit.
- CTDs result when repeated stress is placed on the tendon muscles, or nerves causing inflammation or damage.



Conditions that lead to CTD

- Repetition - long or concentrated hours of typing or using a mouse
- Posture - long hours of sitting in the same position while typing, especially if it is in an uncomfortable or poorly supported position, or if the wrists are bent
- Lack of Rest - intensive hours at the keyboard with few breaks

Ergonomics

- Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of the working population.



- The following are some of the common CTDs:

✓ Tendonitis - Inflammation of the tendons

- Tenosynovitis – de quervain tenosynovitis, trigger finger
- Neuropathy- Carpal Tunnel Syndrome
- Epicondylitis – medial (Golfer's elbow), lateral (Tennis elbow)

Symptoms of CTDs:

Tingling or numbness in the hands or fingers

Pain in fingers, hands, wrists, or even shooting up into the arms or forearms

Loss of strength or coordination in the hands

Numbness or discomfort in the hands

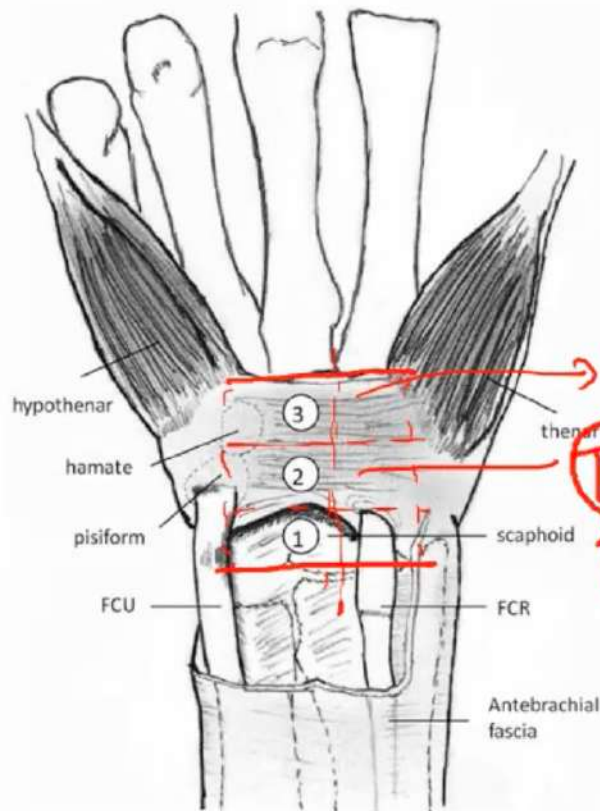
Prevention- Best Cure

- Implementing proper body mechanics and ergonomics.
- Altering workstation design and implementing proper posture can relieve pressure and prevent CTD.
- There are a wide variety of products (chairs, keyboards, mousepads, etc.) specifically designed to optimize individual performance and prevent injury.

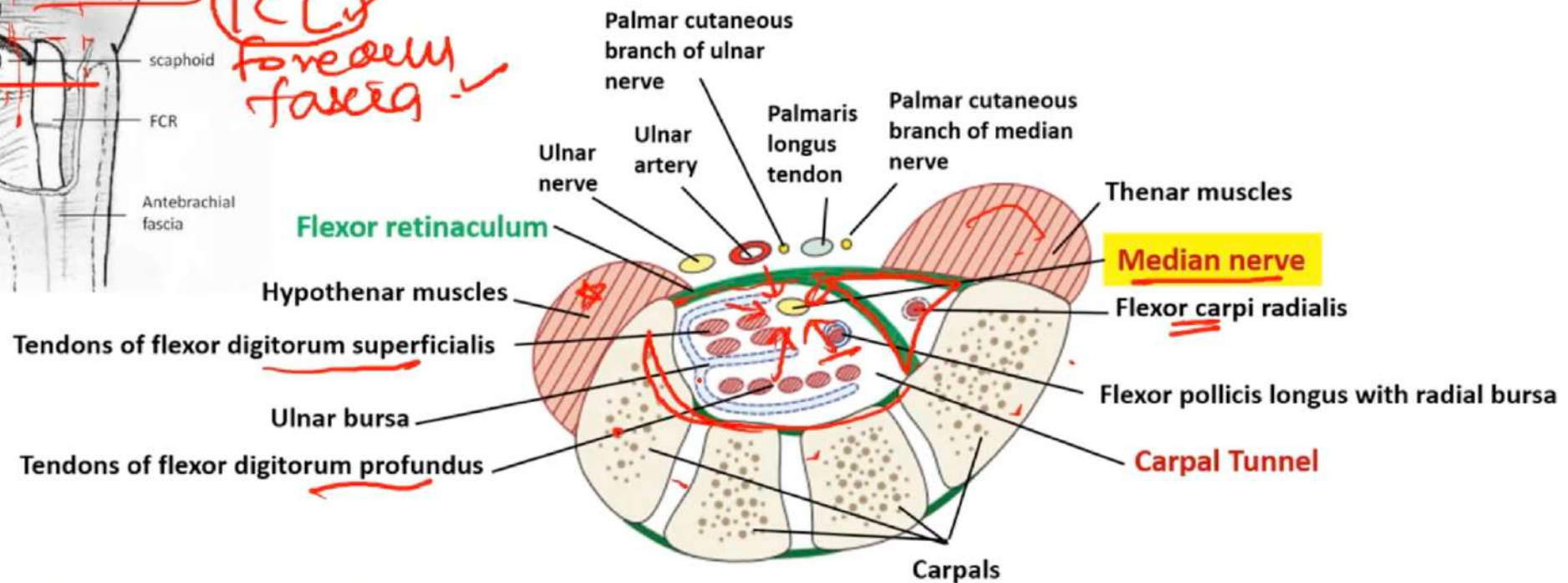
Carpal tunnel syndrome

- Compression neuropathy of median nerve beneath the flexor retinaculum
- MC upper limb compression neuropathy

