

PHYSICAL THERAPY PROTOCOL

Hip Labral Reconstruction Rehabilitation

Iliotibial Band (ITB) Allograft Reconstruction

FOR THE PHYSICAL THERAPIST

Overview and Goals

This protocol governs rehabilitation following arthroscopic hip labral reconstruction using iliotibial band (ITB) allograft. Labral reconstruction is performed when the native labrum is irreparable — typically due to severe degeneration, ossification, hypoplasia, or prior failed repair. The graft recreates the labral seal and restores the suction effect that distributes load across the joint.^{1,2,3}

The protocol is intentionally more conservative than that for primary labral repair through the early phases. The graft requires biological incorporation before it can tolerate the loads a healed native labrum tolerates, so weight-bearing and ROM restrictions are extended to protect graft fixation while incorporation occurs.^{1,3,5} Despite the more conservative early protocol, published comparative outcome studies show that labral reconstruction achieves outcomes comparable to labral repair at minimum 2-year and 5-year follow-up.^{6,7,8}

Two principles guide the rehabilitation. First, protect graft incorporation through the first 6 weeks. Second, restore normal motion and gait early within those constraints — extended immobilization is not protective and contributes to capsular adhesions, hip flexor compensation, and prolonged recovery.^{3,12} Stationary cycling without resistance is initiated on postoperative day 1 to support these goals.

Progression between phases is criterion-based. Time ranges represent typical windows, not gates. Hip strength and ROM remain measurably below age-matched controls at six months postoperatively in many patients¹⁵ — continued progression beyond formal PT discharge is expected.

THIS PROTOCOL IS FOR LABRAL RECONSTRUCTION ONLY

Designed for labral reconstruction with ITB allograft, with or without concomitant femoroplasty or acetabuloplasty. If the procedure was a **primary labral repair** (suturing of native tissue), use the Hip Arthroscopy protocol instead — it has earlier weight-bearing progression and shorter ROM restrictions appropriate for primary repair. If capsular plication or microfracture was performed concomitantly, see the corresponding modification section below before initiating rehabilitation.

Rehabilitation Phases

PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
PHASE 1 Weeks 0–6 <i>Graft protection & early motion</i>	- Foot-flat weight bearing (FFWB), 20 lbs, with crutches for 6 weeks — protects the graft during early biological incorporation.^{1,3,9} - Progress to full weight	None. ^{9,11}	Pain-free passive ROM within these limits for the first 4–6 weeks: - Flexion 0–90° - Extension 0° (no hyperextension) - Abduction 30° - External rotation 30° at 90° flexion - Internal rotation neutral at 90° flexion	Pain & effusion control: - Cryotherapy, scar massage once incisions healed Stationary bike (no resistance): - Initiated POD #1 as tolerated — critical element of early rehab; supports capsular healing and graft nutrition through controlled motion. ROM: - Passive ROM within above limits, gentle circumduction, prone-lying soft-tissue mobilization Strengthening (isometrics only):	- Pain controlled at rest and with prescribed exercises - Effusion / soft-tissue swelling minimal - Pain-free ROM within phase limits - Quad and gluteal activation symmetric on palpation

