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

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

Primary surgery:
1) 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

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

<table>
<thead>
<tr>
<th>Precautions and other Considerations</th>
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<tr>
<td><strong>Precautions</strong></td>
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<tr>
<td>WBAT with Immobilizer locked in full extension for 4 weeks, progressing to functional brace</td>
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<td>No NMES over the VMO (Protect suture repair if VMO Advancement)</td>
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<td>Perform protected electrical stimulation program at 30 degrees until (patella engaged and taped medially)</td>
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<td>No MVIC test until 12 weeks</td>
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<tr>
<td>No BURST test until 16 weeks (protect graft to bone healing &amp; VMO advancement)</td>
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<td><strong>Surgery Modified Rehab</strong></td>
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<td>Addition of distal realignment</td>
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<td>MVIC at 16 weeks</td>
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<td>Burst at 20 weeks with patella taped at 60 degrees</td>
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<td>Consider recommended milestones of Proximal-Distal Realignment</td>
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<td>Chondroplasty</td>
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<td>MVICs conducted at position sparring soft tissue repair and pain by compression of patella</td>
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<tr>
<td><strong>Other Considerations</strong></td>
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<tr>
<td>No burst until at least 16 weeks post op</td>
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<td>Hop Testing at 20 weeks</td>
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<td>Full return to ADLs expected in 5-6 months</td>
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<td>Running progression can be initiated when quadriceps index ≥ 80%, ROM is full and patient is ≥ 16 weeks post-op</td>
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<td>Graded Return to Sport activities with QI &gt; 90%, KOS &gt;90%, Hop Tests &gt; 90%, full and pain free ROM/ADLs after 9 months and MD approval</td>
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# MPFL Reconstruction and Proximal Realignment Rehabilitation Protocol

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<tr>
<th>Timeline</th>
<th>Treatment</th>
<th>Milestones</th>
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| **Week 1-2: Early Post-op Phase**<br>No restrictions on passive knee ROM<br>Total Visits: 1-3 1-3x/week | - Initiate physician specific HEP for ROM  
- **Effusion management:** Compression, elevation, AROM ankle pumps, Cryocuff  
- **Regain active quadriceps activation:** Quad Sets 100x daily, SLR in immobilizer with quad set  
- **Protected Electrical Stimulation Program**  
  o Knee stabilized isometrically at 30 degrees knee flexion  
  o Patella taped medially  
  o Electrodes over proximal and distal quad, not VMO  
  o 10 sec. on/50 sec. off  
  o 10 to 15 contractions | - Active quadriceps contraction with superior patellar glide expect a quad lag  
- Full passive knee extension, flexion to 90 degrees  
- WBAT in immobilizer at 0 degrees (use crutches until safe without, while observing effusion) |
| **Weeks 3-4: Initial Post-op Rehab**<br>Total Visits: 8-12 2-3x/week | - Progress Flexion AAROM: Maintain/ Improve patellar mobility (clinic and HEP avoiding lateral glide)  
- **Emphasize Extension Strengthening:** Multi directional SLR without lag with ankle cuff weights  
- **Ankle and Hip PREs in Open Chain:** Side-lying Hip ABD, Clam shell, Hip extension, Ankle Theraband exercises  
- **Prevent lateral scarring:** Include ITB stretching in clinic and home, medial tilt patella mobilizations  
- **Modalities:** for pain control PRN, Desensitization when healed | - SLR without quad lag by week 2  
- PROM knee flexion to 120 degrees  
- Effusion: 1+ or less, near symmetrical extracapsular edema  
- Normalized gait out of immobilizer with active superior glide by week 4 |
| **Weeks 5-6: Intermediate Strengthening Phase**<br>Total Visits: 12-18 2-3x/week | - Continue to progress ROM  
- **Quadriceps Strengthening:**  
  o OKC: SAQ 0-30, SLR  
  o CKC: step ups, leg press through controlled range 0-30 degrees  
- Ambulate in immobilizer until SLR (-) Lag: Initiate gait training outside immobilizer | - Full PROM Extension  
- PROM knee flexion to within 10 degrees of contralateral  
- Effusion/ Edema resolving |
| **Weeks 7-8 Progressive Stability Phase**<br>Total Visits: 14-24 2-3x/week | - Progress Quadriceps strengthening ROM from 0-60 degrees in open and closed chain, with good tibiofemoral alignment.  
- Begin unilateral balance exercise progression  
- **Electrical Stimulation Program:**  
  o Each visit progress Kin Composition by 5 degrees during NMES towards 60 degrees | - Normal patellar mobility  
- KOS> 60% |
| **Weeks 9-12 Functional Progression Phase** | - Progress opening chain strengthening at appropriate intensity through progressively increased ROM  
- Initiate hamstring strengthening PRN at 12 weeks (if graft site)  
- **Progress proprioceptive exercises:** (Multi directional contralateral LE reaching, mini lunges, rocker board balance).  
- MVIC at 12 weeks at 60 degrees with patella taped medially  
- Transfer to fitness facility at 12 weeks if milestones met | - Full Pain free PROM maintained  
- MVIC > 80% at 12 weeks  
- KOS/ GRS > 80%  
- Effusion less than 1+ |
| **Weeks 13-16: Return to Activity Phase**<br>Frequency: 1x/week + Fitness Facility | - Recheck strength via BURST test at 16 weeks at 60 degrees with patella taped medially  
- Running progression at week 16  
- Initiate sports specific plyometric training: agilities at 20 weeks with monthly follow ups for HEP and RTS progression.  
- **Monthly rechecks indicated for strength testing** | - KOS/GRS > 90%  
- Effusion/ Edema Symmetrical  
- QI >80% at 16 weeks via Burst Testing  
- Burst and Hop Test at 20 weeks if impairments resolved and strength values met |

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References


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