# REHAB AND MANAGEMENT OF CUBITAL TUNNEL SYNDROME


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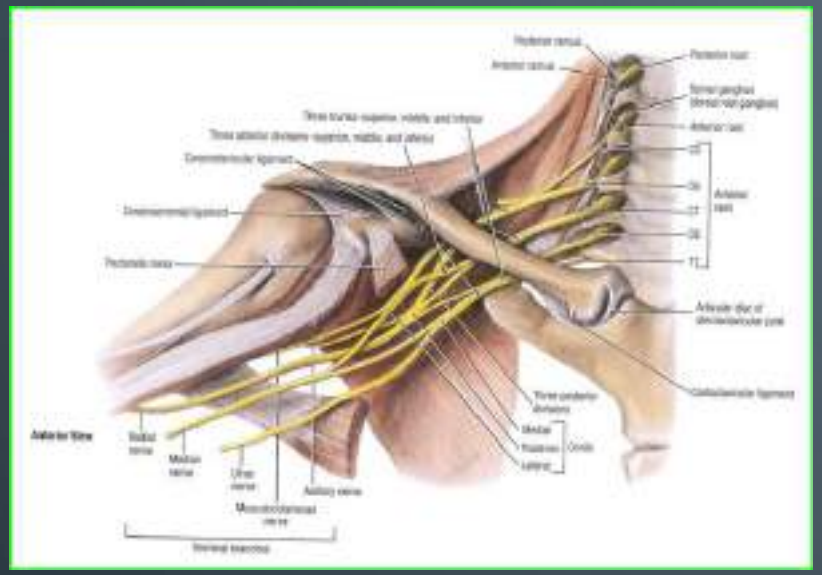
ABILITY REHABILITATION

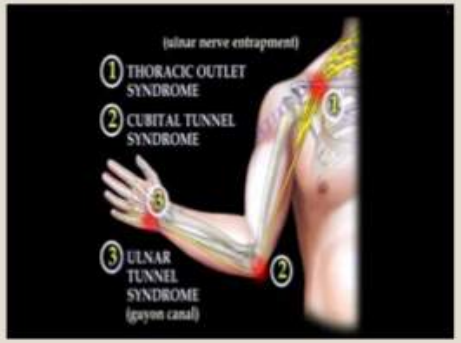
OVIEDO CLINIC MANAGER; DIRECTOR OF OT

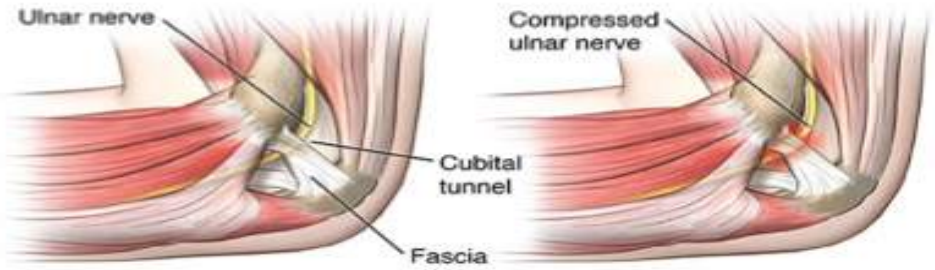
# ANATOMY/PATH OF UN IN UE



## Ulnar Nerve Entrapment

- The Ulnar Nerve can become pinched in different locations .
- 1- Thoracic outlet syndrome .
- 2-cubital tunnel syndrome .
- 3-Ulnar Tunnel syndrome .



