SPORTS MEDICINE ASSOCIATES
Any Athlete. Any Injury. Anytime.®

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PATELLAR ORIF

PHASE I: IMMEDIATE POST-OP (0-6 WEEKS AFTER SURGERY)

Rehabilitation Goals	**• Gradually restore ROM, minimize effusion and pain**
Precautions	• No joint mobilizations near fracture site or that require stabilizing over the fracture site • NO instrument assisted soft tissue mobilization (IASTM) over fracture sites until at least 6 weeks post-op
Weight Bearing	1. WBAT with brace locked in extension for 6 WEEKS. 2. No flexion ROM for 2 WEEKS. a. At 2 WEEKS unlock brace 30 degrees b. Unlock brace an additional 30 degrees every 2 WEEKS 3. No forced flexion x 6 WEEKS
ROM	Extension: Emphasis on achieving full knee extension immediately following surgery. Utilize low load, long duration stretching – See Appendix A. If full extension is not achieved by 4 weeks, contact surgeon regarding ROM concerns. Flexion: No flexion ROM x2 weeks. At 2 weeks, brace can be unlocked 30 degrees. Can unlock an additional 30 degrees every 2 weeks. NO forced flexion for 6 weeks.
Exercises	• Emphasis on quad activation without gluteal co-contraction • Restore patellar mobility • Symmetrical ROM • Decrease effusion • Ambulation with appropriate joint loading and without obvious gait deviation as able
Interventions	• Extension ROM: bag hangs or prone hangs (Appendix A) • Flexion ROM (beginning WEEK 2): heel slides, wall slides (see precautions) • Patellar mobilization: superior, inferior, medial, lateral • Gentle Quad Isometrics; SLR 4-way IN BRACE • TKE: prone and standing • Weight shifting, SL balance • Neuromuscular re-education using electrical stimulation (NMES) long sitting
Criteria to Progress	ROM: ≥ 0-90 degrees Strength: Quadriceps set with normal superior patellar translation, SLR x 10 seconds without extensor lag Goals: (Do not limit progression to next phase; however, should be addressed with

	interventions) Effusion: 2+ or less with Modified stroke test Weight Bearing: Able to tolerate weight bearing with brace locked in extension without increased pain and ≤ 2+ effusion

PHASE II: EARLY LOADING & RETURN TO FUNCTION (6-9 WEEKS AFTER SURGERY)

Rehabilitation Goals	**• to improve LE loading symmetry, increase strength and normalize gait mechanics.**
Precautions	• ROM as tolerated in/out of brace, avoid forceful PROM
Weight Bearing	• WBAT with gait aide and gradually unlock brace based on functional strength
ROM	• Monitor and progress knee ROM, patellar mobility, and LE flexibility • ROM as tolerated in/out of brace, avoid forceful PROM • Begin bike for ROM and no resistance • Soft tissue and scar mobilization techniques as tolerated
Additional Interventions *Continue with Phase I interventions as indicated	• Initiate gentle, multi-angle knee isometrics and progress as tolerated • Initiate gentle open chain knee extension exercises o Begin with short arc quad o Progress to long arc quad • Initiate WB quadriceps exercises with emphasis on proper LE mechanics • Progress in gluteal and lumbopelvic strength and stability • Progress single leg balance • NMES seated at 60-90 degrees of knee flexion o The patient is instructed to relax while the e-stim generates at least 50% of their max volitional contraction against a fixed resistance OR maximal tolerable amperage without knee joint pain • BFR (continue as in early phase, adding appropriate exercises)
Criteria to Progress	ROM: Minimum of 120 degrees flexion, pain free AROM including PF mobility Effusion: 1+ or less Strength: Pain-free SLR FLX 2x10 without lag, pain-free knee extension isometrics and unloaded OKC strengthening Weight Bearing: Able to tolerate CKC exercise program without increased pain or >1+ effusion Neuromuscular Control: Demonstrates proper lower extremity mechanics with all therapeutic exercises (bilaterally)

PHASE III: STRENGTH (9-12 WEEKS AFTER SURGERY)

