

Department of Rehabilitation Services Occupational Therapy

Flexor Digitorum Superficialis and Profundus Repair Early Active Motion Protocol for Zones 1-5

This protocol is by not intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a patient, they should consult with the referring surgeon. The time frames of phases I-IV are examples and can be adjusted based on the given procedure. Progression to the next phase is based on the clinical criteria and/or time frames, as appropriate. Exercise frequency is determined by therapist. Exercises may range from 10 repetitions for 3 sets four to six times/day to 10 repetitions hourly when awake.

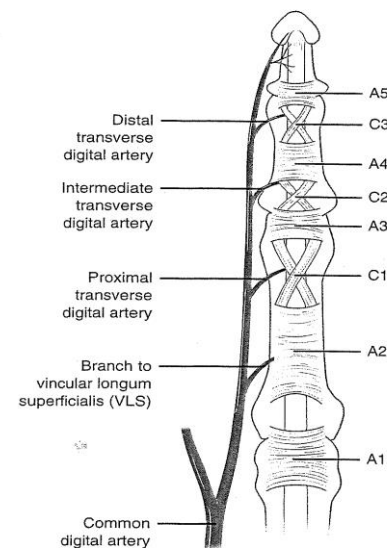
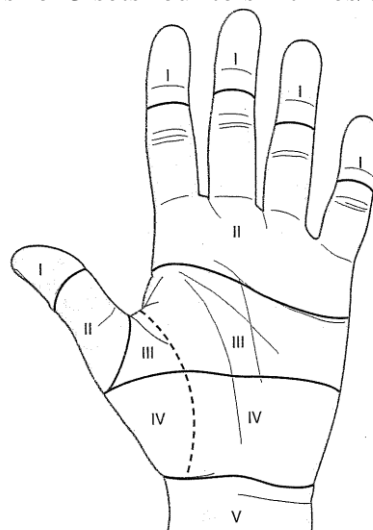
Zone I: distal to FDS insertion

Zone II: over the A1 pulley to FDS insertion

Zone III: distal from transverse carpal ligament to A1 pulley

Zone IV: within the carpal tunnel

Zone V: proximal to transverse carpal ligament



Photos: pages 6 -7; Tendon Surgery of the Hand (2012).

Goal: Protect flexor tendon repairs to prepare for functional use of hand while improving tendon glide, avoiding gapping or rupture and limiting adhesions.

Precautions: No passive wrist extension beyond 0° for zones 4-5 if median or ulnar nerves were repaired until 6 weeks post op. Avoid “place and holds” due to buckling of the repaired tendon against the pulley. Consider tendon tension, nerve repair, nicotine or long-term steroid usage, diabetes and reliability of patient. When early active motion is deferred by surgeon, perform Modified Duran protocol.

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Frequency: one to two times/week for 8 to 12 weeks.

Early Active Controlled Motion:

PHASE	ORTHOTICS	THERAPEUTIC EXERCISES	CONSIDERATIONS
I Immediate phase: day 3 to 2 weeks.	<p>Zones 1 -3: dorsal forearm-based blocking with wrist extended 20° with MCPs flexed 30°-40°, PIP & DIP joints 0°.</p> <p>Zones 4 & 5: dorsal forearm-based blocking orthotic: wrist 0°, MCPs flexed 60°-75°, PIP & DIP joints 0°.</p> <p>Pulley ring orthosis is pulley repaired.</p>	<ol style="list-style-type: none"> 1. Passive DIP flexion & active extension to orthosis. 2. Passive PIP flexion & active extension to orthosis. 3. Passively MCPs in 60°-80° flexion and active extension of PIP, DIP joints to 0° to orthosis. 4. Passive wrist flexion & active wrist extension to orthosis. 5. On day 4-5, following passive exercises, perform active motion to gain 25% of fist & active extension to orthosis. 	<p>Repaired tendon strength reduces as the angle of tension is increased around the joint axis. Tendon repair is weakest post op day 5-21.</p> <p>Refer to photo in attached page 5 addendum for 25% of fist.</p>
II: Protective phase: 2-4 weeks	Week 4, transition orthosis to hand based.	<ol style="list-style-type: none"> 1. Active motion to gain 50% of fist & active extension to orthosis. 2. Week 3-4, active 75% of fist & active extension to orthosis. 3. Week 3, remove orthosis in clinic for light fine motor activity. 4. Week 4, begin flexor tendon gliding and FDS isolated gliding to repaired finger with wrist in 0°-20°. Wrist tenodesis. Begin light fine motor activities at home. 	Refer to photo in attached page 5 addendum for 50% fist.
III: Intermediate phase 4-6 weeks	<p>Gradually wean from orthosis during day. Discharge orthosis by 6 weeks.</p> <p>6 weeks post op, if IP joints are stiff in flexion, convert dorsal block to</p>	<ol style="list-style-type: none"> 1. Flexor tendon gliding with wrist extended 20°-30°. 2. 5 weeks, DIP & PIP blocking. 3. 6 weeks, progression of functional activities. 	<p>No composite wrist beyond 30° & combined finger extension until 6 weeks.</p> <p>Avoid PIP & DIP joint blocking to small finger (increases risk of rupture).</p>

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	volar hand based nighttime orthosis for zone 2 or to volar forearm based for zone 3.		Weight lifting restriction.
IV: Minimal protection phase: 6-12 weeks	Discharge night time orthosis when digital active extension is 0.	Week 8: begin light graded strengthening. Resisted isolated DIP & PIP flexion. Progress with work and sport activities to unrestricted participation with MD authorization.	No resisted grip or pinch exercises until 8 weeks post op.

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Addendum:



EAM: Week 1 to 2 touching IF or 25%

EAM: Week 2 to 3 touching LF or 50%

EAM: Week 3 to 4 touching RF or 75%

