

ACL Reconstruction Rehabilitation Protocol

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Patient: _____ **DOS:** _____

Surgeon Parameters

WB: ☐ WBAT ☐ Protected — TTWB _____ wks	Meniscus repair: ☐ None ☐ Medial ☐ Lateral	ROM limit 0–_____° Brace locked in extension for ambulation _____ wks
Other Precautions:		

Parameters above are patient-specific and supersede the general timeframes below. **Isolated ACL reconstruction:** WBAT, no brace, no ROM limit. **With a meniscus repair, the parameters govern weight bearing, flexion, and brace (typically 0–90° and brace locked for walking for 6 wks); return to sport still follows the ACL timeline.** The protected pathway is generally used for large or displaced longitudinal repairs; small vertical, ramp, and horizontal repairs may bear weight as tolerated with the brace locked in extension. Root and radial repairs need the Meniscus Root Repair restrictions. Therapist to use clinical judgment to individualize exercise selection and pace within each phase.

Phase	Goals	Precautions	Treatment Focus
Phase 1a Weeks 0–2	Goals - Protect surgical site; reduce swelling and pain - Full passive extension (0°) - Quadriceps activation - Normalize gait with assistive device	Precautions - WBAT with crutches; discontinue when gait normalizes - Brace, if used, wean when SLR normalizes - ROM unrestricted; avoid hyperextension; prioritize full extension If meniscus repair: WB, flexion, and locked brace per parameters above (protected: TTWB → graded partial → WBAT by ≈6 wks); no WB through a flexed knee (squats, lunges, reciprocal stairs); no resisted hamstring curls	Treatment Focus - Cryotherapy 5–7x/day, compression, elevation - Patellar mobs; heel slides; prone hangs; heel props - Quad sets, SLR (4 planes); hamstring and glute sets; ankle pumps - Mini squats / leg press 0–60°; weight shifts - NMES for quad activation; upper-body ergometer
► Advance to Phase 1b when: time >2 wks, effusion controlled, wound healing appropriately.			
Phase 1b Weeks 2–6	Goals - ROM 0–115° by wk 6 - Effusion ≤1+ - Full weight bearing; normal gait without device	Precautions - Progress to FWB as tolerated; discontinue crutches when gait is normal - Brace discontinued per surgeon - Full ROM; avoid hyperextension - No running, jumping, cutting, or pivoting If meniscus repair: flexion only to the limit above; bike once the limit is lifted and flexion is ≈110°	Treatment Focus - Heel slides, prone hangs, wall slides; patellar mobs - Mini squats, leg press 0–60°; step-ups/downs; bridges - Double- → single-leg balance (stable base) - Stationary bike when ROM allows (≈wks 2–3, no resistance) - Optional: BFR, NMES, aquatic (wounds healed), anti-gravity treadmill
► Advance to Phase 2 when: full extension maintained, ROM ≥0–115°, effusion ≤1+, normal gait without device, wounds healed (meniscus repair: ≥6 wks, flexion 90°, WBAT).			
Phase 2 Weeks 6–12	Goals - Full symmetric ROM (0–135°+) - Effusion ≤ trace - Cardio reinitiated - Normal gait; no pain with exercise	Precautions - Full weight bearing; no brace - Monitor soreness and swelling; avoid patellofemoral pain - No running, jumping, cutting, or pivoting If meniscus repair: advance flexion ≈15°/wk from the limit; no squat, lunge, or leg press deeper than 60°; no resisted hamstring curls; avoid loaded terminal knee extension (last ≈30°)	Treatment Focus - Squats 0–90°, leg press, step-ups/downs, wall sits, TKE, single-leg bridges - Open-chain knee extension: 90–45° wk 6 → 90–30° wk 8 → 90–0° wk 10 → progressive load wk 12 - Hamstring curls, light load - Single-leg balance, unstable surfaces, perturbation - Bike with resistance, elliptical, stair climber, pool - Planks, side planks, clamshells, hip abduction/adduction
► Advance to Phase 3 when: full symmetric ROM maintained, effusion ≤ trace, no pain with exercise.			

