

# BEAR ACL Repair

## Physical therapy protocol

Patient: \_\_\_\_\_ Surgery / procedure date: \_\_\_\_\_

**This is the full Pacific Bone & Joint postoperative protocol. Patient-specific operative and discharge orders take precedence over this default pathway.**

Selected by surgeon \_\_\_\_\_ PT start \_\_\_\_\_ Next review \_\_\_\_\_

## Protection and early recovery

This protocol protects a healing native ACL after BEAR implantation in a skeletally mature patient. It follows the manufacturer rehabilitation guidance issued in May 2026. Use the separate combined protocol when a meniscus was repaired. Patients with open growth plates require a specifically prescribed pediatric pathway.

Begin physical therapy within the first week. Review the home exercises within 48 hours unless the surgical team directs otherwise. Time after surgery and examination findings both determine progression; reaching a date alone does not permit advancement.

### Time: Weight bearing - Motion and brace

Weeks 0 to 2: Two crutches; at most 50% body weight. - Brace locked at 0 deg for walking and sleep. For permitted sitting and exercises, motion is 0-45 deg after the initial 24 hours.

Weeks 2 to 4: Continue at most 50% with crutches. - Exercise and sitting motion 0-90 deg. Keep brace locked for sleep and walking outside PT. Supervised unlocked gait training may begin in PT.

Weeks 4 to 7: Advance toward weight bearing as tolerated only with PT and surgeon clearance. - Progress flexion beyond 90 deg gently. Unlock walking brace when quadriceps control permits. Sleep brace is no longer required after week 4 unless ordered.

## Essential precautions

- Do not use continuous passive motion. Do not force bending or apply aggressive flexion stretching or end range overpressure before week 12. Gentle manual motion within the permitted range is acceptable.
- Keep the knee straight during protected standing. Do not pivot on the operated foot, jump, run, kneel deeply, or carry loads that exceed the weight bearing limit.
- No aggressive scar massage before week 7; direct treatment over an incompletely healed incision is inappropriate.

## Home program and early treatment

Teach ankle pumps, comfortable heel supported extension, gentle assisted bending within the limit, quadriceps sets, and patellar mobility. Use NMES when activation is poor. Maintain hip, ankle, and core function without violating knee restrictions. Check brace fit, skin, safe transfers, and stairs. Ice with a cloth barrier for short sessions and elevate to manage swelling.

## Strength and movement progression

### Weeks four to seven

Wean crutches only when walking is comfortable and normal, quadriceps control is adequate, straight leg raise has no lag, and stairs can be negotiated safely. If these criteria are absent, retain support and reassess. Work toward full comfortable extension and flexion beyond 90 deg without force.

- Continue quadriceps sets and NMES as needed. Add straight leg raises without lag, unloaded long arc knee extension from 90 deg to 0 deg, hip and calf strengthening, shallow mini squats, and controlled step ups.
- Begin weight shifts, balance, and reciprocal stair training as control permits. Bicycle rocking can assist motion. Keep early knee extension resistance light and therapist directed.

### Weeks seven to twelve

Aim for normal gait, full extension, flexion within 15 deg of the other knee, and 20 straight leg raises without lag. The surgeon determines whether to continue a hinged brace or transition to a functional ACL brace; the latter may be considered once active motion reaches at least 0-110 deg.

- Progress step ups and downs, controlled squats and lunges, hip and core strength, and single leg balance. Begin comfortable hamstring sets or curls and gradually resisted open chain knee extension under PT supervision.
- Continue cycling. Pool exercise requires a healed wound and clearance; water jogging may begin from week 8. No land running, jumping, or pivoting during this phase.

Before the next phase: at least 12 weeks after surgery, 20 no lag straight leg raises, and a quadriceps strength index of approximately 60-80%. Continue NMES when useful until quadriceps symmetry reaches 80%.

### Weeks twelve to twenty

Progress quadriceps, hamstring, hip, and calf resistance with controlled alignment. Use cycling or an elliptical for conditioning. Restore full motion and address persistent effusion. A supervised straight line running program requires the separate criteria on the next page; otherwise defer it.

### Weeks twenty to thirty

Continue progressive strength and graded straight line running when cleared. Develop controlled double leg landing before single leg hopping. Practice a single leg squat without hip collapse or knee valgus. Cutting and pivoting remain restricted. Before advanced drills, require at least 30 weeks, quadriceps symmetry of at least 80%, symptom free running, 60 seconds of single leg balance, functional hop assessment, and surgeon clearance.

## Running and return to sport

### Clearance for running

Straight line jogging may be considered during weeks 12-20 only after surgeon clearance, full motion, zero effusion, and quadriceps strength at least 80% of the other limb. Otherwise delay until these goals are met. Use a treadmill or controlled level setting in rehabilitation. Permission for jogging does not include uneven terrain, cutting, or unrestricted sport.

### Weeks thirty to thirty six

After the previous phase criteria are met, introduce supervised agility and planned direction changes at 50-75% effort. Progress plyometrics and sport drills with controlled landing and deceleration. Target quadriceps and hop performance of at least 85% of the other side before higher speed training. The knee should tolerate progression without pain, swelling, or instability.

### Return to sport usually nine to twelve months

The return to sport phase can begin at 36 weeks. Unrestricted sport is considered at 9-12 months; entering a phase is not clearance. Full release requires surgeon approval and all of the following:

- Full motion, no effusion or giving way, and no functional complaints during daily activity or sport drills.
- Quadriceps strength at least 90% of the other limb; use a 95% target for high demand athletes when feasible. Measure strength with dynamometry.
- Hop battery at least 90% limb symmetry, aiming for 95% before unrestricted pivoting sport. Assess single, triple, crossover, and timed hops together with landing quality.
- Confident running, jumping, deceleration, and direction changes at full speed; suggested global knee function rating at least 9 out of 10.
- Completion of a gradual progression through individual drills, noncontact practice, and full practice appropriate to the sport.

Compare performance with preoperative or expected absolute strength as well as the other leg. Symmetry can conceal weakness in both legs. The 95% targets are conservative clinic goals beyond the manufacturer minimum for team training.

### When to pause and call

Reduce loading for new swelling, limping, or symptoms that persist into the next day. Contact the surgical team for stalled motion, new locking or giving way, wound drainage, fever with increasing redness, or calf pain and swelling. Chest pain, shortness of breath, or fainting requires emergency care.

Sources: Miach Orthopaedics BEAR Rehabilitation Protocol ML-1014 Rev M, May 2026: [https://miachortho.com/\\_PDFs/ML-1014%20Rev%20M%20-%20BEAR%20Rehab%20Protocol.pdf](https://miachortho.com/_PDFs/ML-1014%20Rev%20M%20-%20BEAR%20Rehab%20Protocol.pdf) . Patient Post-Operative Instructions ML-1016 Rev G, January 2026: <https://miachortho.com/patients-and-families/post-operative-instructions> .