



Post-operative Rehabilitation Protocol
Knee Multiple Ligament Injury Reconstruction/Repair
(ACL, PCL, +/- MCL, LCL, or PLC)

The goals of this protocol are to protect the reconstructions while preventing knee stiffness. Early passive ROM exercises are very important, as is preventing excessive anterior and/or posterior tibia translation.

Phase 1 (0-6 weeks post op):

Goals	<ul style="list-style-type: none"> • Full knee ROM—all ROM exercises must be performed in the prone or side lying position for the first six weeks • Pain/edema reduction • Begin and enhance normalization of quad recruitment • Prevent anterior/posterior translation and tibia rotation
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • Weight bearing: <ul style="list-style-type: none"> ○ 0-6 weeks: 50% weight-bearing • Brace: 0-2 weeks: locked in extension (0 degrees) <ul style="list-style-type: none"> ○ Brace may be unlocked for prone ROM exercises under guidance of PT or ATC • Brace: 2-6 weeks: unlocked 0-90 degrees if able to tolerate <ul style="list-style-type: none"> ○ Brace may be removed for hygiene and therapy
Range of Motion	<ul style="list-style-type: none"> • Weeks 0-2: 0 degrees • Weeks 2-6: 0-90 degrees
Strengthening	<ul style="list-style-type: none"> • Quad Sets for strengthening • NO active strengthening with knee flexion
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"> • Modalities as needed • Perform home stretching exercises 2-3 times daily • ROM exercises: In prone position or side lying only, grip the heads of the gastroc/soleus group and maintain neutral pressure proximally to the tibia while flexing the knee • Advance ROM as tolerated • Begin patella mobilizations • Scar management • Quad sets/SLR in brace at 0° (assist patient with this exercise until solid quad contraction developed, prevent posterior sag) 10x10 3 times daily. May use ankle weights as they will increase anterior translation

Suggested Exercises	<ul style="list-style-type: none"> • Seated calf exercises • Time modulated AC (also known as Russian stim) in full extension • Quad exercises for home program <p>After 2 weeks post op:</p> <ul style="list-style-type: none"> • May add stationary bike to increase ROM. Start with high seat and progress to normal seat height when able, resistance as tolerated. <p>After 3 weeks post op:</p> <ul style="list-style-type: none"> • Leg press with both legs • Leg extensions with anti-shear device or cuff weights. Progress weight as tolerated, keep resistance proximal.
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Phase 2 (6-10 weeks post op):

Goals	<ul style="list-style-type: none"> • Normalize gait mechanics and progress to full weigh bearing as tolerated without assistive devices • Improve ROM • Completion of exercises without exacerbation of symptoms or reactive effusion
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • Discontinue brace if capable of SLR without extensor lag • Begin weaning off crutches and progress to full weight bearing as tolerated
Range of Motion	<ul style="list-style-type: none"> • Prone flexion 120 degrees or more and advance to full ASAP • Maintain passive knee extension
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 Phase 1 exercises as appropriate • May begin aquatic therapy emphasizing normal gait, marching forward/backward • Treadmill walking—forward and retro • Closed and open chain tubing exercises • Single leg stands for balance/proprioception on Airex pad or trampoline • Chair/wall squats—keep tibia perpendicular to floor • Unilateral step-ups—start with 2" height and progress to normal step height as able

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

Goals	<ul style="list-style-type: none"> • Progressing to full, pain-free ROM • Maintain normal gait mechanics
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> • None
Range of Motion	<ul style="list-style-type: none"> • Progress to and maintain full ROM
Strengthening	<ul style="list-style-type: none"> • Advance hamstring strengthening in prone position • Advance quad strengthening as tolerated
Suggested Exercises	<ul style="list-style-type: none"> • Continue with Phase 2 exercises as appropriate • Stairmaster • Slide board – start with short distance and progress as tolerated • Elliptical for conditioning • Cable column exercises – retro walking, lateral stepping, NO cross over stepping or shuffling • Standing leg curls with cuff weights or seated leg curls with NK table at 5lbs max

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

Goals	<ul style="list-style-type: none">• Maintain full, pain-free ROM – symmetrical to uninvolved limb• Initiate sport specific activities under supervision by ATC or PT• Begin plyometric exercises
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
Suggested Exercises	<ul style="list-style-type: none">• Continue with Phase 3 exercises as appropriate• Begin walk-jog progression• Plyometrics – low intensity vertical and lateral hopping to begin, use both feet and move to one foot ASAP• When plyometric exercise intensity is high, the volume must be decreased

Phase 5 (6+ month post-op):

Goals	<ul style="list-style-type: none">• Safe return to athletics/work• Maintenance of strength, power, 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">• Running and sport specific drills<ul style="list-style-type: none">○ Stepping, shuffling, hopping, cariocas

For any questions about operative details or rehabilitation guidelines, please contact the respective surgeon's Athletic Trainer at the contact information found at this link: <https://med.virginia.edu/orthopaedic-surgery/orthopaedic-divisions/sports-medicine/protocols/>