Anatomy



Aponeurosis -
TCL
forearm
fascia



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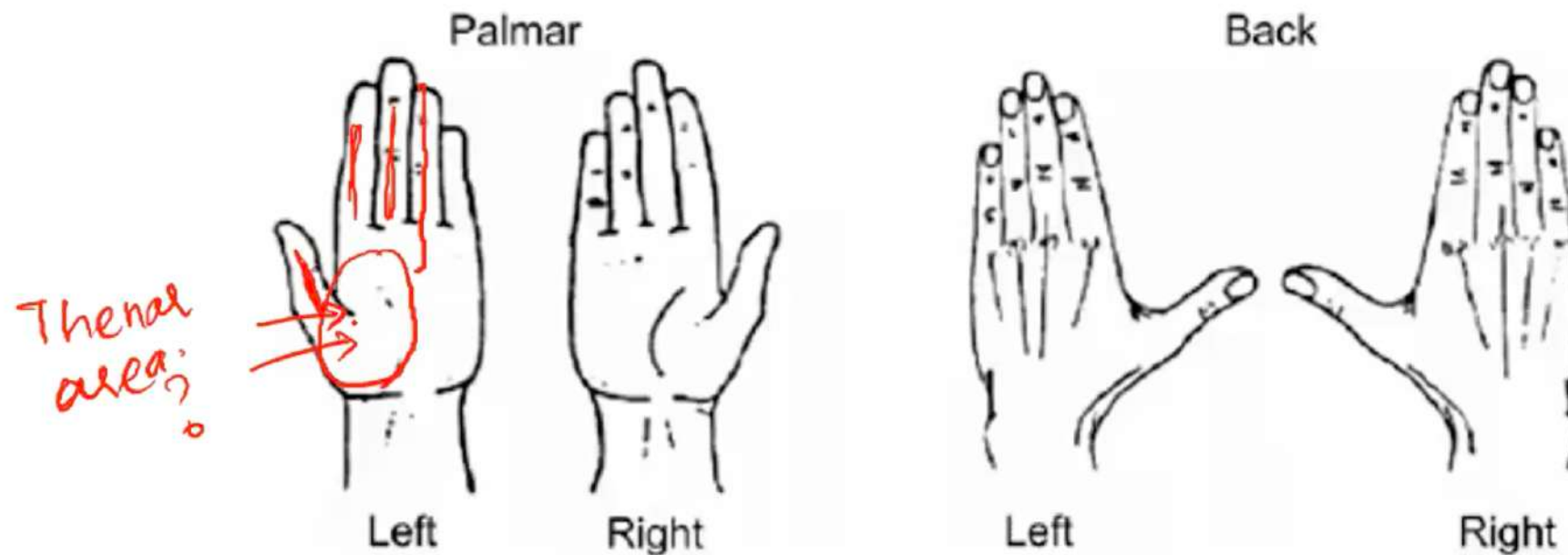
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- Causes
 - Decrease in size of tunnel
 - bony abnormality
 - acromegaly
 - Increase in contents
 - colles # (# fragments)
 - wrist osteoarthritis (osteophytes)
 - tumors (ganglion/ neuroma/ lipoma)
 - rheumatoid arthritis → Synovial HT..

- Risk factors:
 - 30-60 year female
 - obesity
 - physically inactive
 - smoking
 - ✓ occupational – vibration
 - diabetes
 - amyloidosis
 - Pregnancy

- Clinical features
- h/o paresthesia/ numbness/ burning sensation in median n. distribution
- Night pains (nocturnal acroparesthesia)

