

# EXTENSOR POLLICIS LONGUS TENDON (EPL) RUPTURE

Patient Information



## EPL rupture and management

Your thumb is a marvel of engineering, responsible for nearly half of your hand's function. It pinches, grasps, turns keys, holds phones, and gives that essential "thumbs up." But what happens when the crucial tendon that lifts your thumb tip and pulls your thumb back suddenly snaps? This is an **Extensor Pollicis Longus (EPL) Rupture**, an uncommon but significant injury that can dramatically impact your daily life. Understanding the causes, effects, treatment paths, and recovery journey is key to regaining your thumb's power.

### Meet the EPL: Your Thumb's Lifter

Imagine a thin, strong cord running from your forearm, around the back of your wrist (near the bump on the thumb side), and attaching to the very tip of your thumb. That's your Extensor Pollicis Longus tendon. Its sole job? To straighten(extend) the tip of your thumb and help lift your whole thumb back away from your palm. Without it working properly, your thumb loses its ability to point upwards, grasp large objects effectively, or perform fine pinching tasks.

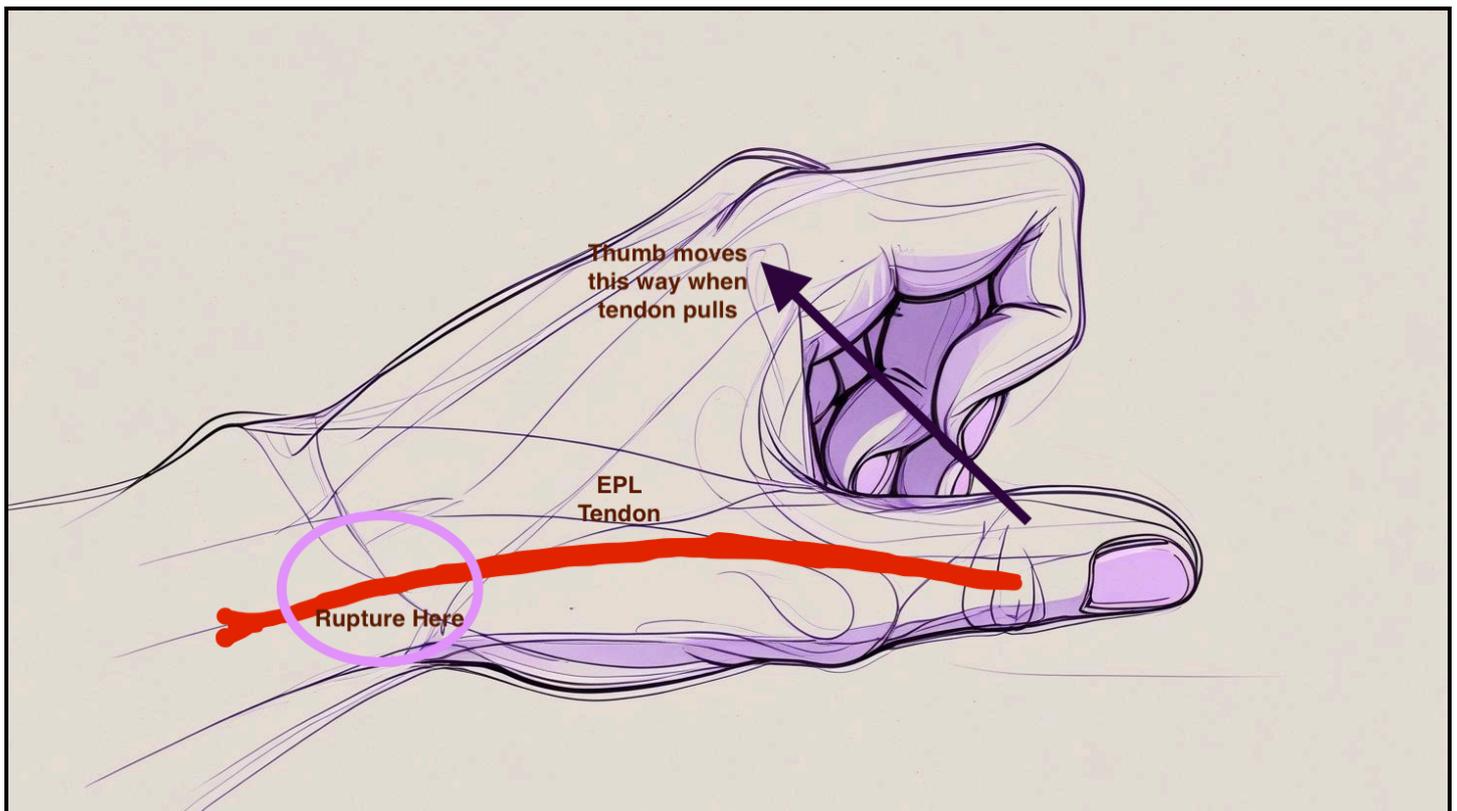
### Why Does the EPL Snap? The Common Culprits

EPL ruptures rarely happen from a single, dramatic accident like a cut (though that *is* possible). More often, they occur due to underlying stresses weakening the tendon until it finally gives way:

1. **After a Wrist Fracture (Distal Radius Fracture):** This is the **most common cause**. Even after a wrist fracture heals well, the EPL tendon can be compromised. Why?
  - **Direct Trauma:** The initial break might have bruised or damaged the tendon.
  - **Rough Edges:** As the wrist bone heals, even slight irregularities on the bone surface can rub against the tendon like sandpaper.
  - **Reduced Blood Supply:** The fracture or the subsequent swelling can choke off the delicate blood supply to the tendon in its tight tunnel near the wrist, causing it to weaken and die (necrosis) over weeks or months. You might feel fine after your cast comes off, then suddenly *snap* – your thumb tip won't lift weeks later.
2. **Repetitive activity & Inflammation (Tenosynovitis):** Jobs or hobbies involving constant, forceful thumb motions can inflame the tendon's protective sheath (tenosynovitis). Chronic inflammation thickens the sheath, narrowing the tunnel the EPL runs through, increasing friction,

and eventually leading to wear and tear rupture. Rheumatoid arthritis is a common inflammatory cause.

3. **Lister's Tubercle:** This is the specific bony bump on the back of your wrist bone (radius) that the EPL tendon hooks around. It acts like a pulley. Any abnormality here (fracture fragment, prominent bone spur) significantly increases friction and wear on the tendon.
4. **Less Common Causes:** Direct lacerations (cuts), severe wrist sprains, steroid injections near the tendon (which can weaken it), and certain systemic diseases (like lupus or gout) can also be responsible.
5. **Spontaneous rupture:** This can also occur usually in over 70's when there is no apparent reason why the tendon snaps



### The "Dropped Thumb": Recognizing an EPL Rupture

The rupture itself might feel like a sudden "pop" or "snap," often without intense pain initially. The telltale signs become apparent quickly:

- **The Dropped Thumb Tip:** You cannot actively lift the tip of your thumb upwards or bring your thumb up back behind the back of your hand. It hangs limply downwards. Try to point your thumb tip towards the ceiling with your hand flat palm down – if it won't move, suspect EPL trouble.
- **Loss of Extension:** You can't straighten the last joint of your thumb against any resistance or sometimes at all.
- **Weak Pinch & Grip:** Activities requiring a strong "key pinch" (holding a key) or a firm grasp (lifting a mug) become difficult or impossible. Your thumb collapses instead of staying rigid.
- **Altered Thumb Motion:** Lifting your whole thumb away from your palm (retropulsion) is weakened, often requiring you to use other muscles in a less efficient way.
- **Swelling/Bruising (Sometimes):** There might be mild swelling or bruising over the back of the wrist/thumb area, especially if the rupture was traumatic.

- **The "Hitchhiker's Sign":** When you try to lift your thumb against resistance, the tip droops further, resembling an exaggerated hitchhiking position.

## Getting Back on Track: Treatment Options

Ignoring an EPL rupture won't work. The tendon ends rapidly retract (pull apart), and the gap fills with scar tissue, making spontaneous healing impossible. Treatment is almost always necessary to restore function. The choice depends on *why* it ruptured, *how long ago*, your age, activity level, and overall health.

### 1. Surgical Repair:

- **Primary Repair:** If the rupture is very recent (within days or a couple of weeks), caused by a clean cut(laceration), *and* the tendon ends are still of good quality, a surgeon might be able to stitch them directly back together. This is the ideal scenario but is very rarely possible.
- **Tendon Transfer (The Gold Standard):** This is the **most common and reliable solution**, especially for ruptures caused by fractures, wear-and-tear, or those diagnosed weeks/months later. A surgeon takes a less critical tendon (usually the *Extensor Indicis Proprius* - EIP, which solely extends the index finger tip) from your forearm, reroutes it, and attaches it to the stump of the ruptured EPL tendon. The EIP is chosen because its function is easily compensated for by other tendons, and it's the right size and strength. This transfer essentially gives your thumb a new "motor" for extension.
- **Tendon Graft:** If the remaining EPL stump is too short or damaged, a surgeon might bridge the gap using a piece of tendon harvested from another location (like your forearm or foot). This is less common than tendon transfer for EPL rupture.
- **Addressing the Cause:** Crucially, surgery also tackles the original problem. This means smoothing down any rough bone (like Lister's tubercle), releasing any tight or inflamed tendon sheaths (tenosynovitis), or removing scar tissue (tenolysis). Failure to do this risks the repair or transfer rupturing again.

### 2. Non-Surgical Management (Rarely Used):

- This is generally only considered for individuals who are very frail, have severe medical conditions making surgery risky, or have minimal functional demands and can adapt to the weakness. It involves custom splinting to position the thumb tip straight and intensive therapy to train other muscles to compensate. However, function remains significantly impaired.

## The Road Back: Rehabilitation & Recovery

Recovery from EPL surgery, especially tendon transfer, is a marathon, not a sprint. Patience and commitment to therapy are paramount. Expect a process spanning **3 to 6 months or more** for full functional return.