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PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
	bearing over weeks 6–8.		From week 6: progress toward full ROM as tolerated. Avoid the impingement position (combined deep flexion + adduction + internal rotation) throughout Phase 1.	- Quadriceps sets, gluteal sets - Hamstring digs with knee support - Ankle pumps, plantarflexion / dorsiflexion Avoid: - Active hip flexion / SLR — defers hip flexor tendinopathy^{1,2} - Joint or capsular mobilization through Phase 2 - Resistance on the bike - Aggressive stretching past listed ROM limits - Loaded ROM exercises until graft incorporation is established	Minimum 6 weeks elapsed
PHASE 2 Weeks 6–12 <i>Gait restoration & controlled mobility</i>	- Progress from FFWB → partial → full weight bearing over weeks 6–8 as gait quality and pain allow.^{1,2,12} - Wean from crutches as patient demonstrates symmetric, pain-free gait.	None.	- Progressive ROM restoration toward full pain-free range in all planes. - Continue to avoid loaded extremes and the impingement position through Phase 2.	Gait training: - Restore normal gait pattern; address antalgic compensation, hip-hike, or trunk lean Strengthening progression: - Gluteus medius (isotonic): clamshells, side-lying abduction, monster walks (light band) - Gluteus maximus: bridges, prone hip extension - External rotators: side-lying clams, sustained isometric rotation Core & lumbo-pelvic stability: - Dead bug, bird dog, plank progressions - Step over small obstacle on non-operative leg, emphasizing operative-side hip extension - Weight shifting and double-leg balance Cardio: - Stationary bike — add light resistance at weeks 8–10. Pool walking once incisions fully healed. Manual therapy & aquatics: - Emphasized in this phase per published consensus.¹ Continue to avoid: - Active hip flexion / SLR (until week 8) - Joint or capsular mobilization - End-range stretching - Loaded deep flexion (squat past 90°)	- Normalized gait without assistive device - Full or near-full pain-free ROM - Single-leg stance ≥ 20 sec without Trendelenburg sign - Tolerates light resistance training without flare
PHASE 3 Weeks 12–20 <i>Strengthening & neuromuscular control</i>	Full weight bearing.	None.	Full, pain-free ROM in all planes.	- SLR may begin at week 8. Progress active hip flexion gradually with attention to flexor tendinopathy — reduce volume if anterior hip pain develops. Progressive resistance (all planes): - Hip abduction, adduction, extension — progressive band / cable / weight - External and internal rotators - Quadriceps and hamstring strengthening - Squat progression: bodyweight → goblet → loaded; partial → full depth	- Hip abductor LSI ≥ 75% - Quadriceps LSI ≥ 75% - Pain-free single-leg squat with controlled mechanics - No anterior hip pain with active hip flexion - Tolerates running gait simulation

PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
				as tolerated • Step-ups, step-downs (forward and lateral) • Lunges in multiple planes • Single-leg squat progression Neuromuscular & proprioception: • Single-leg balance (foam, BOSU), perturbation training, side steps with band, slide board Cardio: • Stationary bike (progressive resistance), elliptical, swimming, pool running Sport-specific: • Lateral movements and single-leg activities introduced late in phase. ³	without flare
PHASE 4 Months 5–9+ <i>Return to running, sport & activity</i>	• Full weight bearing.	• None.	• Full, pain-free ROM.	• Running progression when Phase 3 criteria met (typically months 5–6; reconstruction often slower than the literature median of 12 weeks). ⁹ • Treadmill walk-run intervals → continuous running • Straight-line jogging → curved → sprinting Plyometrics: • Double-leg jumps in place → broad / box jumps → lateral bounds → single-leg hops in multiple planes Agility: • Ladder drills, carioca, sport-cord lateral drills, deceleration training Sport: • Sport-specific drills at progressive intensity • Continue progressive resistance training to close strength asymmetry • Establish home maintenance program beyond formal PT	<i>See Return-to-Sport Criteria section below.</i> • Athletes meeting all RTS criteria may clear at ~6 months. ^{8,13} • Recreational return typically at ~9 months as criteria are reached.

Procedure-Specific Considerations

Why the More Conservative Early Protocol

The reconstructed labrum is an allograft construct that requires biological incorporation before it can tolerate the loads a healed native labrum tolerates. Most published reconstruction protocols extend the protected weight-bearing period to ~6 weeks (vs ~2 weeks for primary repair) and extend ROM restrictions to 4–6 weeks (vs 2–3 weeks for primary repair).^{1,3,9} Outcomes data show reconstruction matches repair at 2-year and 5-year follow-up^{6,7,8} — but only when graft incorporation is allowed to occur.