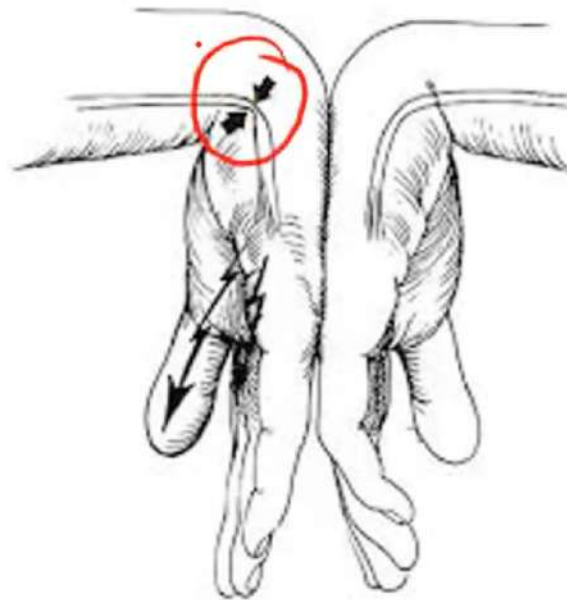


Phalen test

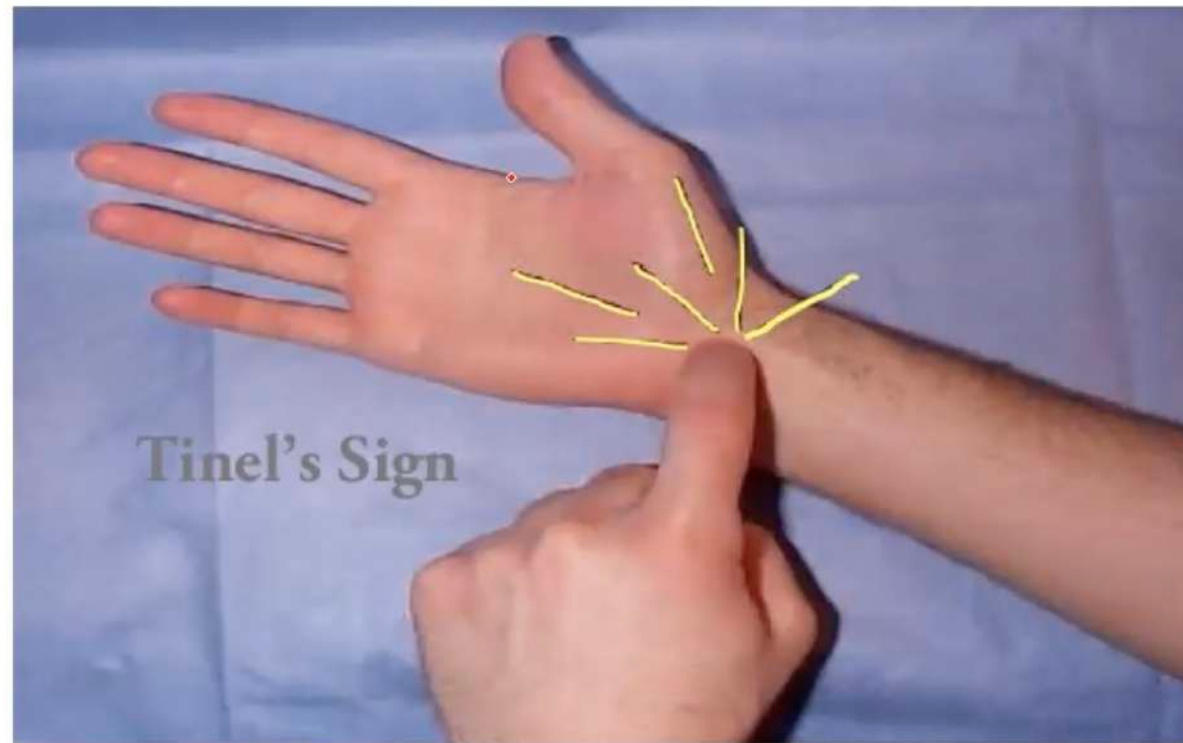
- 60 sec wrist flexion



Phalen's test



Tinel's sign

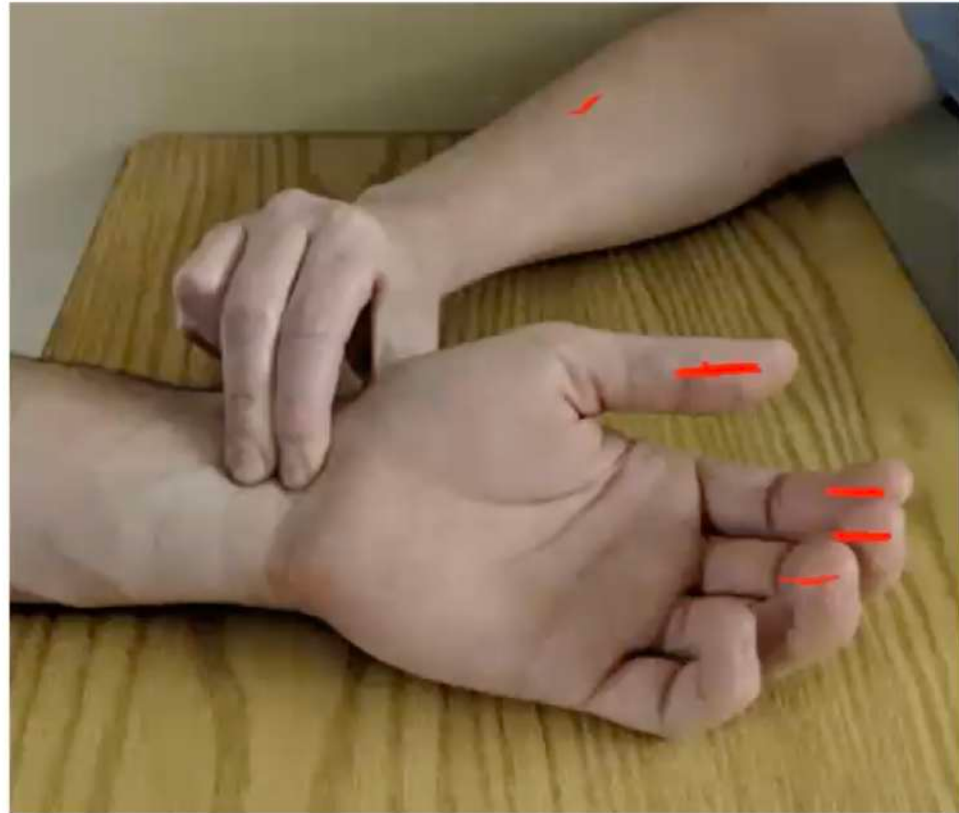


Durkan Compression test

- Median nerve compression for 30 sec

- Most specific test

AIIMS June 2020



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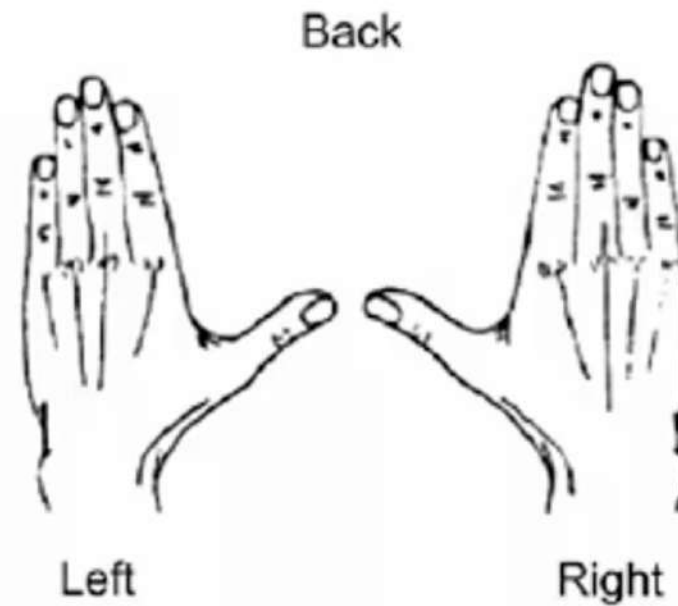
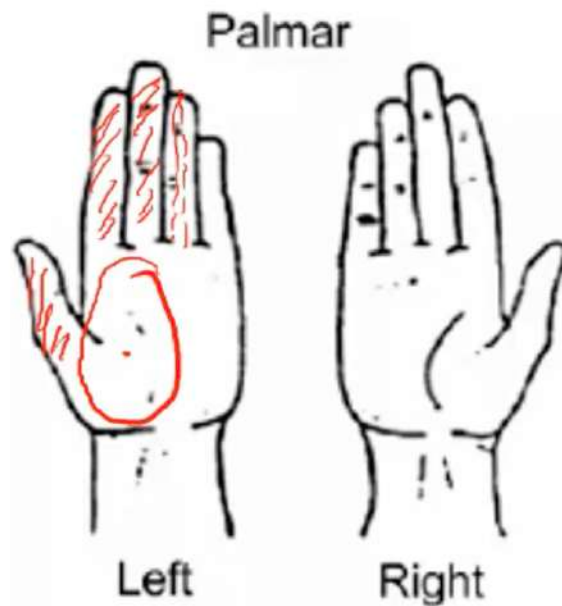
Tourniquet test

