



ILLINOIS BONE & JOINT INSTITUTE

Dr. Roger Chams ACL Reconstruction with Patellar Tendon Autograft With and Without Meniscus Repair Post-Op Protocol

This protocol is intended to be a general guideline. The physician staff may advance, delay, or alter this protocol based on individual patient status. If so, this should be done by direct communication with the therapist, or in writing on the therapy referral form provided to the patient or therapist.

The therapist should check with physician staff re: co-morbidities that may affect protocol progression, such as meniscal tears, chondral defects, or bone bruise.

Guidelines for Pre-Op Physical Therapy

- Patient will receive instruction from Dr. Chams or one of his physician extenders on post-operative expectations, post-op Day One exercises, and use of crutches or another assistive device. If deemed necessary at that time, the patient may be referred for one pre-op PT visit to receive gait training, review post-op exercises, and discuss post-op expectations.
- If seen pre-op in PT clinic, patient should be instructed in edema control and post-op exercises (quad set, SLR, ankle pumps) and the importance of resting knee in full knee ext to avoid flexion contracture.

Guidelines for Post-Op Physical Therapy Visits

- Therapy begins on **Day One** post-op in the outpatient clinic.
- Patient is typically seen in clinic 3x/week for the first 4 weeks, or until full extension and functional flexion is achieved AND there is no antalgia or quad lag with SLR.
- Then decrease to 2x/week until about 8 weeks post-op, at which time patient may be seen 1x/week or every other week as appropriate based on patient status and HEP compliance.

Guidelines for MD Follow-Up Visits (including telehealth)

- **At two weeks post-op**, patient will be seen in clinic for removal of stitches and follow up.
- **At six weeks post-op**, patient may be seen by physician extender through telehealth video communication during an in-clinic PT session to connect with patient and treating therapist and discuss current ROM and strength status.
- **Additional follow-ups** with MD staff will be scheduled as needed.

Guidelines for Wound Care

- Original steri-strips should be left in place until stitch removal. They can be reinforced with more steri-strips if needed.

- On Day One post-op, remove bulky post-op cotton and gauze dressings. Place 2x2 gauze pads and occlusive dressing over wound sites. Change dressings as needed and do not allow wounds to become wet.
- Instruct patient to wrap knee in “press and seal” plastic wrap for showering until 3-5 days after stitches are removed (make sure wounds are fully healed before being exposed to water).

Guidelines for Ambulation and Hinged Knee Brace

- Unless otherwise specified, patient will be TTWB immediately post-op. When quad control allows, progress to WBAT.
- Hinged (TROM) knee brace will be issued at surgical center. Brace should be adjusted for correct fit by therapist at first PT visit post-op.
- Brace to be worn and locked at 0 degrees extension with all WB’ing ADL’s for first 4 weeks. Brace may be removed for sleeping, bathing, and exercises.
- Unlock brace for ambulation when able to perform good quad set and independent SLR.
- Discharge TROM for everyday use when patient has normal gait pattern and maintains 0 degrees knee extension at rest, usually within first 4 weeks post-op.
- Continue use of TROM for first 8-10 weeks when on unstable surfaces or in large crowds, or when on feet for extended period of time.

Guidelines for Meniscus Repair

Note: Presence of meniscus repair will affect ability to perform exercises at times specified in rehab protocol below. Therapy progression should be modified within the restrictions of the repair restrictions stated here.

- For bucket-handle tears: Restrict all flexion ROM to 90 degrees until 4 weeks post-op. After that, ROM may be progressed as tolerated in any position.
- For all other tears: No ROM restrictions.
- WB’ing Restrictions (verify any deviations by communication with physician staff):
 - TTWB’ing x 4 weeks with hinged TROM brace locked in extension
 - At 4 weeks post-op, begin WBAT with brace locked in extension for an additional 2 weeks.
 - At 6 weeks post-op, allow FWB gait without brace or with hinge unlocked, depending on quad control.
 - Continue to use brace in crowds or on unstable surfaces for the first 12 weeks post-op.
- No closed-chain knee flexion activities until 8 weeks post op.
- No resisted hamstring exercises (open or closed chain) for first three weeks

Day One Post-Op

- See above for dressing and wound care instructions and brace guidelines.
- Review post-op exercises and edema control (ice/elevation): quad set, SLR, full knee ext (heel prop if necessary).
- Upgrade HEP and add additional exercises such as those below as indicated.
- PROM knee flex (goal = 45 degrees on day one) and instruction in self-AAROM (any position) for ROM progression
- Review WBAT gait with crutches or other AD
- Apply NMES to quad for muscle recruitment.
- Cryotherapy using GameReady machine or other device, or cold packs

Week 1 - 4: Patient seen 3x/week as needed.

