

# Ulnar Tunnel Syndrome



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**Ulnar Tunnel Syndrome:** A compression neuropathy of the ulnar nerve at the wrist (within Guyon's canal) usually secondary to a ganglion cyst.

## Risk factors:

- Cyclists
- Weight lifting
- Hook of hamate/ Pisiform fracture
- Repetitive wrist trauma

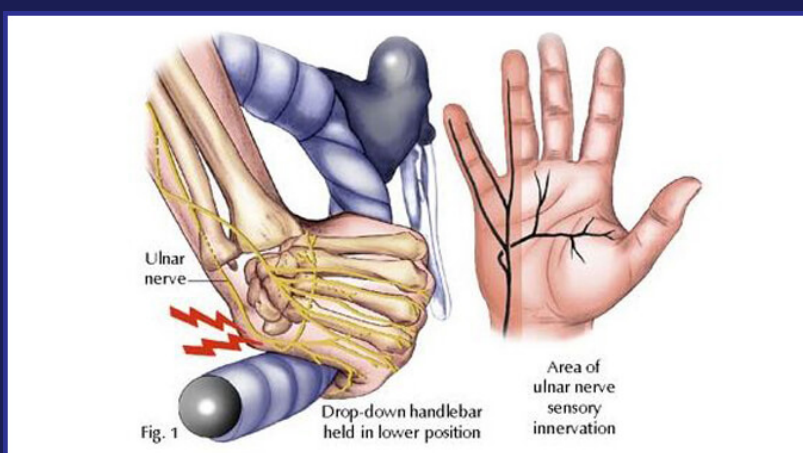
## Pathophysiology:

- The ulnar nerve bifurcates into its deep motor branch & superficial sensory branch within Guyon's canal
- **Zone 1 compression:** occurs proximal to the motor/sensory bifurcation → Caused by hook of hamate fracture/ganglion cyst → results in mixed motor and sensory symptoms
- **Zone 2 compression:** occurs distal to motor/sensory bifurcation & lateral to zone 3 (most common) → Caused by hook of hamate fracture/ganglion cyst → if deep motor branch affected, results in weakness of interosseous muscles, fourth and fifth lumbricals, hypothenar muscles
- **Zone 3 compression:** occurs distal to motor/sensory bifurcation & medial to zone 2 → Caused by ulnar artery aneurysm/thrombosis → superficial sensory terminal branch of the ulnar nerve is compromised which results in paresthesia/numbness

## Presentation

Presentation depends on location of ulnar nerve compression and can be:

1. Sensory only
  2. Motor only
  3. Mixed sensory and motor
- Pain and/or paresthesia in little & ring finger
  - Weakness of intrinsic muscles, ring & small finger digital flexion or thumb adduction



## Management

- Patient education on nature of ulnar tunnel syndrome and prognosis
- **Wrist splint** in neutral - worn during the day especially during aggravating activities
- **Activity modification** - avoidance of mechanical compression and repetitive stress at the Guyon's canal - use of ergonomic devices when cycling/ lifting
- NSAIDs
- Ulnar nerve glides - in the absence of symptom aggravation - ensure correct patient technique
- Surgical ulnar nerve decompression

## Want to learn more?

With AcePhysio the learning journey doesn't stop here! Take a look at our further reading recommendations below to become an expert in Ulnar Tunnel Syndrome:

1. Chen SH, Tsai TM. Ulnar tunnel syndrome. J Hand Surg Am. 2014 Mar;39(3):571-9
2. Dy, C. J., & Mackinnon, S. E. (2016). Ulnar neuropathy: evaluation and management. Current reviews in musculoskeletal medicine, 9(2), 178-184.
3. Strohl AB, Zelouf DS. Ulnar Tunnel Syndrome, Radial Tunnel Syndrome, Anterior Interosseous Nerve Syndrome, and Pronator Syndrome. Instr Course Lect. 2017 Feb 15;66:153-162.

## Diagnosis

- Upper limb ulnar neurodynamic test
- Important to **clear elbow joint** and exclude cubital tunnel syndrome
- Clawing of ring & little finger
- Reduced gross grip strength
- Reduced pincer grip strength - loss of thumb adduction
- **Froment sign** - compensatory IP joint hyperflexion when attempting to hold a piece of paper
- **Jeane's sign** - compensatory thumb MCP hyperextension and thumb adduction
- **Wartenberg sign** - hyperabduction of the little finger at rest
- **Allen test** - evaluates the arterial supply of the hand
- **Tinel's test** in ulnar nerve distribution
- EMG and nerve conduction test - evaluate nerve conduction compromise