
Notes:

**This protocol is designed to serve as a guide for the rehabilitation process. It is not intended to supersede clinical judgment and decision making. Progression rough each phase is designed to allow for maximal tissue healing of repaired tissues and is based on scientific evidence and clinical experience*

Estimated Return to Sport:

Modalities: Continue PRN
CV Exercise: Biking¹⁷
Swimming (flutter kick)
Walking/Elliptical/Stairmaster^{4,11,15}

Criterion for Progression:

- 1)Able to complete SLR without lag**
- 2)Ambulate on level surfaces without brace and with good quad control**

Phase III – Tissue Remodeling/Hypertrophy Phase (9-16 weeks)

- Goals:**
- 1)Full knee AROM
 - 2)Improve eccentric quad control
 - 3)Strength progression
 - 4)Begin light jogging by week 16

ROM: ROM to full
Stretching Quadriceps (end range)
Exercise: Shuttle/Leg Press (0-80 degrees)⁶
Squats (0-80 degrees)⁶
Single limb squats
Step ups/Downs^{4,11,15}
CV Exercise: Initiate jogging progression^{4,11,15}
Lap swim

Criterion for Progression:

- 1)No pain or edema/effusion**
- 2)Full knee ROM**
- 3)20 reps to 60 degrees single leg squat with eccentric control and good lower extremity alignment**
- 4)Quad strength >80% of uninvolved LE (10RM single leg press or isokinetically if available)**

Phase IV – Sport Specific Training (weeks 17-30)

- Goals:**
- 1)Begin sport specific drills
 - 2)Normalize neuromuscular control
 - 3)Normalize jumping/landing mechanics if indicated
 - 4)Prepare for Return to Sport
- Exercise:** Begin agility progression (week 20)
Begin plyometric progression (week 24)
Progress on running progression/sport-specific training

Criterion for Return to Sport: (Recommend combination testing of strength, agility, and power according to available resources/clinic setting)³

- 1)Lower Extremity Functional Test (LEFT)¹³**
- 2)Hop Tests – Single Hop, X-Hop, Triple Hop, Timed Hop >=85% uninvolved^{1,6,8-11}**
- 3)Single leg squat to 60 degrees knee flexion with good control for 3 minutes^{7,8,10}**
- 4)Quad strength > 90% of uninvolved (10RM leg press or isokinetic testing)¹²**
- 5)IKDC (MCID 6.3@ 6mo; 16.7 @ 12 mo)^{2,4,5}**

Patellar/Quadriceps Tendon Repair (Partial Thickness)

Weight Bearing

- NWB x _____ wks
- TDWB x _____ wks
- PWB _____% x _____ wks
- WBAT
- Brace Locked in Ext x _____ wks

Brace

Brace : _____ weeks

With Sleep: _____ weeks

ROM

- Full ROM
- Locked full ext x _____ wks
- Locked at _____° x _____ wks
- ROM limits
- _____° to _____° x _____ wks
- _____° to _____° x _____ wks
- _____° to _____° x _____ wks

CPM

- _____° to _____° x _____ wks
- 30-70° ↑ 10°/d @ dir
- None

Recommended Clinical Guidelines

WB: WBAT x 4 Weeks (brace locked in extension)
 PWB weeks 5-6 (brace unlocked)
 ROM: 0-30 x 3 weeks
 0-60 x week 3-4
 0-90 x week 5-6
 (may be accelerated)

Precautions

No active open-chain knee extension x6weeks

Phase I – Tissue Protection/Healing Phase (0-4 weeks)

- Goals:**
- 1) Reduce pain
 - 2) Reduce effusion
 - 3) Minimize scar adhesion formation
 - 4) Improve knee ROM
 - 5) Facilitate quadriceps activation

ROM: PROM/AAROM (0-MD prescribed limit)^{4,7,21}
 Passive Extension/Heel Prop

Exercise: Stretching - Gastroc, Hams, TFL/ITB
 Quad/Hamstring Isometrics^{4,17}
 SLR - abd/add/ext (with brace locked in extension)
 Standing SLR or AASLR (with brace locked-no lag)^{4,11}
 Calf Raises (with brace locked in extension)
 Wt Shifting/Single Leg balance (brace locked in ext)
 Open Chain Knee flexion/Hamstring Curls^{4,11,18}

Manual: Patella Mobilizations^{1,8}
 Scar Mobilizations^{1,8}
 Soft Tissue Mobilization Patellar Tendon^{1,8}

Modalities: Functional Electrical Stimulation^{9,16}
 Cryotherapy^{2,3,12,14,22}

Criterion for Progression:

- 1) Voluntary quad isometric contraction
- 2) Full patellar mobility
- 3) Minimal edema/effusion
- 4) Knee ROM 0-60 degrees

Phase II – Tissue Proliferation Phase/Progression Phase (5-8 weeks)

- Goals:**
- 1) Improve knee AROM towards full
 - 2) Strength progression – develop functional quad control
 - 3) Normalize gait without brace

ROM: PROM/AAROM/AROM (0-MD prescribed limit)

Gait Training: Initiate ambulation with brace unlocked
 Cone Walking

Exercise: Pre-Gait Training/WB Terminal Knee Ext (30-0)⁵
 SLR flexion (without lag)^{4,11,15,17}
 1/4 Wall Sits (progress from 30-60 deg of flexion)^{5,11,15}
 Open Chain Knee extension (90-30 degrees)⁶
 Proprioception Exercises (Bilateral to unilateral)
 Short Arc Quadricep knee extension (30-0)

Manual: Continue PRN