

**Post-operative Rehabilitation Protocol****ACL Reconstruction with Meniscus Repair or Microfracture****Phase 1 (0-6 weeks post op):**

Goals	<ul style="list-style-type: none"> • Protect graft and graft fixation • Minimize effects of immobilization • Control inflammation/swelling
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • Weight bearing: <ul style="list-style-type: none"> ○ 0-2 weeks: toe-touch (25%) weight-bearing ○ 2-6 weeks: 50% weight-bearing • Brace: 0-6 weeks: 0-90 degrees <ul style="list-style-type: none"> ○ Leave brace unlocked at all times following resolve of nerve block ○ Brace may be removed for hygiene and therapy
Range of Motion	<ul style="list-style-type: none"> • Weeks 0-6: 0-90 degrees – no forced flexion
Strengthening	<ul style="list-style-type: none"> • Restore quadriceps recruitment through strengthening exercises • Quadriceps, hamstring, and gluteal strengthening exercises <ul style="list-style-type: none"> ○ Delay HS strengthening for 12 weeks (for HS tendon autograft procedure) • Exercises to reduce swelling/ effusion (modalities as needed) • Quadriceps NMES
Home Instructions	<ul style="list-style-type: none"> • Keep surgical dressings clean and dry • Change surgical bandages on the 2nd day after surgery (keep covered until first clinic visit) • Avoid getting sutures wet until at least 5 days after surgery (do not scrub, soak, or submerge the incisions) • Note DVT (blood clot) prophylaxis medications provided by your surgeon to take following surgery – follow those instructions carefully.
Suggested Exercises	<ul style="list-style-type: none"> • Patellar Mobilizations • Ankle pumps • Quad sets (consider NMES for poor quad sets) • Hamstring Curls – add weight as tolerated (patellar tendon procedure only) • Heel slides (to 90° only for hamstring tendon autograft procedure only) • Gastroc/Soleus Stretching • SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag – add weight as tolerated to hip abduction, adduction and extension. • Gasroc/Soleus stretching • Hamstring stretches (very gentle for hamstring tendon autograft procedure) • For patellar tendon autograft procedures only: • Closed Kinetic Chain Quadriceps strengthening activities as tolerated (wall sit, mini squats, leg press 90-30 degrees) • Quadriceps isometrics at 60° and 90° • Balance/Proprioception • Stationary Bike – initially for promotion of ROM – progress light resistance as tolerated

Criteria to Advance	<ul style="list-style-type: none"> • Full PROM flexion/extension • Good quad set, SLR without extension lag • Minimal swelling/inflammation • Normal gait on level surface
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Phase 2 (6-10 weeks post op):

Goals	<ul style="list-style-type: none"> • Restore normal gait with stair climbing after brace is discontinued at 6 weeks • Maintain full extension, progress toward full range of motion at 6+ weeks • Protect graft and graft fixation • Increase hip, quadriceps, hamstring and calf strength • Increase proprioception
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • Discontinue brace if capable of SLR without extensor lag • Discontinue crutches and progress to full weight bearing
Range of Motion	<ul style="list-style-type: none"> • Restore full, pain-free active ROM
Strengthening	<ul style="list-style-type: none"> • Increase hip, quadriceps, hamstring and calf strength
Home Instructions	<ul style="list-style-type: none"> • Restore normal activities of daily living (within weight-bearing restrictions)
Suggested Exercises	<ul style="list-style-type: none"> • Continue with range of motion/flexibility exercises as appropriate for the patient • Continue closed kinetic chain strengthening as above for patellar tendon autograft procedures, progressing as tolerated – can include one-leg squats, leg press, step ups at increased height, partial lunges, deeper wall sits, lunge walks. • Initiate CKC quad strengthening and progress as tolerated for hamstring tendon autograft procedures (wall sits, step-ups, mini-squats, Leg Press, lunge at 90° -30°) • Stairmaster (begin with short steps, avoid hyperextension) • Elliptical machine for conditioning. • Stationary bike - progress time and resistance as tolerated • Continue to progress proprioceptive activities for patellar tendon autograft procedures, initiate for hamstring tendon autograft procedures – ball toss, balance beam, mini-tramp balance • Continue hamstring, gastroc/soleus stretches • If available, begin running in the pool (waist deep) or on an unweighted treadmill at 8 weeks.
Criteria for advancement	<ul style="list-style-type: none"> • No patellofemoral pain • Minimum of 120 degrees of flexion • Sufficient strength and proprioception to initiate running • Minimal swelling/inflammation