Why No Active Hip Flexion / SLR Before Week 8

Iatrogenic hip flexor tendinopathy is one of the most common complications after hip arthroscopy. Active hip flexion in extension — particularly straight leg raise — generates significant load on the iliopsoas at its musculotendinous junction in the early healing window.^{3,12} The SLR delay is extended an additional 2 weeks for reconstruction (vs week 6 for primary repair) to align with the longer protected period. Passive hip flexion ROM is safe and encouraged within the listed limits throughout.

Once SLR begins in Phase 3, monitor for anterior hip pain — onset of flexor tendinopathy symptoms warrants reducing volume and modifying activity rather than progressing through pain.

No Joint or Capsular Mobilization Through Phase 2

Capsular tissue and the graft are healing throughout the first 12 weeks and do not benefit from manual mobilization in this window. Stationary cycling without resistance — initiated POD #1 — provides sufficient controlled motion. Manual therapy and aquatic exercises are emphasized later in Phase 2 once early healing is established.

Avoid the Impingement Position Throughout Phase 1

The combined position of deep flexion + adduction + internal rotation is the same position that produced the original impingement and loads the reconstructed labrum directly. Avoid this combined movement throughout Phase 1, even within otherwise pain-free ROM. Educate patients to avoid deep low chairs, crossed legs in flexion, and aggressive stretching in this position.

WHEN FORMAL PT ADDS THE MOST VALUE

A 2023 cohort study found the greatest gains occurred in the first 13 PT sessions, with continued benefit through sessions 14–27 and diminishing returns beyond session 40 (~4.5–5 months); patients discharged between 3 and 6 months had the best 2-year outcomes.¹⁴ For labral reconstruction specifically, the first 6–8 weeks are most valuable for protected ROM progression, gait restoration, and avoiding common pitfalls. Formal supervised PT is most beneficial for:

- The first 6–8 weeks for protected ROM, gait restoration, and avoiding common pitfalls (SLR-related flexor tendinopathy, capsular adhesions, abnormal gait)
- Athletes targeting return to sport-specific function
- Patients with persistent gait deviations, anterior hip pain, or functional limitations

Patients without complications often transition to a structured home program by months 4–6 with periodic check-ins.

When Multiple Procedures Were Performed Together

When a patient had multiple procedures in the same operation — for example, labral reconstruction with capsular plication or microfracture — apply **the most conservative restriction in each dimension**: the most restrictive weight-bearing window, the most restrictive ROM limits, the longest delay before SLR or impact loading, and the longest return-to-sport timeline. The most restrictive procedure dictates the pace; less restrictive components do not average out. When uncertain which procedures were performed or how to combine restrictions, contact Dr. Roth's office before initiating rehabilitation.

Capsular Plication Modification

If capsular plication was performed during the same procedure, the modifications below apply **in addition to** the standard reconstruction protocol. Capsular plication is most often performed for microinstability, ligamentous laxity (Ehlers-Danlos and similar phenotypes), borderline dysplasia, or revision arthroscopy after iatrogenic instability. The plicated capsule must be protected from positions that strain the iliofemoral ligament — particularly combined hip extension and external rotation — during early healing.

CAPSULAR PLICATION — READ BEFORE STARTING

Weight bearing: No change from the reconstruction protocol — FFWB 20 lbs × 6 weeks already provides appropriate protection for the plicated capsule.

ROM restrictions — tighter ER limit:

- Flexion 0–90°, extension to 0°, abduction 30° — same as the reconstruction protocol.
- External rotation neutral or only slightly beyond neutral (no aggressive ER) at 90° flexion through weeks 6–8. Combined extension + ER maximally strains the plicated iliofemoral ligament and must be avoided through Phase 2.
- From week 6: progress ER gradually, monitoring for anterior or anterolateral hip pain suggesting excessive capsular strain.

SLR delay: No change — defer SLR until week 8 per the reconstruction protocol.

Running: Initiate at the later end of the reconstruction window — typically not before 5–6 months — once Phase 3 criteria are fully met.

Return to sport: Reconstruction timeline takes precedence — athletes meeting all criteria may clear at ~6 months; recreational return ~9 months. Borderline dysplasia patients may extend toward the longer end.