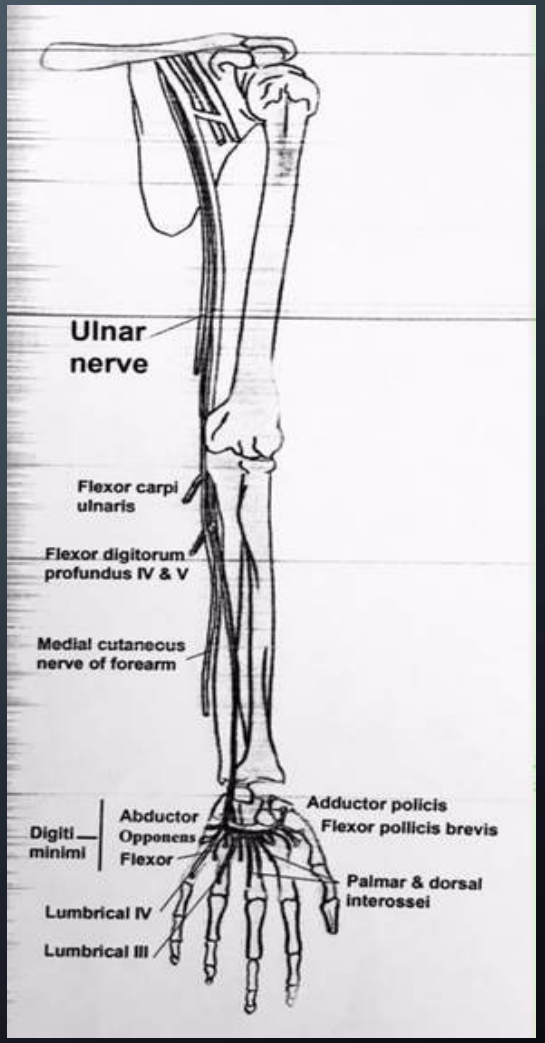

Side view of elbow

**Normal cubital tunnel**

**Ulnar nerve compressed in the cubital tunnel**

# STATISTICS

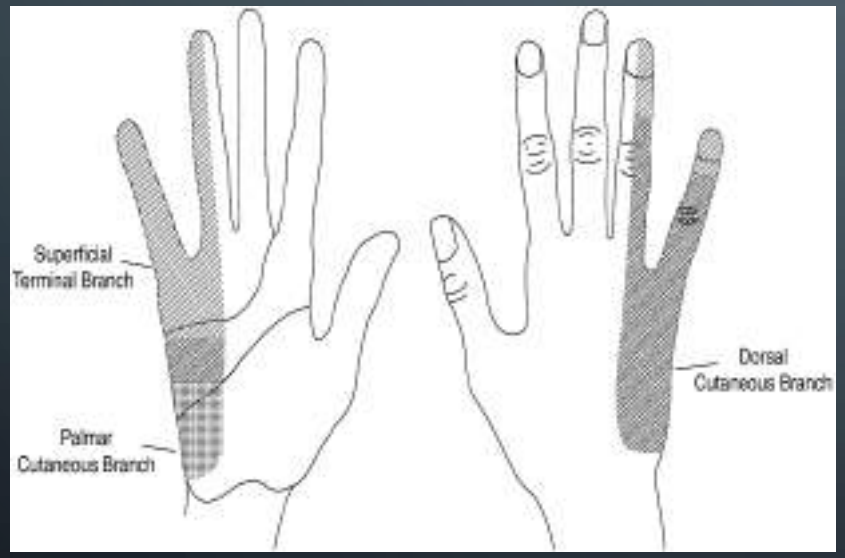
- 2nd Most common peripheral compression neuropathy (1st is Median)
- It is the largest unprotected nerve in the body (at the cubital tunnel; unprotected by muscle or bone)
- More prevalent in patients with abnormal Valgus deformity in elbow (>15 deg)
- More common in women
- Ulnar Nerve Innervates 2 forearm extrinsic muscles & 14 Intrinsic hand muscles