◇



Hand Diagram

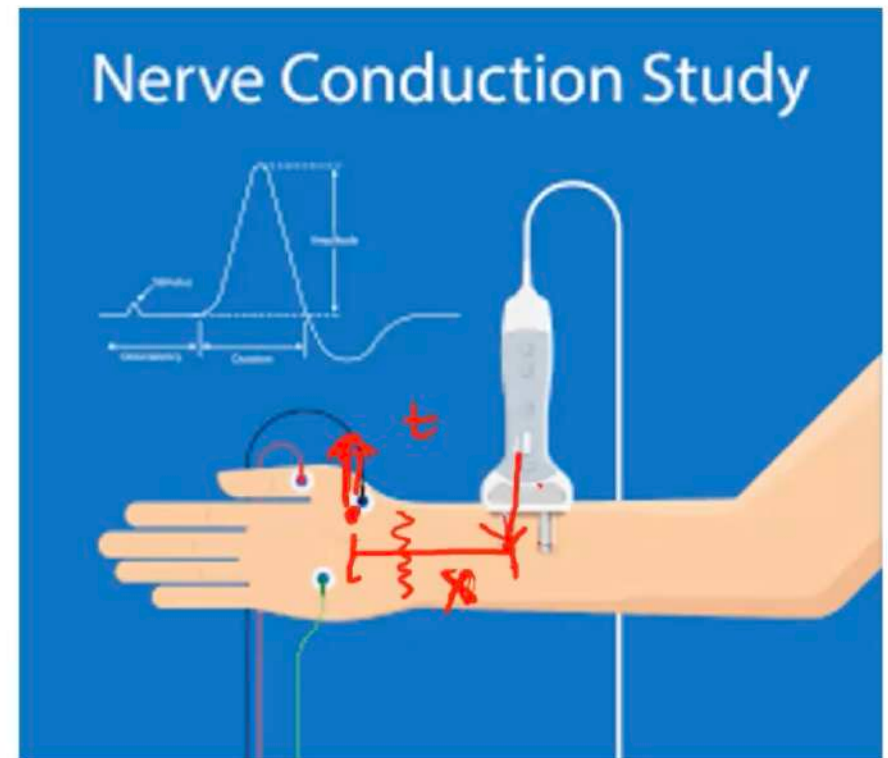
- ✓ Most sensitive



Investigations:

- NCV : latency
- > 4.5 msec for motor
 - > 3.5 msec for sensory

EIS



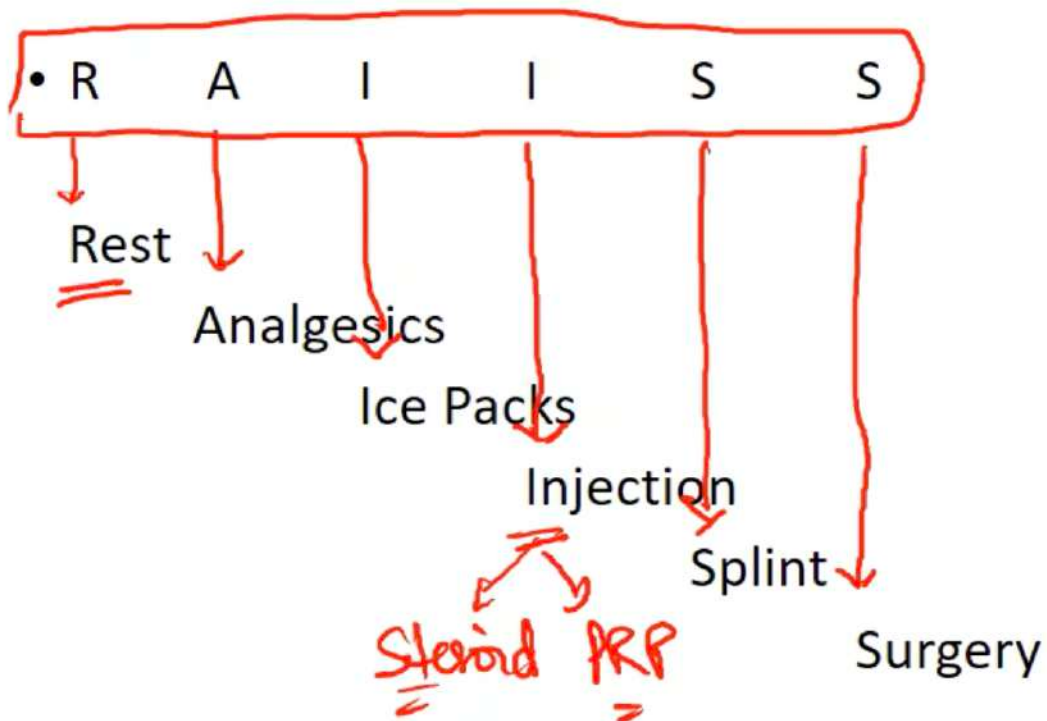
- EMG : denervation of thenar muscles (fibrillation potentials)
- Measurement of carpal tunnel pressure : > 25mmHg

$$v = \frac{x}{t}$$

(↓v)

Treatment

- Non operative (80-90%)
- Operative (10-20%)



• Treatment :

- Rest
- Analgesics
- Ice packs
- Injection
- Splint
- Surgery

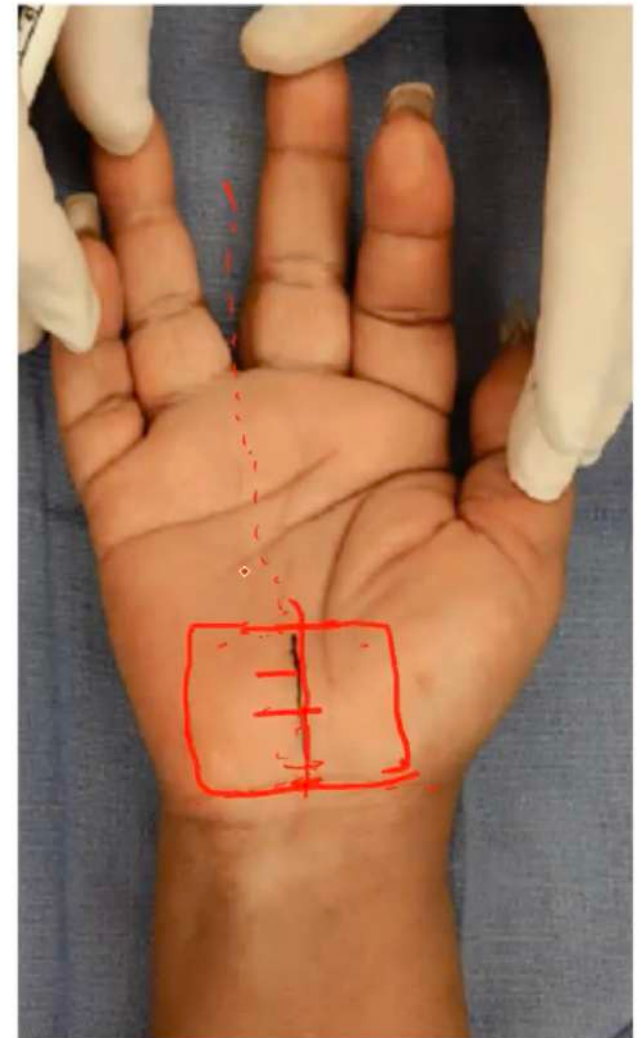
• Preferred position of wrist in splint-

