

ACL Reconstruction

VARIATIONS	
Graft Type	<p><u>BTB Autograft</u></p> <ul style="list-style-type: none"> • No variations <p><u>Quadriceps Tendon Autograft</u></p> <ul style="list-style-type: none"> • Phase I: ROM 0-90° only <p><u>Allograft</u></p> <ul style="list-style-type: none"> • NWB for 2 weeks.
Meniscus Repair	<ul style="list-style-type: none"> • Phase I: ROM 0-90° only • Phase II: continue WBAT in brace locked at 0° through 4 weeks; progress ROM according to ACL protocol otherwise; no closed chain exercises at >45° knee flexion
Meniscus Root Repair	<ul style="list-style-type: none"> • 0-6 weeks: non-weight-bearing with crutches • 0-2 weeks: brace locked at 0° while ambulating and sleeping but otherwise ROM 0-90° • 2-6 weeks: brace unlocked 0-90° including while ambulating and sleeping • >6 weeks: gait training and transition to WBAT but weight-bearing at >90° knee flexion until 8 weeks, progress ROM, Phase II exercises
MCL Reconstruction or Release	<ul style="list-style-type: none"> • Phase I: ROM 0-90° only • Unlock brace per Phase II criteria but continue to wear brace unlocked for 6 weeks
Strengthening	<ul style="list-style-type: none"> • Progression when indicated below: body weight, two-leg, single-leg, singleleg eccentric
Modalities	<ul style="list-style-type: none"> • As needed to reduce pain, reduce swelling, and for muscle activation
Lateral Extra-Articular Tenodesis	<ul style="list-style-type: none"> • Phase I: ROM 0-90° only

LCL / PLC Reconstruction	• See “ACL Reconstruction with LCL Reconstruction” protocol
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	Phase I: POD 0 - 14	Phase II: POD 15 - 6 weeks	Phase III: 7 - 12 weeks
Weight-Bearing and Immobilization	<ul style="list-style-type: none"> • WBAT in brace locked at 0° • Wean crutches as tolerated • Brace locked at 0° while ambulating and sleeping (may unlock otherwise) 	<ul style="list-style-type: none"> • WBAT • Unlock brace to full motion • Discontinue brace when <ul style="list-style-type: none"> • no extension lag • quadriceps control and strength are adequate for stable ambulation 	<ul style="list-style-type: none"> • WBAT • Unrestricted ROM
Aerobic	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Stationary bike <ul style="list-style-type: none"> • low resistance • elevated seat height • normalize seat height as ROM allows 	<ul style="list-style-type: none"> • Advance stationary bike • Stepper • Elliptical <ul style="list-style-type: none"> • non-running • begin when no pain or swelling and able to ascend 8” steps with symmetry
Range of Motion and Strengthening	<ul style="list-style-type: none"> • ROM as tolerated with emphasis on full extension • Heel Slides • Isometric quad sets • Patellar mobility • Straight-leg raises (in brace until no extension lag) • Ankle pumps 	<ul style="list-style-type: none"> • Continue Phase I exercises • Initiate step-up program • Weight shifts • Closed-chain exercises in sagittal and frontal planes (i.e. mini-squats) • Leg press progression • Heel raise progression • Hip and core exercises • Proprioceptive and balance training • Open-chain exercises (starting after week 4 without resistance) <ul style="list-style-type: none"> • week 4: 90° - 45° • week 5: 90° - 30° • week 6: 90° - 20° 	<ul style="list-style-type: none"> • Continue Phase II exercises • Advance closed-chain exercises • Squat progression • Step-down program • Lunge progression • Aquatic therapy (if incisions fully healed, flutter kicks only, no whip kicks) • Open-chain exercises (no resistance) <ul style="list-style-type: none"> • week 7: 90° - 10° • week 8: 90° - 0°

Goals (achieve before advancing to next phase)	<ul style="list-style-type: none"> • Pain control • Protection of tissue healing • Minimize joint stiffness 	<ul style="list-style-type: none"> • Full extension by 3 weeks • ROM 0-125° by 6 weeks • Normal gait without assist device or brace • Begin light muscle conditioning • Proprioception and balance 	<ul style="list-style-type: none"> • Regain full ROM • Progress quadriceps/VMO strength • Work toward passing <ul style="list-style-type: none"> • Leg Press Test • 8" step-down without deviations • Achieve quadriceps, hamstring, gluteus medius, and gluteus maximus strength limb symmetry >80%
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	Phase IV: 3 - 5 months	Phase V: 5 - 6 months	Phase VI: 6 - 9+ months
Weight-Bearing and Immobilization	<ul style="list-style-type: none"> • WBAT • Unrestricted ROM 		
Aerobic	<ul style="list-style-type: none"> • Begin walk-jog-run progression • Progress to forward straight-line running (when stable 8" step-down; no cutting, pivoting, or lateral movement) 	<ul style="list-style-type: none"> • Continue walk-jog-run progression 	
Range of Motion and Strengthening	<ul style="list-style-type: none"> • Continue Phase III exercises • Progress motion • Progress strengthening • Progress balance and proprioception • Bilateral plyometrics <ul style="list-style-type: none"> • shuttle • progress PWB to FWB 	<ul style="list-style-type: none"> • Continue Phase IV exercises • After passing single-leg squat and single-leg hop tests (see Phase IV goals) <ul style="list-style-type: none"> • Begin general agility program • Begin general plyometric program (multi-planes, stable to unstable surfaces, reactive landing, fatigue situations) 	<ul style="list-style-type: none"> • Continue Phase V exercises • Advance to sport-specific agility program after completing agility plyometric program • Advance to sport-specific plyometric program after completing general plyometric program

<p>Goals (achieve before advancing to next phase)</p>	<ul style="list-style-type: none"> • Progress strengthening (core, quadriceps/VMO, posterior chain) • 8" lateral step-down with good form • Single-leg squat to 60° x10 with no deviations • Y Balance Test: anterior >80% LSI • Work toward passing <ul style="list-style-type: none"> • Single Hop Test >80% LSI • Leg Press Test 	<ul style="list-style-type: none"> • Y Balance Test: anterior <4 cm difference • Work toward passing all Hop Tests with >90% LSI <ul style="list-style-type: none"> • single-leg hop - crossover hop • triple hop • 6 m timed hop • Quadriceps, hamstring, and gluteal index >90% • Hamstring:Quad ratio of >80% 	<ul style="list-style-type: none"> • Progress to sport-specific plyometric and agility programs • Progressive return to sports at 9-12 months
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