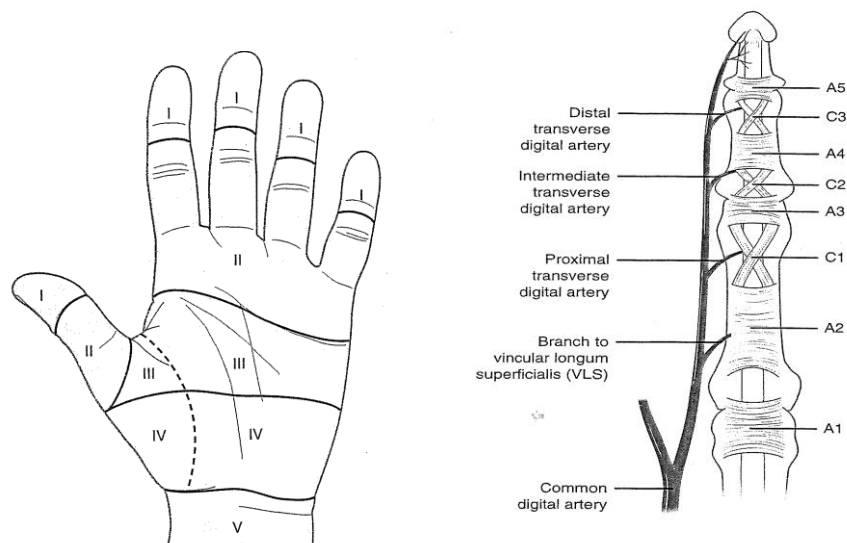


Department of Rehabilitation Services Occupational Therapy

Flexor Digitorum Superficialis and Profundus Repair Modified Duran Protocol for Zones 1-5

This protocol is 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.

Flexor Digitorum Superficialis and Profundus Repair Modified Duran Protocol

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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.

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

Early Passive Motion (Modified Duran)

PHASE	ORTHOTIC	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 if 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 block MCPs in 60°-80° flexion and active PIP, DIP extension to 0° to orthosis. 4. Passive composite fist 5. Passive wrist flexion & active extension to orthosis. 6. Therapist removes orthosis. Passive wrist extension with fingers flexed passively. Passive wrist flexion with passive hook fisting to prevent intrinsic tightness. 	<p>Reduced blood flow in zone 1.</p> <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>

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<p>II: Protective phase: 2-4 weeks</p>	<p>Week 4, transition orthosis to hand based.</p>	<ol style="list-style-type: none"> 1. Week 3, remove orthosis in clinic for light fine motor activity. 2. Week 4, begin flexor tendon gliding and FDS isolated gliding to repaired finger with wrist in 0°. Wrist tenodesis. Begin light fine motor activities at home. 	
<p>III: Intermediate phase 4-6 weeks</p>	<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 volar hand based nighttime orthosis for zone 2 or to forearm based for zone 3.</p>	<ol style="list-style-type: none"> 1. Flexor tendon gliding with wrist extended 20°. 2. 5 weeks, DIP & PIP blocking. 3. 6 weeks, progression of functional activities. 	<p>No composite wrist beyond 20° & combined finger extension until 6 weeks.</p> <p>Avoid PIP & DIP joint blocking to small finger--increases risk of rupture.</p> <p>Weight lifting restriction.</p>
<p>IV: Minimal protection phase: 6-12 weeks</p>	<p>Discharge night time orthosis when digital active extension is 0°.</p>	<p>Week 8: begin light graded strengthening.</p> <p>Resisted isolated DIP & PIP flexion. Progress with work and sport activities to unrestricted participation with MD authorization.</p>	<p>No resisted grip or pinch exercises until 8 weeks post op.</p>

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