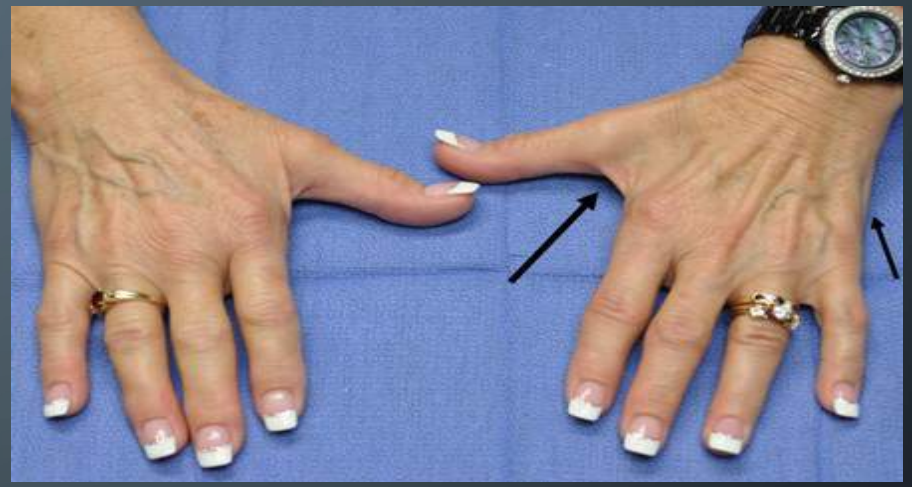
# DIAGNOSIS: CLINICAL PRESENTATION

*Achiness in medial elbow

*Paraesthesias in Ulnar hand

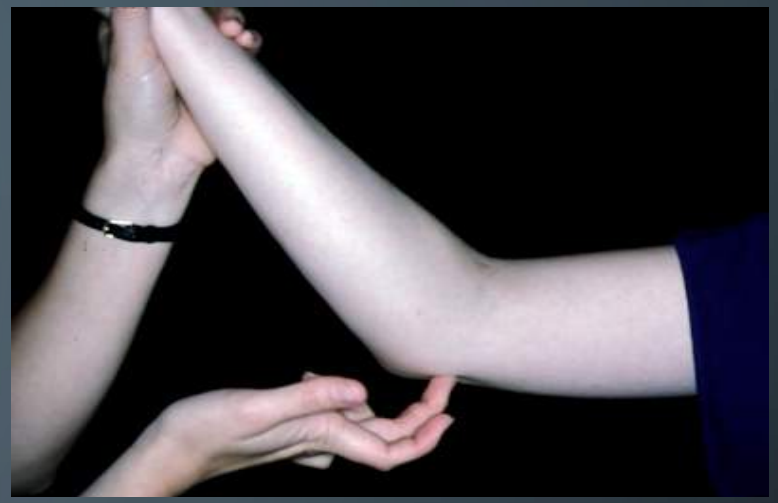


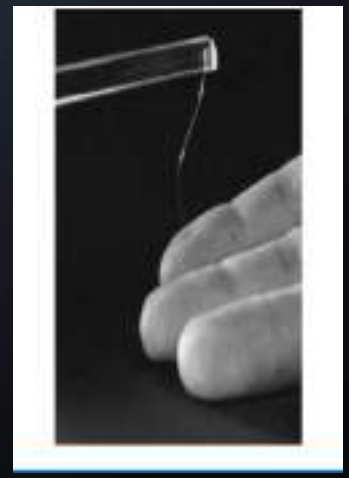

*Intrinsic Atrophy



# DIAGNOSIS:
# CLINICAL TESTING

- + TINEL'S ALONG UN AT CUBITAL TUNNEL OR GUYON'S CANAL
- + ELBOW FLEXION TEST
- DECREASED GRIP AND PINCH STRENGTH TESTING
- ELEVATED SEMMES WEINSTEIN MONOFILAMENT TEST ON DIGITS 4/5 AND POSSIBLE AT DORSUM ULNAR HAND (DUSN)
- POSITIVE EMGS/NCVS





# MCGOWAN GRADING SYSTEM FOR CTS

**GRADE 1: MILD SYMPTOMS:**

*INTERMITTENT PARAESTHESIAS & MINOR HYPOESTHESIA

*NO MOTOR CHANGE

**GRADE 2: MODERATE AND PERSISTENT SYMPTOMS**

*PARAESTHESIAS & HYPOESTHESIA

*MILD WEAKNESS IN UN INNERVATED MUSCLES

*EARLY SIGNS OF MUSCULAR ATROPHY

**GRADE 3: SEVERE SYMPTOMS:**

*PARAESTHESIA; LOSS OF SENSATION

*SIGNIFICANT FUNCTIONAL & MOTOR IMPAIRMENT

*MUSCLE ATROPHY OF HAND INTRINSICS; CLAWING OF DIGITS 4/5

# EVIDENCED-BASED INTERVENTION:

# CAUSAL FACTORS OF CTS:

- LEANING ON ELBOW

  (I.E. RESTING INJURED HAND, DRIVING, WHILE ON COMPUTER)

- HOLDING ELBOW FLEXED (*NARROWS CANAL BY 55%)

  (I.E. TALKING ON PHONE)

- SLEEPING WITH ELBOW FLEXED

  (WORSE IF SHOULDER ALSO ABDUCTED)

