

EPL/APL/EPB repair – Early Active Protocol (zones 2 – 5)

This protocol is intended to provide the clinician with a guideline for the postoperative rehabilitation course of a patient who has undergone repair of the thumb extensors in zones 2 – 5. **NOTE: for Zone 1 see Mallet protocol!** General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, comorbidities, pre-surgical range of motion, strength, health/functional status, rehabilitation compliance, learning barriers and complications. Specific time frames, restrictions and precautions are given to protect healing tissues and surgical reconstruction.

Postoperative Guidelines

Surgical Indication

Acute rupture or laceration of the thumb extensor tendon zones 2 – 5 of the thumb.

Pain and swelling

This procedure can be painful during the recovery period and can cause swelling. It is normal for hand and thumb to be swollen 6–12 months after surgery.

Redness does not always indicate infection but a lot of drainage from the wound is usually a sign of infection.

Return to Work

The timeline for returning to work can vary depending on the type of work performed, various accommodations that may be available within your work environment, and any postoperative complications. Your surgeon will discuss the timeline for returning to work after consideration of these factors.

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Phase I (surgery to 10 days after surgery)

Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy will be schedule at 3 to 5 days post operatively or the same day as when you see your physician after surgery
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Scar management Control edema and pain Activities of daily living (ADLs) with safe use of custom orthosis and activity modifications Monitor
Orthosis	<ul style="list-style-type: none"> Fabricate forearm-based Thumb Spica orthosis with volar gutter piece for Interphalangeal joint (IPJ) in hyperextension. Metacarpophalangeal (MP) joint should be positioned at 0 degrees of extension with thumb in radial abduction and extension and, wrist in 20 to 30 degrees of extension
Suggested therapeutic exercises	<ul style="list-style-type: none"> Perform short arc synergistic wrist flexion and extension with thumb is protected position (radial abduction and extension with MP and IP in extension) Perform IPJ blocked flexion to about 25% of range of motion (flicker) followed by full active IPJ extension
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2 pounds No functional use of the thumb and wrist

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Phase II (3 weeks after surgery)

Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy 1-2x per week
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Resume ADLs within pain tolerance and limitation of orthosis. Scar management. Consider initiation of ultrasound at this time if scar adherence is present. Edema management Desensitization Adjustments/modifications to orthosis as necessary Monitor extensor lag
Suggested therapeutic exercises	<ul style="list-style-type: none"> Initiate opposition to index, middle, and ring finger allowing the thumb to perform full extension after each finger opposition. If IPJ stiffness is significant, consider increasing IPJ blocking flexion to 50-75% of range of motion.
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2 pounds No functional use of thumb and wrist
Progression criteria	<ul style="list-style-type: none"> If no IPJ extensor lag present, progress to above therapeutic exercises



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Phase III (4 weeks after surgery)

Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy 1-2x per week
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Resume ADLs within pain tolerance and limitation of orthosis. Scar management Edema management Desensitization Adjustment/modifications to orthosis as necessary Monitor extensor lag
Suggested therapeutic exercises	<ul style="list-style-type: none"> Initiate full composite thumb flexion and full opposition to the base of the small finger. Initiate full IPJ flexion blocking with continued emphasis on active extension
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2 pounds No functional use of the thumb and wrist
Progression criteria	<ul style="list-style-type: none"> If no IPJ extensor lag present, progress to above therapeutic exercises

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Phase IV (5 weeks after surgery)

Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy 1-2x per week
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Patient may begin to wean from orthosis. Patient may not wear an orthosis for light activities about 30 minutes to 1 hour at a time 3-4x per day. Continue to wear for moderate and heavy activities as well as at night. Scar management Edema management Adjustments/modifications to orthosis as necessary Monitor extensor lag
Suggested therapeutic exercises	<ul style="list-style-type: none"> Continue with home exercise program initiated at 4 weeks Initiate light therapeutic activities for pinch, and grasp and release Initiate isometric thumb extension to maximize glide of EPL tendon
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2 pounds
Progression criteria	<ul style="list-style-type: none"> If no IPJ extensor lag present, progress to above therapeutic exercises and orthosis wearing schedule

