



Rehabilitation Practice Guidelines for: Medial Patellofemoral Ligament (MPFL) Reconstruction and Proximal Realignment

Assumptions: Soft tissue healing (4-6 weeks) for VMO advancement (proximal realignment) to graft
Tendon to bone healing (12 weeks) graft to bony attachments

Primary surgery: Reconstruction of the Medial Patellofemoral Ligament using semitendinosus
autograft, with VMO advancement and limited lateral release

Secondary surgeries: 1) Distal Realignment
2) Patellar/ Trochlear Chondroplasty

Precautions:

- WBAT with Immobilizer locked in full extension for 4 weeks, progressing to functional brace
- No NMES over the VMO (Protect suture repair if VMO Advancement)
- Perform protected electrical stimulation program at 30 degrees until (patella engaged and taped medially)
- No MVIC test until 12 weeks, No BURST test until 16 weeks (protect graft to bone healing & VMO advancement)

Considerations: -Hinged knee brace can be used for sitting but is locked during ambulation if lag with SLR exists.
-During MVICs and Burst testing, patella taped or braced medially

Expected # of visits: 24-36

If Pre-Operative PT: Education on post-operative Home exercise program (HEP), physician precautions, and expected return to ADLs, work, and play.

<u>Week 1-2</u>	<u>Treatment</u>	<u>Milestones</u>
<p>Early Post-op Phase</p> <p>No restrictions on passive knee ROM</p> <p>1-3x/week</p> <p>TOTAL VISITS 1 -3</p>	<p>Initiate physician specific HEP for ROM</p> <p>Effusion management: Compression, elevation, AROM ankle pumps, Cryocuff</p> <p>Regain active quadriceps activation: Quad Sets 100x daily. SLR in immobilizer with quad set</p> <p>Protected Electrical Stimulation Program</p> <ul style="list-style-type: none"> • Knee stabilized isometrically at 30 degrees knee flexion • Patella taped medially • Electrodes over proximal and distal quad, not VMO • 10 sec. on/50 sec. off • 10 to 15 contractions 	<p>Active quadriceps contraction with superior patellar glide expect a quad lag</p> <p>Full passive knee extension, flexion to 90 degrees</p> <p>WBAT in immobilizer at 0 degrees (use crutches until safe without, while observing effusion)</p>



<u>Weeks 3-4</u>	<u>Treatment</u>	<u>Milestone</u>
<p>Initial Post-op Rehabilitation</p> <p>2-3x/week</p> <p>TOTAL VISITS 8-12</p>	<p>Progress Flexion AAROM Maintain/ Improve patellar mobility (clinic and HEP avoiding lateral glide)</p> <p>Emphasize Extension Strengthening Multi directional SLR without lag with ankle cuff weights</p> <p>Ankle and Hip PREs in Open Chain Side-lying Hip ABD, Clam shell, Hip extension, Ankle Theraband exercises</p> <p>Prevent lateral scarring Include ITB stretching in clinic and home, medial tilt patella mobilizations</p> <p>Modalities for pain control PRN, Desensitization when healed</p>	<p>SLR without quad lag by week 2</p> <p>PROM knee flexion to 120 degrees</p> <p>Effusion: 1+ or less, near symmetrical Extracapsular edema</p> <p>Normalized gait out of immobilizer with active superior glide by week 4</p>
<p><u>Weeks 5-6</u></p> <p>Intermediate Strengthening Phase</p> <p>2-3x/week</p> <p>TOTAL VISITS 12-18</p>	<p>Continue to progress ROM</p> <p>Quadriceps Strengthening: OKC: SAQ 0-30, SLR CKC: step ups, leg press through controlled range 0-30 degrees</p> <p>Ambulate in immobilizer until SLR (-) Lag Initiate gait training outside immobilizer</p>	<p>Full PROM Extension</p> <p>PROM knee flexion to within 10 degrees of contralateral</p> <p>Effusion/ Edema resolving</p>
<p><u>Weeks 7-8</u></p> <p>Progressive Stability Phase</p> <p>2-3x/week</p> <p>TOTAL VISITS 14-24</p>	<p>Progress Quadriceps strengthening ROM from 0-60 degrees in open and closed chain, with good tibiofemoral alignment.</p> <p>Begin unilateral balance exercise progression</p> <p>Electrical Stimulation Program: Each visit progress Kin Com position by 5 degrees during NMES towards 60 degrees</p>	<p>Normal patellar mobility</p> <p>KOS > 60%</p>



<p><u>Weeks 9-12</u></p> <p>Functional Progression Phase</p>	<p><u>Treatment</u></p> <p>Progress opening chain strengthening at appropriate intensity through progressively increased ROM</p> <p>Initiate hamstring strengthening PRN at 12 weeks (if graft site)</p> <p>Progress proprioceptive exercises: (Multi directional contralateral LE reaching, mini lunges, rocker board balance).</p> <p>MVIC at 12 weeks at 60 degrees with patella taped medially</p> <p>Transfer to fitness facility at 12 weeks if milestones met</p>	<p><u>Milestone</u></p> <p>Full Pain free PROM maintained</p> <p>MVIC > 80% at 12 weeks</p> <p>KOS/ GRS > 80%</p> <p>Effusion less than 1+</p>
<p><u>Weeks 13-16</u></p> <p>1X WEEKLY + Fitness Facility</p> <p>Return to activity phase</p>	<p>Recheck strength via BURST test at 16 weeks at 60 degrees with patella taped medially Running progression at week 16</p> <p>Initiate sports specific plyometric training, Agilities at 20 weeks with monthly follow ups for HEP and RTS progression.</p> <p>Monthly rechecks indicated for strength testing</p>	<p>KOS/ GRS > 90%</p> <p>Effusion/ Edema Symmetrical</p> <p>QI >80% at 16 weeks via Burst Testing</p> <p>Burst and Hop Test at 20 weeks if impairments resolved and strength values met</p>

Surgery Modified Rehabilitation:

1. **Addition of distal realignment**
 - a. MVIC at 16 weeks, Burst at 20 weeks with patella taped at 60 degrees
 - b. Consider recommended milestones of Proximal-Distal Realignment
2. **Chondroplasty**
 - a. MVICs conducted at position sparing soft tissue repair and pain by compression of patella

Considerations:

1. **No burst until at least 16 weeks post-op.**
2. **Hop Testing at 20 weeks.**
3. **Full return to ADL's expected in 5-6 months.**
4. **Running progression can be initiated when quadriceps index \geq 80%, ROM is full and patient is \geq to 16 weeks post-op.**
5. **Graded Return to sport activities with QI > 90%, KOS >90%, Hop Tests > 90%, full and pain free ROM/ ADLs after 9 months and MD approval**



References:

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6. Influence of the soft tissues anatomy on the diagnosis and treatment: When is a soft tissue procedure sufficient for Patellar Stabilization? Arendt EA. 2013 Presentation and transcript: ISAKOS 2013, Toronto, Canada

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