Rehabilitation Goals	**• to increase lower extremity strength**
Weight Bearing/ Precautions	• Range of motion as tolerated, including PROM; strengthening as tolerated; no high impact activity
Criteria to discharge assistive device	Timeline: 9 weeks ROM: Full active knee extension; no pain on passive overpressure

	Strength: Able to perform strong quad isometric with full tetany and superior patellar glide and able to perform 2x10 SLR without quad lag Effusion: 1+ or less is preferred (2+ acceptable if all other criteria are met) Weight Bearing: Demonstrates pain-free ambulation without visible gait deviation
ROM	• Monitor and progress knee ROM, patellar mobility, and LE flexibility o Progress range of motion as tolerated (including passive)
Additional Interventions *Continue with Phase I-II interventions as indicated	• Work towards normal gait/walking • Gradually increase strengthening/resistance as tolerated • Progress multi-angle knee isometrics • Initiate isotonic open chain knee extensions o Begin 100-60 degrees and progress as tolerated to full, loaded knee extension • Progress single leg balance
Criteria to Progress	ROM: Maintain full, pain free AROM including PF mobility Effusion: 1+ or less Weight Bearing: Able to tolerate therapeutic exercise program without increased pain or >1+ effusion Neuromuscular Control: Demonstrates proper lower extremity mechanics with all therapeutic exercises (bilaterally)

PHASE IV: RETURN TO IMPACT (12 WEEKS-RETURN TO SPORT)

Rehabilitation Goals	**• Increased frequency from previous stage to initiate plyometric training and return to running program once appropriate**
Precautions	Criteria to initiate hopping • Full, pain free ROM • ≤ 1+ effusion • ≥ 7 /10 on #10 IKDC Questionnaire • ≥ 80% isokinetic strength symmetry (hamstrings and quadriceps) OR ≥ 80% limb symmetry on acceptable isokinetic alternative Criteria to initiate jogging •No earlier than 16 weeks •ROM: full, pain-free knee ROM, symmetrical with the uninvolved limb Strength: Isokinetic testing 80% or greater for hamstring and quad at 60º/sec and 300º/sec •Effusion: 1+ or less •Weight Bearing: normalized gait and jogging mechanics •Neuromuscular Control: Pain-free hopping in place (DL and SL hops in place) • Hop downs with appropriate landing mechanics o DL (starting at 6-8" and progressing per patient's tolerance), SL (starting at 2-4" and progress per patient's tolerance) • Audible rhythmic strike patterns and no gross visual compensation
ROM	•Full, symmetrical to contralateral limb, and pain-free with overpressure
Exercise	• Performance of the quadriceps, hamstrings and trunk dynamic stability • Muscle power generation and absorption via plyometrics • Sport- and position-specific activities • Begin agility exercises between 50-75% effort (utilize visual feedback to improve

	mechanics as needed) • Advance plyometrics: Bilateral to single leg, progress by altering surfaces, adding ball toss, 3D rotations, etc. • Endurance: low impact - treadmill walking, stepper, elliptical only if without reactive effusion
Additional Interventions *Continue with Phase II-III interventions as indicated	Therapeutic Exercise/Neuromuscular Re-education • Squats, leg extension, leg curl, leg press, deadlifts, lunges (multi-direction), crunches, rotational trunk exercises on static and dynamic surfaces, monster walks, PWB to FWB jumping Agility • Side shuffling, Carioca, Figure 8, Zig-zags, Resisted jogging (Sports Cord) in straight planes, backpedaling Plyometrics • Single-leg hop downs from increasing height (up to 12" box), Single-leg hop-holds, Double and single-leg hopping onto unstable surface, Double and single-leg jump-turns, Repeated tuck jumps • Refer to plyometric guide
Criteria to Progress	• No sooner than 6 months •ROM: full, pain free knee ROM, symmetrical with the uninvolved limb •Strength: Isokinetic testing 90% or greater for hamstring and quad at 60º/sec and 300º/sec •Effusion: No reactive effusion ≥ 1+ with sport-specific activity •Weight Bearing: normalized gait and jogging mechanics •Neuromuscular control: appropriate mechanics and force attenuation strategies with high level agility, plyometrics, and high impact movements •Functional Hop Testing: LSI 90% or greater for all tests •Physician Clearance