### ● Phase 1: Protection & Early Motion (Weeks 0-6):

- You'll be placed in a specialised splint or cast, typically holding your wrist and thumb in a position that protects the repair/transfer while minimizing tension. This stays on almost constantly initially.
- **Early Controlled Motion (Often ~Week 3-4):** Under strict guidance from your therapist, you'll begin *very gentle, protected* exercises. This might involve passively moving your thumb (the therapist moves it for you) or performing specific muscle activations *without* moving the

repaired tendon much. The goal is to prevent severe stiffness and adhesions (scar tissue sticking the tendon down) without stressing the healing connection.

- **Oedema (Swelling) Management:** Elevation, compression garments, and specific massage techniques are crucial to control swelling, which can impede healing and motion.
- **Scar Management:** Gentle massage and silicone sheeting may begin once the incision is well-healed to keep scar tissue soft and mobile.
- **Phase 2: Building Motion & Light Function (Weeks 6-12):**
  - The protective splint is often modified or worn less frequently (e.g., only at night or during risky activities).
  - Therapy intensifies focus on **actively regaining thumb extension**. You'll learn exercises to specifically activate the transferred tendon.
  - Gentle strengthening begins using soft putty, light bands, or specific grips.
  - Reintroduction of basic, light daily activities (holding a toothbrush, light keyboarding) starts, guided by your therapist.
  - Continued scar management and edema control.
- **Phase 3: Strengthening & Functional Integration (Months 3-6+):**
  - Splinting is usually discontinued.
  - Progressive strengthening becomes the primary focus – using progressively firmer putty, resistance bands, hand exercisers, and functional tasks (squeezing clothespins, manipulating coins, turning doorknobs).
  - **Neuromuscular Re-education:** Your brain needs to learn to use the transferred tendon effectively for thumb movement instead of its original job. This involves practicing thumb extension in increasingly complex and functional patterns.
  - **Activity-Specific Training:** Tailoring exercises to your personal, work, or hobby demands (e.g., typing, writing, using tools, playing an instrument, sports).
  - Focus on restoring fine motor control and dexterity.

**Commitment is Key:** Attending all therapy appointments and diligently performing your home exercise program multiple times a day is non-negotiable for a successful outcome. Pushing too hard risks rupture; not pushing hard enough leads to stiffness and poor function.

### **What Can You Expect? Outcomes After Treatment**

With proper surgery and dedicated rehabilitation, the outlook for EPL rupture is generally **very good**:

- **High Success Rate:** Tendon transfer surgery boasts success rates exceeding 90% in restoring functional thumb extension.
- **Restored Function:** Most patients regain the ability to extend their thumb tip fully or nearly fully. Pinch and grip strength significantly improve, often approaching near-normal levels. The "dropped thumb" deformity is corrected.
- **Return to Activities:** The vast majority can return to their previous jobs, hobbies, and daily activities without major limitations.
- **Adaptation:** It takes time (months) for the transferred tendon to feel completely "natural." Your brain adapts remarkably well, and the movement eventually becomes automatic.

### **Realistic Expectations:**

- **Residual Weakness:** While strength greatly improves, it might not quite match your uninjured side, especially for very forceful activities.
- **Motion:** Full range of motion is usually achieved, but occasionally a slight limitation in the final few degrees of extension or bending might remain.
- **Stiffness & Discomfort:** Some initial stiffness is normal and improves with therapy. Occasional aching, especially with weather changes or heavy use, can persist long-term but is usually manageable.
- **Scarring:** You will have surgical scars. While they fade, they remain visible. Scar tenderness usually resolves.
- **Cold Sensitivity:** Nerves around the surgical site can be temporarily (or sometimes persistently) sensitive to cold.
- **Timeline:** Full recovery takes consistent effort over many months. Don't get discouraged by slow progress – celebrate the small victories.

### **Prevention is Possible (Sometimes)**

While not all ruptures are preventable, you can reduce risk:

- **After Wrist Fracture:** If you've had a distal radius fracture, discuss the risk of EPL rupture with your doctor. Early supervised motion after cast removal and vigilance for any new thumb weakness are crucial.
- **Manage Inflammation:** If you have rheumatoid arthritis or other inflammatory conditions, work closely with your rheumatologist to manage disease activity and inflammation affecting tendons.
- **Listen to Your Body:** Pay attention to persistent pain or swelling at the back of your wrist/thumb, especially with repetitive activities. Early intervention for tenosynovitis can prevent rupture.
- **Ergonomics:** Modify repetitive tasks that strain the thumb. Use tools with larger grips, take breaks, and vary activities.

### **Conclusion**

An Extensor Pollicis Longus rupture is a significant event that robs your thumb of its lifting power. Understanding that it's often a consequence of underlying issues like a healed wrist fracture or chronic inflammation is important. While the sudden loss of function is alarming, know that effective solutions exist. Surgical tendon transfer, followed by a dedicated, months-long rehabilitation journey, offers an excellent chance of restoring your thumb's vital extension and getting you back to confidently using your hand in all aspects of life. Partner closely with your hand surgeon and therapist – your commitment to the process is the most powerful predictor of a successful return to the activities you love. Remember, a "thumbs up" recovery is absolutely achievable.