*AT THE WRIST LEVEL (BIKING, HAMMER SYNDROME, GUN KICK-BACK)

# EVIDENCED-BASED INTERVENTIONS

- Patient Education/Behavior Modification (avoidance)
- Nerve Glides/slides (NOT nerve tensioning)
- Splinting/protection of area (night splints, Heelbo, padded gloves)
- Medications (NSAID's)
  - *Svernlov, et.al study in JHS, 2009

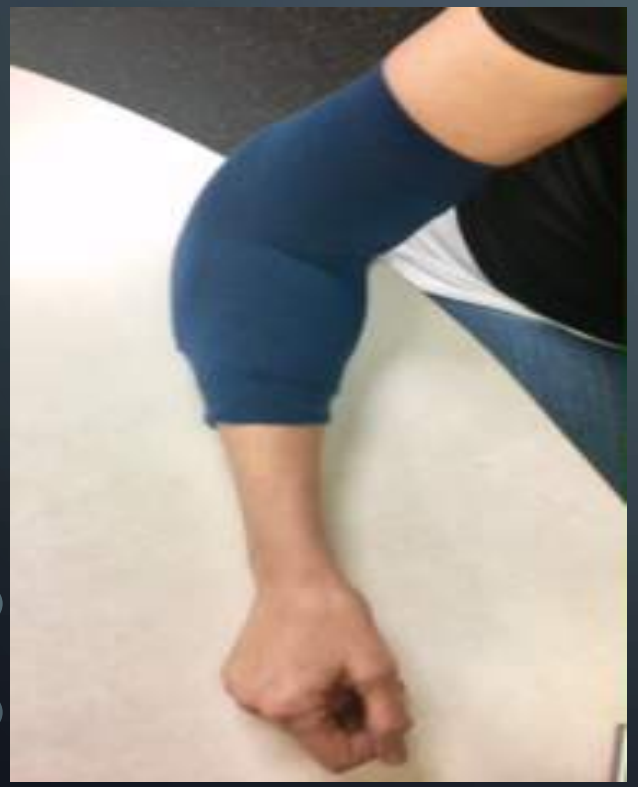
# EVIDENCED-BASED INTERVENTIONS: SPLINTS

ANTERIOR ELBOW SPLINT

ANTI-CLAW SPLINT

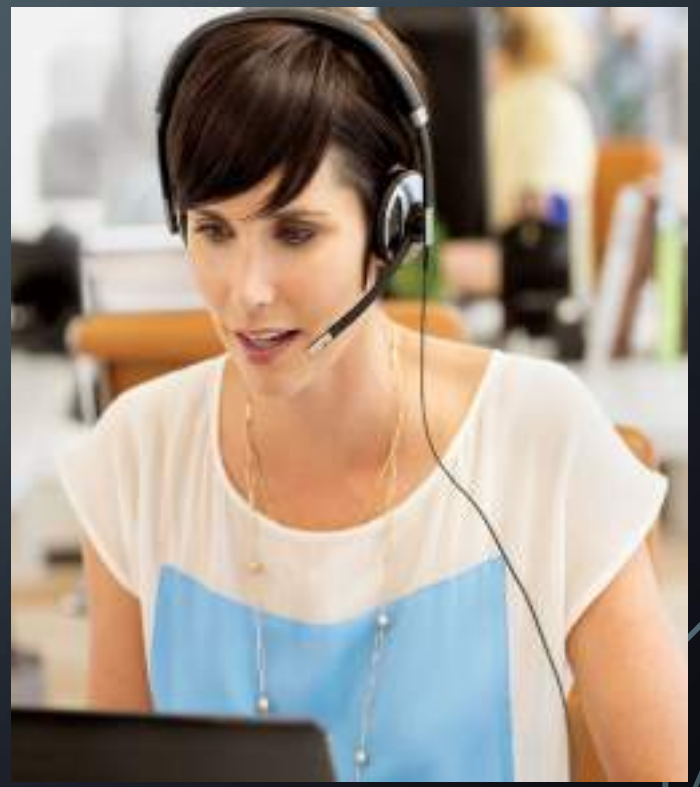
# INTERVENTIONS FOR BEHAVIOR MODIFICATIONS