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Phase V (6 weeks after surgery)

Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy 1-2x per week
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Continue to wean from orthosis. Patient may not wear an orthosis for light and moderate activities. Consider transitioning to IPJ extension orthosis, like an oval-8 during the day. Continue to wear for heavy activities as well as at night Scar management Edema management Adjustments/modifications to orthosis as necessary Monitor extensor lag
Suggested therapeutic exercises	<ul style="list-style-type: none"> Initiate passive range of motion if needed If significant adherent scar tissue and/or joint stiffness is present, may consider dynamic splinting for composite IP and MP flexion
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2-5 pounds
Progression criteria	<ul style="list-style-type: none"> If no IPJ extensor lag present, progress to above therapeutic exercises and orthosis wearing schedule

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Rehabilitation appointments	<ul style="list-style-type: none"> Occupational therapy 1-2x per week
Rehabilitation goals and priorities	<ul style="list-style-type: none"> Discontinue orthosis except for heavy activities and at night Scar management Edema management Monitor extensor lag
Suggested therapeutic exercises	<ul style="list-style-type: none"> Initiate grip and pinch strengthening as tolerated
Precautions	<ul style="list-style-type: none"> No lifting, pushing, or pulling with involved hand/upper extremity more than 2-5 pounds
Progression criteria	<ul style="list-style-type: none"> If no IPJ extensor lag present, progress to above therapeutic exercises and orthosis wearing schedule



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Phase VII (12 weeks after surgery)

Rehabilitation appointments	<ul style="list-style-type: none">• Discontinue therapy if appropriate
Rehabilitation goals and priorities	<ul style="list-style-type: none">• No restrictions at this time. Patient should return to all activities as tolerated• Initiate participation in leisure activities
Suggested therapeutic exercises	<ul style="list-style-type: none">• Continue ROM and strengthening as needed
Precautions	<ul style="list-style-type: none">• No restrictions
Progression criteria	<ul style="list-style-type: none">• If no IPJ extensor lag present, progress to above therapeutic exercise and orthosis wearing schedule

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References

- Crosbie, Jack & Miller, Lauren. (2013). The benefits of early active motion on thumb range of motion following extensor pollicis longus tendon repair in zones TIII-TV: A prospective comparison pilot study. *Hand Therapy*. 18. 10.1177/1758998313509234.
- Howell JW, Merritt WH and Robinson SJ. Immediate controlled active motion following zone 4–7 extensor tendon repair. *J Hand Therapy* 2005; 18: 182–190.
- KHANDWALA AR, BLAIR J, HARRIS SB, FOSTER AJ, ELLIOT D. Immediate Repair and Early Mobilization of the Extensor Pollicis Longus Tendon in Zones 1 to 4. *Journal of Hand Surgery*. 2004;29(3):250-258. doi:10.1016/J.JHSB.2003.12.006
- Newport ML, Blair WF and Steyers CM. Long-term results of extensor tendon repair. *J Hand Surgery [Am]*1990; 15: 961–966.
- Patillo D and Rayan GM. Open extensor tendon injuries: an epidemiologic study. *J Hand Surgery* 2012; 17: 37–42.
- Rehabilitation of the hand and upper extremity 7th edition; chapter 33 PP 476 – 477 Sapienza A, Yoon HK, Karia R, et al. Flexor tendon excursion and load during passive and active simulated motion: a cadaver study. *J Hand Surgery [Br]* 2012 (online) December 6, 1753193412469128.

These rehabilitation guidelines were developed collaboratively between UW Health and UnityPoint Health - Meriter Rehabilitation and the UW Health Orthopedic Surgeons.

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