Phase	Goals	Precautions	Treatment Focus
Phase 3 Months 3–6	Goals - Full symmetric ROM maintained - No effusion with increased activity - Quad and hamstring LSI $\geq 60\%$ - Return-to-running criteria met	Precautions Return to running (median 14 wks, range 12–16): quad LSI $\geq 70\%$ preferred, full ROM, minimal/no effusion, pain $< 2/10$, normal gait - No jogging on a painful or swollen knee - No sport without surgeon clearance If meniscus repair: running not before 16 wks; no loaded flexion past $\approx 60\text{--}70^\circ$ or resisted hamstring curls until 16 wks, then deepen gradually	Treatment Focus - Full-depth squats, split squats, multiplanar lunges, single-leg deadlifts and squats - Treadmill jog $\approx$ wk 12 if criteria met $\rightarrow$ track (anti-gravity treadmill if available) - Double-leg landing; knee alignment, no valgus collapse - Double-leg hops, box step-ups, vertical jumps - Ladder, straight-line cones, shuffle, carioca
► Advance to Phase 4 when: quad and hamstring LSI $\geq 60\%$, full ROM, no effusion, no pain with activity, running program initiated.			
Phase 4 Months 6–8	Goals - Quad, hamstring, and hop battery LSI $\geq 80\%$ - No pain or effusion - Psychological readiness improving	Precautions - No sport participation without surgeon clearance - Avoid post-activity swelling - Cutting and pivoting in a controlled, predictable setting	Treatment Focus - Heavy squats/deadlifts (eccentric emphasis); single-leg load - Sprinting, acceleration/deceleration, cutting $45^\circ \rightarrow 90^\circ$ - Box, depth, tuck, broad jumps; single-leg hops; bounding - Shuttle, T-drill, pro-agility; reactive agility; sport patterns
► Advance to Phase 5 when: quad, hamstring, and hop LSI $\geq 80\%$, no pain or effusion, advanced agility drills completed, psychological readiness improving.			
Phase 5 Months 8–12	Goals - Full unrestricted sport participation - Maintain LSI $\geq 90\%$ long term - Injury prevention program established - Psychological readiness confirmed	Precautions - Full return to sport no sooner than 8–9 months; ALL criteria must be met — time alone is insufficient - Address fear of reinjury before clearance - No brace (prophylactic optional)	Treatment Focus - Full practice with contact, scrimmages, game speed - Maintenance strength 2–3x/wk; long-term injury-prevention program - Testing: isokinetic quad/hamstring ($60^\circ/\text{s}$, $180^\circ/\text{s}$, H:Q ratios), hop battery, ACL-RSI, IKDC, KOOS
► Return to Sport (no sooner than 8–9 months): quad and hamstring LSI $\geq 90\%$ (isokinetic preferred), ≥ 2 of 4 hop tests $\geq 90\%$ (single, triple, crossover, 6-m timed), ACL-RSI > 68 , no pain or effusion, psychologically ready, cleared by surgeon.			

Special Considerations

- Graft-agnostic protocol. Hamstring autograft: added hamstring strengthening focus. Patellar tendon autograft: early anterior knee pain common; modify kneeling; patellar mobilizations especially important. Quadriceps tendon autograft: added quadriceps activation focus.
- Recommend Return-to-Sport testing battery at 3, 6, and 9 months for comparative and progression data.

Thank you for taking care of our patient.

This protocol serves as a general guideline and outline only. Our team defers to the clinical judgment and expertise of the treating physical therapist to make appropriate adjustments and modifications based on the individual patient's presentation, progress, and response to treatment. For any questions regarding this protocol, please contact Dr. Wollenman directly at (561) 215 – 0184.