



ACL Reconstruction Rehabilitation Protocol

General Guidelines for Concomitant Procedures (unless otherwise stated by surgeon):

- Lateral Extra-articular Tenodesis (LET): Increased lateral pain/swelling; may delay Phase I progression but does not change WB status
- Meniscal Repairs:
 - Root & Radial: NWB 4–6 weeks, ROM 0–90° first month
 - Bucket-Handle: TTWB 4–6 weeks
 - Vertical/Ramp: Often WBAT in extension
- Medial Collateral Ligament (MCL): May require aggressive early ROM if reconstructed
- Posterolateral Corner Injury (PLC): NWB ~6 weeks to protect graft from varus and external rotation forces.
- Hamstring graft: Delay heavy hamstring strengthening until 8–12 weeks

Surgeon Specific Guidelines:

Dr. Bell

Weight-bearing as tolerated (WBAT) with brace locked into extension immediately post-operatively with crutches.

Progression: Transition to unlocked brace and no crutches within 2–4 weeks, per physical therapist guidance based on:

Range of motion (ROM), Quadriceps control, Gait mechanics, and Absence of reactive effusion

Meniscus Involvement:

Radial/Root repair: Non-weight-bearing (NWB) for 4–6 weeks.

Bucket handle repair: WBAT with brace locked into extension for 4–6 weeks; ROM limited to 0–90 degrees for 4 weeks.

Dr. Miller

WBAT with brace locked into extension immediately post-operatively with crutches.

Progression: Transition to unlocked brace and no crutches, per physical therapist guidance based on: Range of motion, Quadriceps control, Gait mechanics and

Absence of reactive effusion

Meniscus Involvement:

Radial repair: WBAT with brace locked into extension for 6 weeks; ROM limited to 0–90 degrees for 6 weeks.

Bucket handle and root repair: NWB for 4 weeks, then Partial weight bearing (PWB) for 2 weeks, progress to FWB at 6 weeks; ROM limited to 0–90 degrees for 6 weeks

Dr. Sanders

WBAT with brace locked into extension until able to perform a straight leg raise (SLR) without extension lag.

Crutches & ROM: Crutches for 2–4 weeks; ROM as tolerated.

Meniscus repair: Case dependent, follow surgeon-specific post-operative orders.

Dr. Smalley

WBAT with brace locked into extension until able to perform SLR without extension lag.

Crutches & Weaning: Crutches for 2 weeks, then wean to no assistive device.

Meniscus repair: Case dependent, follow surgeon-specific post-operative orders.

Dr. Grebner

WBAT with crutches and progressive unlocking of the brace.

Crutches: Use for 2 weeks, then wean as patient is ambulatory without a limp.

Brace Unlocking Schedule:

At 2 weeks: Unlock to 30 degrees for 2 weeks. At 4 weeks: Unlock to 90 degrees for 2 weeks. At 6 weeks: Unlock to 120 degrees for 1 week, then wean from the brace entirely.

Meniscus Repair:

ROM limited to 0–90 degrees until 6 weeks.

WBAT with brace locked into extension for 6 weeks.

Dr. Spangler

WBAT with brace locked into extension immediately post-operatively with crutches.

Progression: Transition to unlocked brace and no crutches within 2–4 weeks, per physical therapist guidance based on: Range of motion, Quadriceps control, Gait mechanics and Absence of reactive effusion.

Meniscus Involvement:

Radial/Root repair: Non-weight-bearing with crutches for 4–6 weeks

Bucket handle repair: WBAT with brace locked into extension for 2–4 weeks; ROM limited to 0–90 degrees for 4 weeks.

Phase I: Immediate Post-Op / Protection (Weeks 0–2)

Goals

- Protect graft
- Achieve full knee extension (equal to contralateral knee is the goal)
- Reduce effusion
- Restore quad activation
- Normalize gait
- Flexion $\geq 110^\circ$

Interventions Ideas:

- Cryotherapy, compression
- Blood Flow Restriction training
- Patellar mobilizations
- Extension restoration (heel props)
- Quad sets (NMES)
- SLR without lag
- Mini squats (0–45°)
- Gait training
- Stationary bike

Criteria to Progress

- Full passive extension (symmetric)
- Flexion $\geq 110^\circ$
- Trace or less effusion
- SLR without lag
- Independent ambulation without AD (if appropriate)

Phase II: Early Strengthening (Weeks 2–6)

Goals

- Full ROM (symmetrical to sound limb)
- Improve quad strength
- Normalize gait
- Initiate closed-chain strengthening
- Improve neuromuscular control

Interventions Ideas:

- Leg press (0–60°)
- Step-ups, split squats
- OKC 90–45 degree range
- RDLs
- Hamstring strengthening (graft dependent)
- Balance progression
- Core/hip strengthening
- SL mini squats (if proper form with DL squats)
- Bike

Criteria to Progress

- Full ROM
- No reactive effusion
- Quad strength $\geq 60\%$ LSI
- 10 controlled SL squats to $\sim 60^\circ$
- No gait deviations

Phase III: Progressive Strength / Neuromuscular Control (Weeks 6–12)

Goals

- Restore muscular strength
- Improve dynamic control
- Prepare for running

Interventions Ideas:

- Progressive resistance (quad emphasis)
- SL RDLs
- SL squat progression
- Lateral step downs
- Perturbation training
- Core strengthening

Criteria to Initiate Running

- Symmetrical ROM
- Quad strength $\geq 70\text{--}80\%$ LSI
- No effusion
- Pain $\leq 2/10$
- Good SL squat mechanics
- Y-Balance anterior difference < 4 cm
- Capacity Testing: Ability to perform 30 or more seconds of rhythmic double leg pogo hops without reactive effusion

Phase IV: Running / Advanced Strength (Weeks 12–20)

Goals

- Improve power
- Continue progressive strengthening
- Achieve quad strength $\geq 80\text{--}90\%$ LSI
- Introduce plyometrics

Interventions Ideas:

- Handheld dynamometry testing
- Walk-jog progression if met strength and ROM criteria to progress
- Bilateral $\rightarrow$ unilateral plyometrics if met strength and ROM criteria to progress
- Single leg progressive load strengthening

Criteria to Progress to RTS Phase

- Quad $\geq 85\text{--}90\%$ LSI

- Hamstring $\geq$ 90% LSI

Phase V: Return to Sport ($\geq$ 9 Months Preferred)

Goals

- Quad $\geq$ 90–95% LSI
- Hop testing $\geq$ 90–95% LSI
- Demonstrate high-level neuromuscular control
- Reduce reinjury risk
- Initiate change of direction (COD) ONLY if met other criteria

Intervention Ideas:

- Advanced plyometrics
- Acceleration/deceleration drills
- Isokinetic strengthening or hand-held dynamometer testing
- High-velocity COD
- Reactive drills
- Fatigue-based neuromuscular training
- Sport-specific drills

Criteria for Full RTS

- Quad $\geq$ 90–95% LSI
- Hamstring $\geq$ 95% LSI
- H:Q Ratio $\geq$ 60%
- Absolute Strength: > 3.0 Nm/kg (for high demand athletes)
- Hop battery $\geq$ 90–95% LSI
- Y-Balance composite $\geq$ 90%
- No pain or effusion
- Psychological readiness (ACL-RSI above 65)
- Surgeon clearance
- Isokinetic testing if available at 60/180/300 degrees per second