- A. Dorsiflexion of 30 degree
- ✓ B. Neutral
- C. Palmar flexion of 30 degree
- D. Radial abduction of 15 degree



Surgery- Carpal tunnel release

- Incision-
- 2-3 cm long from centre of wrist in line to 3rd web space
- Carpal ligament incised.
- All three parts should be released



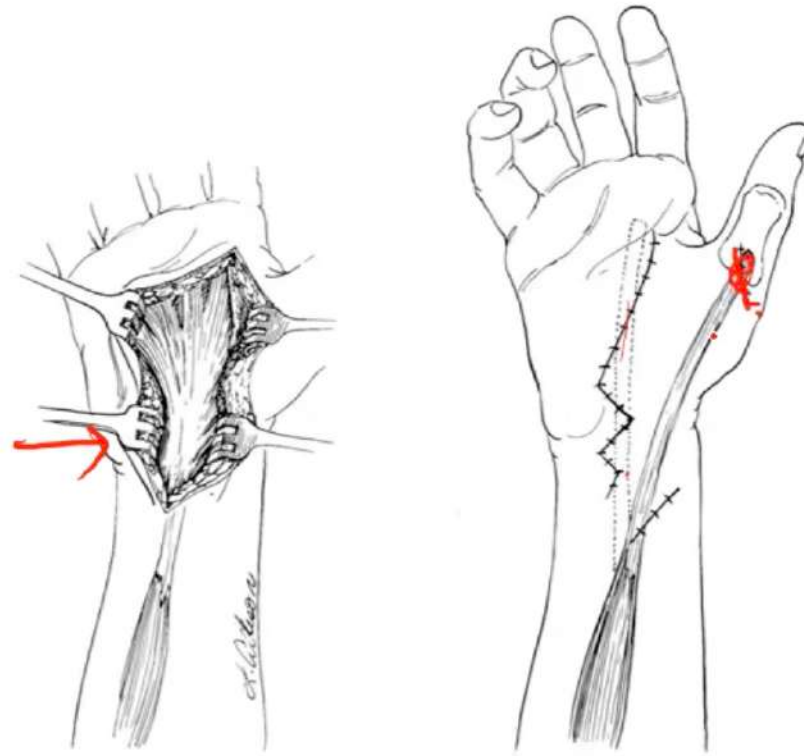
Tendon transfer in Carpal tunnel syndrome

- Which tendon is used?

✓ EIP → APB. (Burkhalter)

↓
"Palmaris longus"

Why Palmaris longus is preferred?



- PL to APB

[Camilg]

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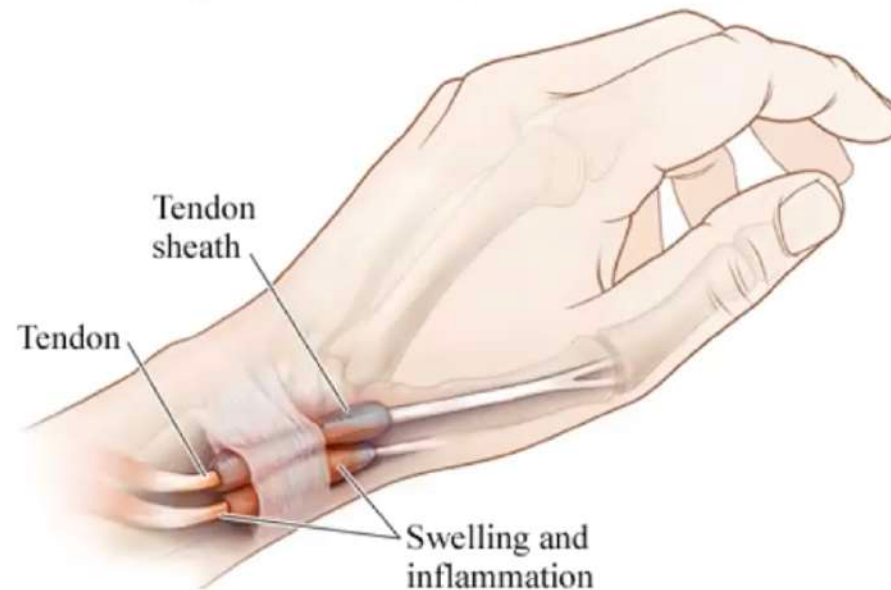
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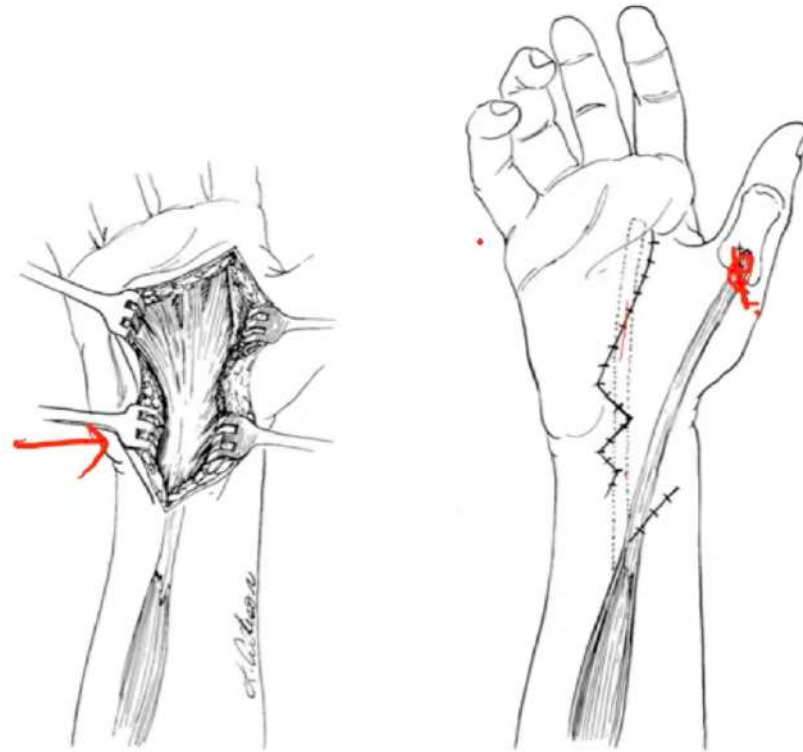
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"Palmaris longus"

de quervain's tenosynovitis

- Inflammation of the synovial sheath of tendons EPB and APL.
- Initiated by overuse, but may occur spontaneously.



Why Palmaris longus is preferred?