If ROM and quad strength are progressing well, may decrease to 2x/week with home NMES unit if needed. ROM GOAL: 100 degrees flexion prone by Week 4.

Precaution: All squat and lunge instruction should emphasize no forward translation of the knee to avoid excessive patellofemoral stress.

- Continue above exercises
- At Week 2, add stationery bike without resistance for AAROM
- Optional: Add in-clinic personalized blood flow restriction if appropriate. Begin BFR with NWB'ing and progress to use with WB'ing exercises
- Sidelying hip abduction/adduction, prone hip extension, bridges
- Standing weight shifting, cone taps, heel raises, soleus reaching, lateral walking, close-chain TKE, hurdle stepovers, bilateral LE tilt board balance drills
- Gait training to focus on normalization of gait pattern
- When quad control is good, add mini squats (no forward translation) and progressive SLS activity
- At Week 4, start forward and lateral step-ups on short stair

Weeks 5 - 6: Patient seen 2x/week as needed.

- Balance drills progressed to unstable surfaces (foam, BOSU ball, etc.) and progress to single leg drills as tolerated
- Gait drills: tandem walk, backward walk, crossovers, proprioceptive ladder drills (no plyometrics yet)
- Progress height of step for forward and lateral step-ups
- Resisted sidestepping, floor slider drills
- Leg Press from 10-70 degrees of flexion with bilateral LE's
- Lateral lunges to non-operative side only
- At Week 6, start plyo lateral shuffles

Weeks 7-8: Patient seen 2x/week as needed.

- Elliptical machine, bike with resistance
- Unilateral leg press and incorporate other gym machines if desired, **avoiding seated knee extension (LAQ) machine long-term.**
- Lateral lunges to both sides, forward lunges, step-downs
- Increase core/hip strength: prone planks, side planks, unilateral bridges, single leg RDLs, Pilates-style strength/flexibility (Reformer if available)
- Increase speed of ladder proprioceptive drills (no jumping/hopping yet)

Weeks 9-12: Patient seen 1x/week as needed.

- Increase hamstring strengthening focus, including resisted curls
- Focus also on non-operative LE strength/coordination to avoid asymmetry
- Crossover shuffles, star squat, cone pickups from floor
- If available, use hydraulic machine like shuttle leg press or Pilates Reformer for partial-weight plyometric jumping/hopping
- At Week 10, may begin swimming (flutter kick) (all incisions must be fully closed)
- At Week 12, with MD clearance and no comorbidities, may begin progressive jogging on flat, even surfaces if patient can perform good single-leg eccentric squat pain-free. Begin jogging every other day and with progressive distance and frequency as tolerated. (May delay to Week 16 with meniscus/cartilage damage or bone bruise.)

Weeks 13-16: Patient seen 1x/week as needed.

- Slideboard, Nordic curls, destabilization training with external perturbations
- When eccentric strength is adequate, begin progressive plyometric drills
 - Begin double-leg jumping in place. Then add distance, height, rotation, and proprioceptive challenges.
 - Progress to single-leg hopping in place. Then add distance, height, rotation, and proprioceptive challenges.

Weeks 17 to Discharge: Patient seen 1x/week or less as needed.

- At Week 20, patient may be progressing running to various terrains and inclines.
- Perform Phase IV and sport-specific drills: progressive running, cutting, plyometrics, pivoting, and perturbation training. Focus on increasing speed, power, and proprioceptive control as indicated.
- When patient is deemed ready, assess for **return to sport** with sport-specific training using a standardized return-to-play testing protocol (FMS, Y Balance Test, facility-specific protocol, etc.). Testing should include Single Leg Hop (goal = 90% of non-operative LE), Drop Jump Test, Single Leg Squat, and Triple Hop Test.
- Quad girth should be no more than one inch less than non-operative side.
- Discharge when patient has achieved full ROM and adequate neuromuscular control to continue independently with ongoing HEP for strength/ROM/coordination/flexibility. Patient should not be discharged until achieving adequate function for all ADL, sport, and work activities.

The use of a custom or off-the-shelf sports brace (Donjoy Defiance or Full Force) may be recommended by physician or therapist for improved proprioception.

Updated March 31, 2020, TJB.