HEELBO



PADDED BIKE GLOVES

EAR PIECE OR HEAD SET

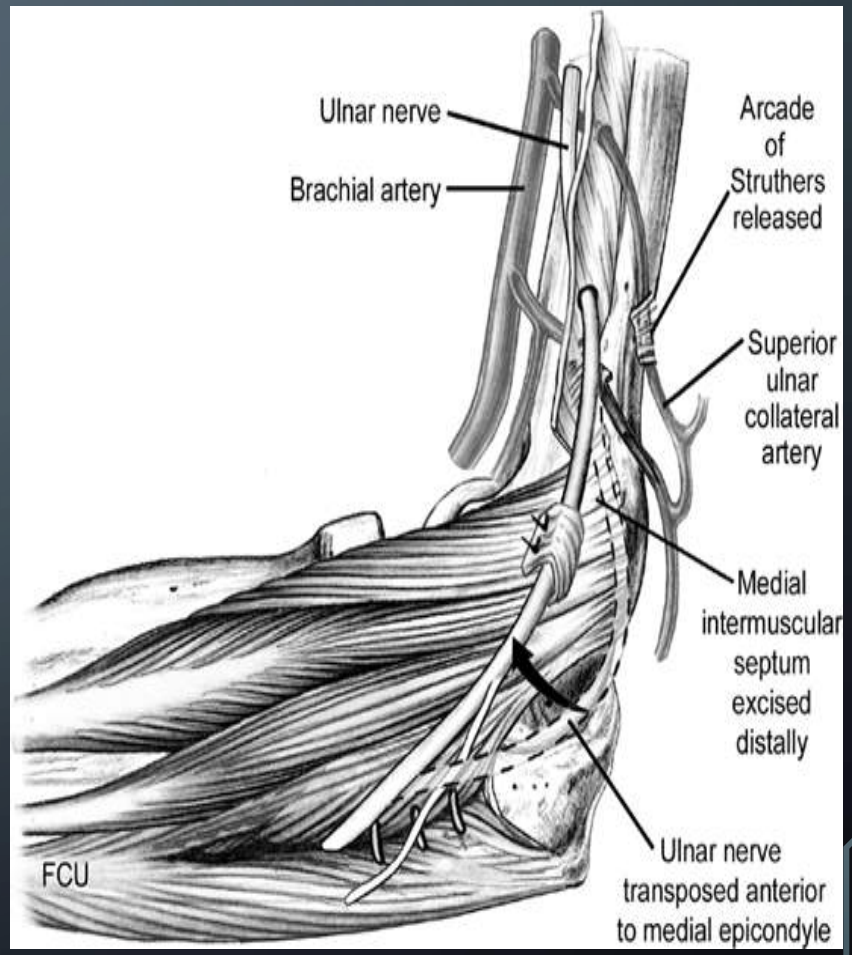


# EVIDENCED BASED INTERVENTIONS: NERVE GLIDES

- THE MEDIAN AND ULNAR NERVE MAY GLIDE 7.3 TO 9.8 MM DURING FULL FLEXION AND EXTENSION OF THE ELBOW
- BUT… ONLY NEED A FEW MM OF EXCURSION TO PROMOTE AXOPLASMIC FLOW AND BLOOD CIRCULATION FOR HEALTH OF NERVE!
- SO… KEEP IT SIMPLE! MID-RANGE ELBOW FLEX/EXT FOR 5-15 REPS (UNTIL SYMPTOMS DISSIPATE)

# SURGICAL INTERVENTIONS

- Cubital tunnel release
- Subcutaneous or Submuscular Ulnar Nerve Transposition
- Guyon's canal release
- Severe chronic compression resulting in irreversible damage may require muscle/tendon transfers to restore functional mechanics of the hand
- Rehab is indicated for all post-op patients, some requiring splinting.



# TAKE-HOME POINTS

1. CONSERVATIVE MANAGEMENT: early referral to therapy for patient education on behavior mod/avoidance, Heelbo/splints, ear piece..
2. NERVE GLIDES/SLIDES: Keep it simple! Elbow flexion/extension mid-range
3. If MUSCLE ATROPHY or CLAWING of fingers, refer to Hand Surgeon ASAP!

I DON'T' ALWAYS LEAN ON MY ELBOW,
BUT WHEN I DO, MY ULNAR NERVE GETS COMPRESSED.