Kansas City Orthopedic Alliance

Flexor tendon repair zones 1-3 Modified Duran (Passive)

This protocol is intended to provide the clinician with a guideline for the postoperative rehabilitation course of a patient who has undergone flexor digitorum superficialis and/or flexor digitorum profundus repairs whose surgeon has specifically ordered a Modified Duran or passive 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.

After 4 weeks, use Strickland's Percentage to track progress. (.stricklands smartphrase)

((Active PIP + DIP) - PIP extension lag) divided by 175) x 100 = % of normal active PIP and DIP motion

Excellent = 85-100%
Good = 70-84%
Fair = 50-69%
Poor = <50%

*Measurements were taken actively, not after place and hold

Postoperative Guidelines

First post-operative visit should be 3-7 days post operatively.

If patient is diabetic, a smoker or has other underlying medical conditions to have slow healing, they may need extended orthotic time to achieve a satisfactory outcome.
For Zone 1 repairs, in addition to Wrist Hand Finger Orthosis (WHFO), consider dorsal blocking splint positioning DIP of affected digit in 45 degrees flexion

Return to Work

Patients who work as manual laborers are normally able to return to work approximately 3-6 months after surgery. Those who have sedentary professions are normally able to return to work 6-8 weeks after surgery. The following should be taken into consideration:

- Extent of Injuries
- Type of work
- Surgeon’s approval
- Postoperative complications

Phase I (surgery to 3-5 days after surgery)

Rehabilitation appointments	• 2-4 times for the first month
Rehabilitation goals and priorities	• Protect tendon repair • Teach PROM • Manage edema • Wound healing • One-handed activities of daily living (ADLs)
Orthosis	• Custom thermoplastic dorsal blocking WHFO • Wrist in neutral to slight extension, MCPs 70 degrees flexion, IPs full extension • If needed, apply light compression (example: coban or compressogrip) for edematous finger(s).
Suggested therapeutic exercises	• Performed within splint at home, 10 reps each every 1-2 hours (no less than 5x/day) • Passive flexion and active/passive extension. • Passive composite fist • Passive hook fist.
Precautions	• Orthosis on 24/7 (including bathing), remove ONLY for careful hygiene at sink
Progression criteria	• Full PROM of finger(s): passive flexion pulp to palm

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Phase II (4-6 weeks post-op)

Rehabilitation appointments	• Twice per week
Rehabilitation goals and priorities	• Tendon gliding to optimize intrinsic tendon healing and minimize extrinsic scarring • Manage edema • Manage scar
Orthosis	• Allow removal of orthosis to shower, emphasizing not to use affected hand while bathing • Orthosis on 24/7, remove ONLY for careful hygiene • Modify orthosis to wrist at 30 degrees extension, MCPs at 30 degrees flexion, and IPs in extension.
Suggested therapeutic exercises	• Measure using Strickland's to determine progression of exercises according to flexor tendon pyramid • Passive flexion and extension warm-up-FIRST • Gentle active tendon gliding exercises, focusing on hook, composite and straight fist. • Block MCP in full extension and perform full active IP extension • Synergistic wrist motion: gravity-assisted wrist flexion (pronated) followed by active wrist extension to splint
Precautions	• No functional use of hand. • No composite finger/wrist extension

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Phase III (6-8 weeks post-op)

Rehabilitation appointments	• Twice per week
Rehabilitation goals and priorities	• Progress to full AROM • Being using hand for specific light ADL tasks while seated
Orthosis	• Discontinue splint

Suggested therapeutic exercises	• Continue progression using Strickland's measurement and clinical reasoning, based on individual patient response
	• Blocking: stabilize finger on lateral surfaces (to minimize work of flexion)
	  ○ Begin with blocking MPJ in slight flexion
	  ○ Progress to blocking MPJ in full extension
	  ○ Progress to blocking PIPJ in slight flexion
	  ○ Progress to blocking PIPJ in full extension

Precautions	No lifting/pulling/pushing/gripping
Progression criteria	Strickland's Percentage= ((Active PIP + DIP flexion) - (PIP + DIP extension lag)) divided by 175) x 100 = % of normal active PIP and DIP motion • Excellent = 85-100% • Good = 70-84% • Fair = 50-69% • Poor = <50% • Measurements taken actively, not after place and hold

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Phase IV (8-12 weeks post-op)

Rehabilitation appointments	• Depending on scar, frequency varies from 2 times per week to 2 times per month
Rehabilitation goals and priorities	• Progress to using hand for light ADL/IADL tasks • Full AROM • Minimize scarring • Gradually increase strength

Suggested therapeutic exercises	• Passive composite finger/wrist extension
	  ○ Consider spring extension splint or thermoplastic night splint as needed if flexion contracture at PIPJ
	• Consider otoform mold or silicone gel sheeting for scar
	• Isolated IP flexion activities
	  ○ Scrunching washcloth on table with palm flat
	  ○ Picking up progressively smaller objects between pulp of affected finger(s) and palm
	  ○ Rotating cylindrical objects on tabletop between thumb and affected finger(s)
	  ○ Actively moving between hook fist and composite fist while holding a pen or highlighter
	• Initiate strengthening if needed (light theraputty)

Precautions	• No dynamometer testing • No torque/resistance activity allowed