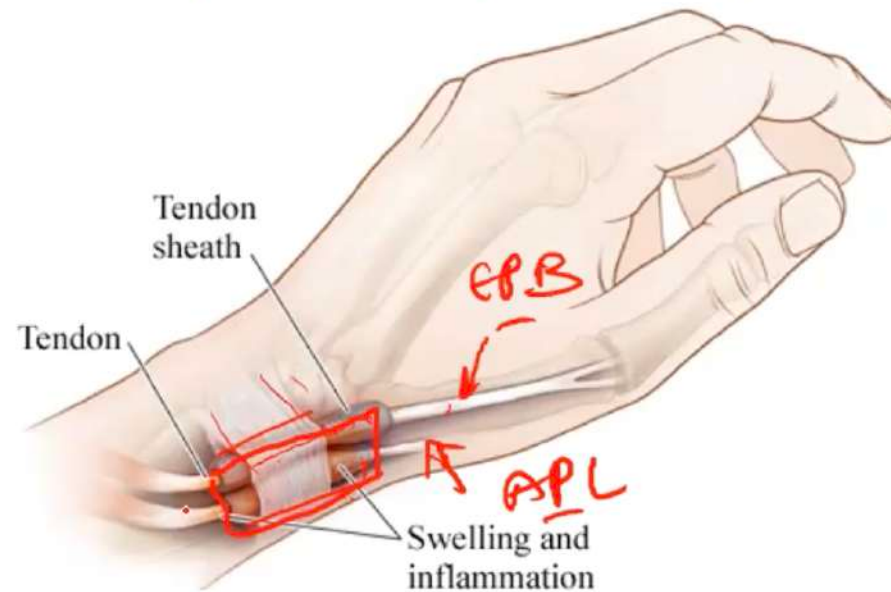


- PL to APB
(Camitz Transfer)

[Camitz]

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- Finkelstein's test positive



- Treatment -

RAII SS .

- Non operative :

- Rest
- Analgesics – topical / oral
- Ice
- Injection- **beware of injection into tendon**
- Splint
- Surgery



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- Treatment -

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- Treatment -

RAII SS

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- Injection- **beware of injection into tendon**

- Splint

- Surgery

Thumb Abduction
Sp



- Operative : for resistant cases
- Splitting the tendon sheath

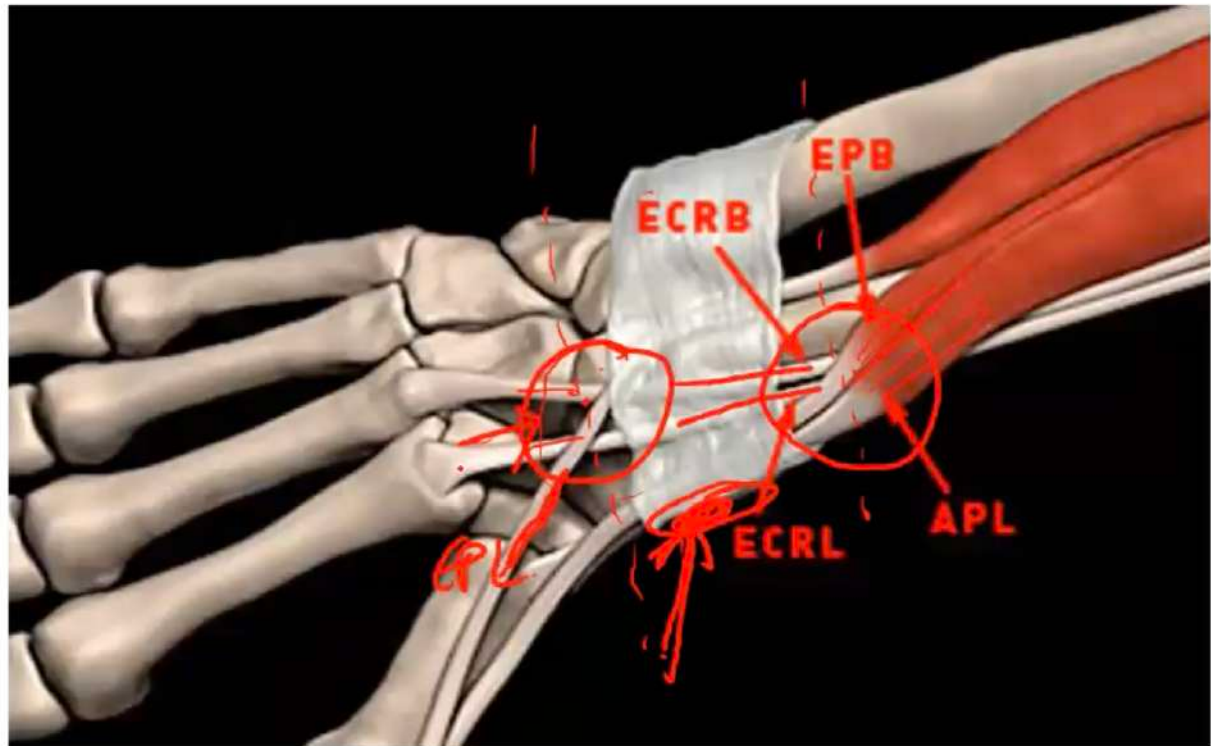


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Differential Diagnosis of dequervain

✓ Intersection syndrome

- Two types-
- Proximal – Between
1st & 2nd comp.
- Distal -Between
2nd & 3rd comp.



Tennis elbow (lateral epicondylitis)

- Inflammation of lateral epicondyle of humerus at the attachment of common extensor muscles.
- Repetitive supination – pronation activities in full extension of elbow.
- The most involved tendon ??
 - A. Extensor Carpii Radialis Longus
 - B. Extensor Carpii Radialis Brevis ✓
 - C. A and B both
 - D. Extensor Digitorum Communis
 - E. Extensor Indicis Proprius
- Initiated as a microtear, followed by angiofibroblastic hyperplasia

- Clinical features :

- 30-40 years of age
- Pain at the lateral aspect of elbow
- Tenderness at lateral epicondyle at origin of common extensors.
- Elbow looks normal, ROM full and free.

Special tests

- Cozen's test-



- Mill's test
- The clinician palpates the patient's lateral epicondyle with one hand, while pronating the patient's forearm, fully flexing the wrist, the elbow extended.
- A reproduction of pain in the area of the insertion at the lateral epicondyle indicates a positive test.



- Maudsley's test



- Treatment :
 - 90% will resolve spontaneously
- Non operative :
 - Identify and restrict those activities which causes pain
 - RAIIS-
 - Rest
 - Antiinflammatory drugs
 - Ice packs
 - Injection- Steroid, PRP
 - Splint
 - Ultrasonic therapy
 - Surgery :
 - Detachment of ECRB origin.