Patient counseling: These patients often present hip-flexible and want to return to extreme ROM. Counsel explicitly that the goal is functional range and stability — not pre-operative hypermobility — and that aggressive end-range stretching is a setback risk.

Microfracture Modification

If microfracture was performed for a chondral defect during the same procedure, the modifications below apply **in addition to** the standard protocol. The marrow clot must be protected during its initial 6-week consolidation phase, with continued maturation into fibrocartilage over 12–18 months. Premature loading before clot consolidation correlates with worse outcomes.

MICROFRACTURE — READ BEFORE STARTING

Weight bearing: No change from the reconstruction protocol — foot-flat weight bearing (FFWB), 20 lbs, × 6 weeks applies and provides appropriate protection for the maturing marrow clot.

Continuous Passive Motion (CPM): Recommended early to support cartilage healing through controlled motion — typically 4–6 hours daily during the first 4–6 weeks. Stationary cycling without resistance (POD #1) complements but does not replace CPM.

Loaded ROM restrictions: Avoid loaded hip flexion past 90° and end-range loaded extension throughout Phase 2 to protect the maturing marrow clot. Passive ROM within standard limits is encouraged.

Running and impact loading: The microfracture floor is ≥ 4 months; in practice the reconstruction timeline (5–6 months) governs. Plyometrics typically begin at 5–6 months.

Return to sport: Athletes ≥ 6 months minimum; recreational return ≥ 8–9 months — aligned with the reconstruction timeline. RTS criteria otherwise unchanged.

Patient counseling: Improvement often continues through 12–18 months. “Feeling normal” at 4–6 months does not mean the cartilage has fully matured — the protocol protects long-term outcomes, not just short-term symptoms.

Return-to-Sport Criteria

Return to sport after labral reconstruction is criterion-based, with functional reproduction of sport-specific demands as the primary clearance gate. Strict limb symmetry indices are less established

for hip arthroscopy than for knee surgery — hip strength and ROM remain below age-matched controls at 6 months in many patients,¹⁵ so achievable symmetry at 6 months is typically 75–85%. Functional criteria, not isolated strength numbers, drive clearance. Across published cohorts, mean time to return to sport after labral reconstruction is approximately 6.2–6.6 months, with return-to-sport rates of 82–87% — comparable to primary labral repair.^{6,13}

Domain	Criterion
Pain & symptoms	No anterior, lateral, or groin pain at rest, with sport-specific positions, or with impact loading
Range of motion	Pain-free reproduction of all sport-specific motions including end-range positions
Strength symmetry	Hip abductor and quadriceps LSI $\geq 80\%$ as a guideline; functional criteria carry greater weight than isolated strength numbers ⁶
Single-leg squat	Controlled, pain-free, symmetric depth and mechanics; no Trendelenburg sign
Running & impact	Pain-free running, jumping, and lateral agility drills
Sport-specific function	Successful completion of sport-specific drills at progressive intensity without pain or compensation
Time from surgery	Athletes meeting all criteria may clear at ~6 months; recreational return typically ~9 months ^{6,13}

ANTERIOR HIP PAIN IN LATE REHAB

Onset or worsening of anterior hip / groin pain during Phase 3 or 4 — particularly with active hip flexion, sit-to-stand, or running — is most commonly hip flexor tendinopathy from premature or excessive loading. This is not a reason to delay overall progression but warrants scaling back active hip flexion volume, modifying squat depth, and emphasizing gentle hip flexor stretching and eccentric loading. Persistent or severe symptoms should prompt re-evaluation by Dr. Roth.