Phase 3 (10-16 weeks post-op):

Goals	<ul style="list-style-type: none"> • Full range of motion • Protect the patellofemoral joint • Normal running mechanics • Strength approximately 70% of the uninvolved lower extremity per isokinetic evaluation (if available)
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • Avoid overstressing the graft, for hamstring tendon autograft progressively increase resistance of hamstring strengthening.

Range of Motion	<ul style="list-style-type: none"> Maintain full ROM
Strengthening	<ul style="list-style-type: none"> Progress hip, quadriceps, hamstring, calf strengthening Improve strength of lower extremity to prepare for sport activities
Home Instructions	<ul style="list-style-type: none"> Maintain normal activities of daily living
Suggested Exercises	<ul style="list-style-type: none"> Continue and progress flexibility and ROM exercises as appropriate for patient Initiate OKC Knee extensions 90°-30°, progress to eccentrics If available, isokinetics (with anti-shear device) – begin with mid-range speeds (120o/sec- 240o/sec) <u>Progress toward full weight bearing running at 12 weeks for BTB autograft (16 weeks for hamstring tendon autograft procedures).</u> Begin swimming if desired Recommend STEP test at 4 months to guide continued strengthening Cardiovascular/endurance training via stairmaster, elliptical, bike Advance proprioceptive activities
Criteria for advancement	<ul style="list-style-type: none"> No significant swelling/inflammation. Full, pain-free ROM No evidence of patellofemoral joint irritation Strength approximately 70% of uninvolved lower extremity per isokinetic evaluation Sufficient strength and proprioception to initiate agility activities Normal running gait

Phase 4 (4-6 month post-op):

Goals	<ul style="list-style-type: none"> Symmetric performance of basic and sport specific agility drills Single hop and 3 hop tests 85% of uninvolved lower extremity Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test
Precautions/ Crutch Use	<ul style="list-style-type: none"> None
Range of Motion	<ul style="list-style-type: none"> Maintain full ROM
Strengthening	<ul style="list-style-type: none"> Continue and progress strengthening based on individual needs and deficits
Home Instructions	<ul style="list-style-type: none"> Maintain normal activities of daily living
Suggested Exercises	<ul style="list-style-type: none"> Progress flexibility and strengthening program Initiate plyometric program as appropriate for patient's athletic goals Agility progression including, but not limited to: <ul style="list-style-type: none"> Side steps Crossovers Figure 8 running Shuttle running One leg and two leg jumping Cutting Acceleration/deceleration/sprints Agility ladder drills Continue progression of running distance based on patient needs. Initiate sport-specific drills as appropriate for patient Assessment of running on treadmill

Criteria for Advancement	<ul style="list-style-type: none"> • No patellofemoral or soft tissue complaint • Necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics
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Phase 5 (6+ month post-op):

Goals	<ul style="list-style-type: none"> • Safe return to athletics/work • Maintenance of strength, endurance, proprioception
Precautions/ Crutch Use	<ul style="list-style-type: none"> • None
Range of Motion	<ul style="list-style-type: none"> • Maintain full ROM
Strengthening	<ul style="list-style-type: none"> • Maintenance and progression of strength pending activity level goals
Home Instructions	<ul style="list-style-type: none"> • Maintain normal activities of daily living
Suggested Exercises	<ul style="list-style-type: none"> • Gradual return to sports participation • Recommend LEAP test at 6+ months to guide return to sport/activity