Injection therapy

- Steroid

• PRP >> Steroid.

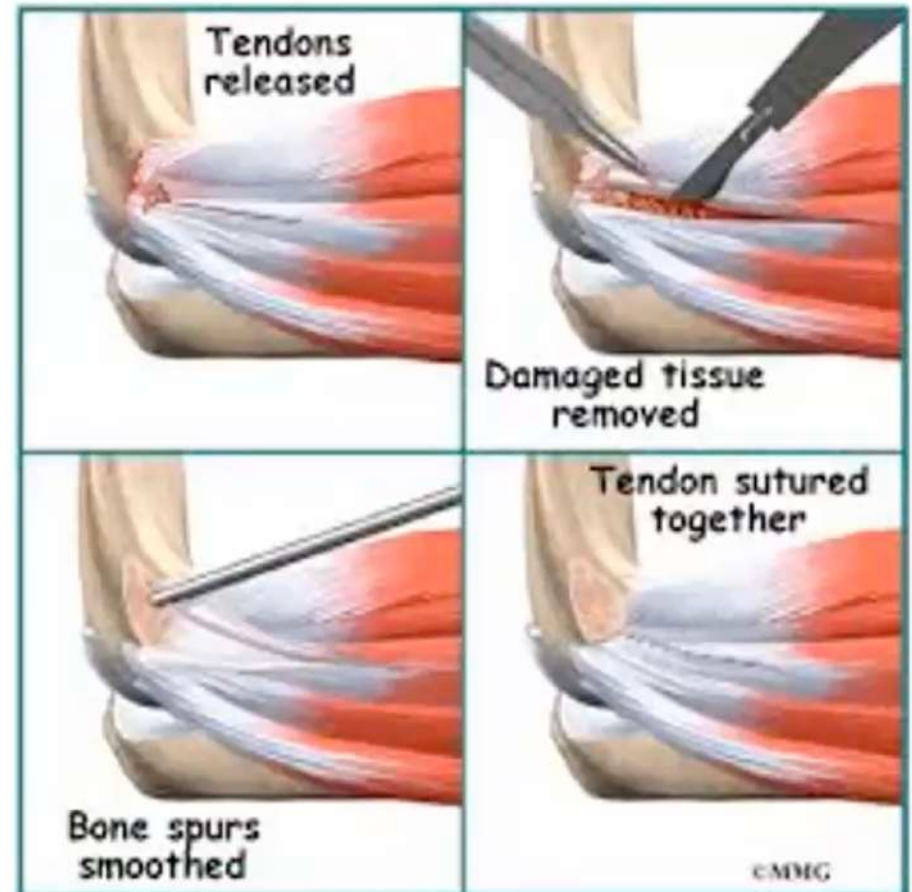
- Which is superior ?
- Debatable



- Splint
- What is the name of the brace used for Tennis elbow?
- A. Abduction brace
- ☒ B. Counterforce brace
- C. Pressure brace
- D. Contrast brace

Surgery for Tennis elbow

- ECRB release



Golfer's elbow (medial epicondylitis)

- Inflammation of medial epicondyle of humerus at the attachment of common flexor origin.
- Tenderness at medial epicondyle
- The culprit tendon??
 - A. Pronator teres
 - B. Flexor Carpii Radialis ✖
 - C. Both A and B ✖
 - D. Flexor Digitorum Superficialis

- Treatment :
- Same as in tennis elbow but results less predictable.

Trigger finger/ thumb

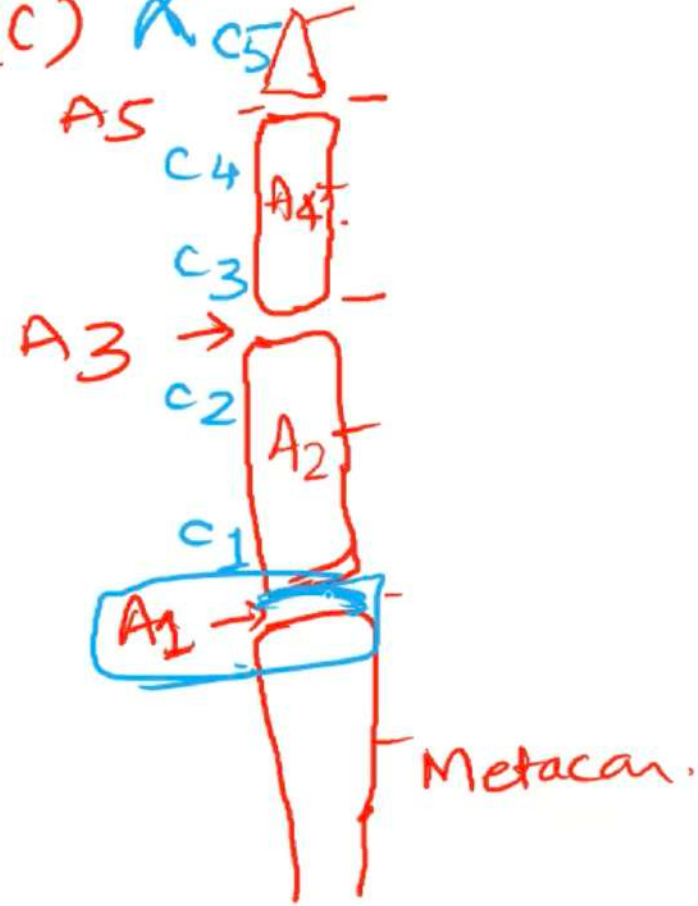
- Stenosing tenosynovitis of digital flexor tendon sheath.
- More common in diabetics
- Any digit may be affected but most commonly thumb, middle and ring finger.
- Click as the finger is flexed; affected finger remains bent at IP joint
- With further effort, it straightens with a snap.
- A tender nodule may be felt at the level of MCP joint



