

# Carpal Tunnel Syndrome

## *What You Need to Know*

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### What Is Carpal Tunnel Syndrome?

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Carpal tunnel syndrome (CTS) is the most common nerve compression disorder in the upper extremity, affecting approximately 3–6% of the general population. It occurs when the median nerve — which travels through a narrow channel at the base of the palm called the carpal tunnel — becomes compressed by swelling of the surrounding tendons or tunnel structures. This compression causes numbness, tingling, pain, and weakness in the hand and fingers.

The carpal tunnel is bounded on three sides by the carpal bones of the wrist and on one side by the transverse carpal ligament. Because the space is very tight, any swelling — from repetitive use, pregnancy, arthritis, diabetes, or thyroid conditions — can quickly compress the nerve.

### What Does It Feel Like?

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- Numbness and tingling in the thumb, index finger, middle finger, and part of the ring finger — not the little finger
- Symptoms that wake you up at night — nocturnal symptoms are a hallmark of CTS
- A feeling of the hand "falling asleep" during driving, holding a phone, or reading
- Weakness in grip and pinch — difficulty opening jars, turning keys, picking up small objects
- Dropping objects unexpectedly
- Aching that extends up the forearm in some cases
- In advanced cases: wasting (atrophy) of the muscle at the base of the thumb (thenar eminence)

### What Causes or Worsens It?

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- Repetitive hand and wrist use — especially typing, assembly work, or tool use
- Pregnancy — fluid retention increases tunnel pressure
- Diabetes — affects nerve health
- Thyroid conditions, rheumatoid arthritis, obesity

- Prolonged wrist flexion — sleeping with wrists bent

## How Is It Treated?

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### Conservative (first-line):

- Night splinting — keeping the wrist in neutral while sleeping reduces nocturnal compression
- Activity modification — avoiding sustained wrist flexion or repetitive gripping
- Nerve gliding exercises — gentle movements that mobilize the median nerve through the tunnel
- Ergonomic assessment — keyboard, mouse, and workstation positioning
- Steroid injection — reduces swelling in the tunnel, provides temporary relief

### Surgical:

- Carpal tunnel release — cutting the transverse carpal ligament to enlarge the tunnel; highly effective
- PT after surgery restores strength and mobility

## When Should I Be Concerned?

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- Constant, unremitting numbness (rather than intermittent)
- Visible wasting at the base of the thumb
- Significant weakness developing quickly

### The Good News

Carpal tunnel syndrome is one of the most successfully treated nerve compression conditions in all of medicine. With the right combination of splinting, nerve gliding exercises, and activity modification, many patients achieve lasting relief without surgery. When surgery is needed, carpal tunnel release has one of the highest success rates of any orthopedic procedure.

Carpal tunnel syndrome is **one of the most successfully treated nerve conditions** — most patients achieve full relief with the right treatment plan.

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