/ Annular (A) =

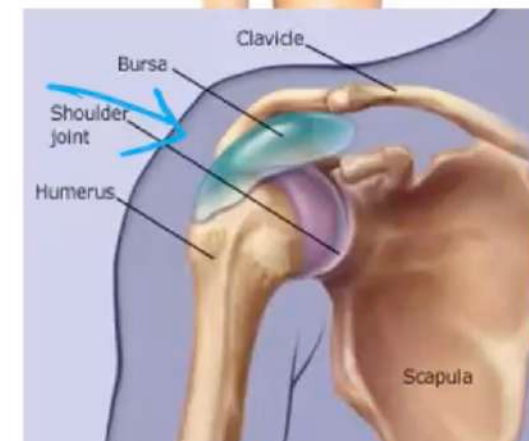
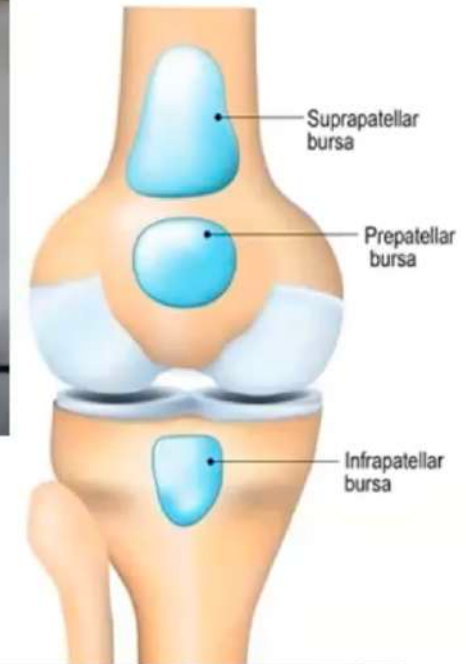
\ Cruciate (C) X C5

- Treatment :
- Steroid injection
- Operative :
- A1 pulley release.



Bursitis

- Subacromial Bursitis
- Olecranon bursitis
- Trochanteric bursitis
- Ischial bursitis
- Prepatellar and Infrapatellar bursitis
- Pes anserinus bursitis
- Retrocalcaneal bursitis



Baker's cyst

- Semimembranosus bursitis
- Communicates with knee joint
- Osteoarthritis knee
- Aspiration +/-
- Arthroscopy
- Excision



Plantar Fascitis

- Repetitive loading of foot
- Prolonged walking/ running
- Heel pain
- Tenderness at medial aspect of calcaneal tuberosity



- Xray – Normal / Calcaneal spur

- Treatment

- Antiinflammatory drugs

- Contrast bath

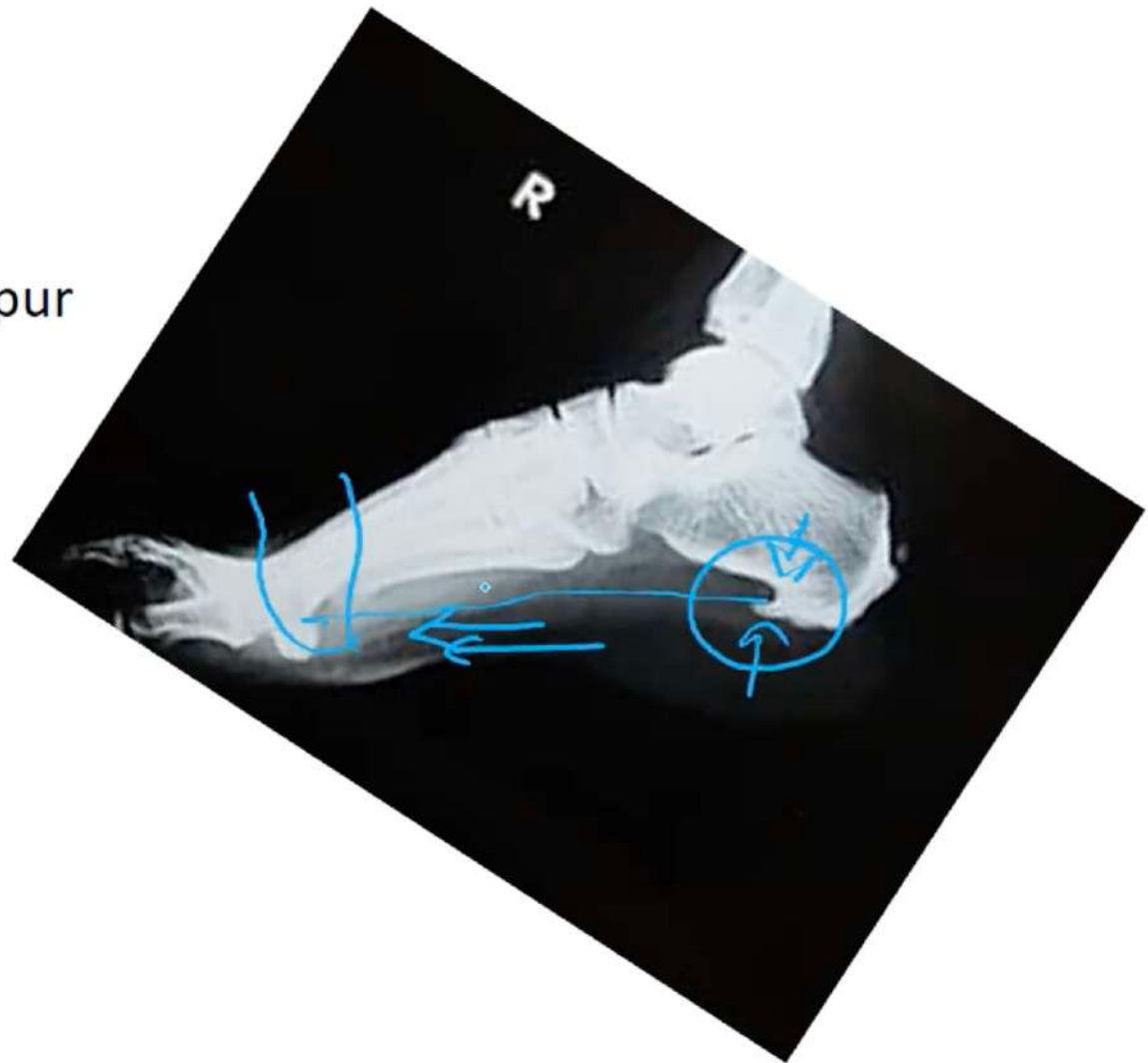
- Silicone heel pads ✓

- Stretching exercise

- Ultrasonics ✓

- Injection therapy ✓

- Excision of spur



Achilles tendinopathy

- Achilles tendinitis
- Retrocalcaneal bursitis





Runners



Ill fitting shoes

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- Xray-
- Haglund deformity



- Treatment
- Rest
- Antiinflammatory drugs
- Contrast bath
- Change of footwear- backless shoes
- Surgery- Excision.



Snapping Hip Syndromes (Coxa Saltans)

- Mainly in Dancers
- Extraarticular
 - Internal type- Iliopsoas against iliopectineal eminence
 - External type- ITB band over GT
- Intraarticular- Loose bodies in joint, Osteochondral #