References

1. Monselli C, Bianco Prevot L, Accetta R, et al. State of the Art in Rehabilitation Strategies After Hip Arthroscopy for FAI Syndrome: A Systematic Review. *J Clin Med*. 2024;13(23):7302.
2. Bistolfi A, Guidotti C, Aprato A, et al. Rehabilitation Protocol After Hip Arthroscopy: A 2015–2020 Systematic Review. *Am J Phys Med Rehabil*. 2021;100(10):958–965.
3. Hanish S, Muhammed M, Kelly S, DeFroda S. Postoperative Rehabilitation for Arthroscopic Management of FAI Syndrome: A Contemporary Review. *Curr Rev Musculoskelet Med*. 2023;16(9):381–391.
4. Nho S, Rasio J. Editorial Commentary: Rehabilitation After Hip Arthroscopy — Bear in Mind the Bearing of Weight. *Arthroscopy*. 2020;36(1):165–166.
5. Malloy P, Gray K, Wolff AB. Rehabilitation After Hip Arthroscopy: A Movement Control-Based Perspective. *Clin Sports Med*. 2016;35(3):503–521.
6. Jimenez AE, Monahan PF, Owens JS, et al. Return to Sports and Minimum 2-Year Outcomes of Primary Arthroscopic Hip Labral Reconstruction for Irreparable Tears in High-Level Athletes With Propensity-Matched Benchmarking Against a Labral Repair Control Group. *Am J Sports Med*. 2021;49(12):3261–3269.
7. Domb BG, Battaglia MR, Perets I, et al. Minimum 5-Year Outcomes of Arthroscopic Hip Labral Reconstruction With Nested Matched-Pair Benchmarking Against a Labral Repair Control Group. *Am J Sports Med*. 2019;47(9):2045–2055.
8. Scanaliato JP, Green CK, Salfiti CE, Patrick CM, Wolff AB. Primary Arthroscopic Labral Management: Labral Repair and Complete Labral Reconstruction Both Offer Durable, Promising Results at Minimum 5-Year Follow-Up. *Am J Sports Med*. 2022;50(10):2622–2628.

9. Cvetanovich GL, Lizzio V, Meta F, et al. Variability and Comprehensiveness of North American Online Available Physical Therapy Protocols Following Hip Arthroscopy for FAI and Labral Repair. *Arthroscopy*. 2017;33(11):1998–2005.
10. Avnieli IB, Vidra M, Factor S, et al. Postoperative Weightbearing Protocols After Arthroscopic Surgery for FAI Does Not Affect Patient Outcome. *Arthroscopy*. 2020;36(1):159–164.
11. Hagen MS, Meier E, Wigton C, Son M, Kweon CY. A Randomized Controlled Trial of Postoperative Hip Bracing After Arthroscopic Osteoplasty and Labral Repair for FAI Syndrome. *Am J Sports Med*. 2025.
12. Malloy P, Malloy M, Draovitch P. Guidelines and Pitfalls for the Rehabilitation Following Hip Arthroscopy. *Curr Rev Musculoskelet Med*. 2013;6(3):235–241.
13. Scanaliato JP, Chasteen J, Polmear MM, Salfiti C, Wolff AB. Primary and Revision Circumferential Labral Reconstruction for FAI in Athletes: Return to Sport and Technique. *Arthroscopy*. 2020;36(10):2598–2610.
14. Kaplan DJ, Larson JH, Fenn TW, et al. Use and Effectiveness of Physical Therapy After Hip Arthroscopy for FAI. *Am J Sports Med*. 2023;51(8):2141–2150.
15. Freke MD, Crossley K, Sims K, et al. Acute and Subacute Changes in Hip Strength and Range of Movement After Arthroscopy to Address Chondrolabral Pathology. *Am J Sports Med*. 2019;47(8):1939–1948.

Glossary

CPM — Continuous passive motion; a motorized device delivering controlled passive ROM. Recommended after microfracture to support cartilage healing.

ER — External rotation.

FAI — Femoroacetabular impingement; abnormal contact between the femoral head-neck junction (cam) and/or acetabular rim (pincer) during hip motion.

FFWB — Foot-flat weight-bearing; the foot rests flat on the floor bearing minimal load (~20 lbs).

FWB — Full weight-bearing.

ITB — Iliotibial band; the graft source used to reconstruct the labrum in this procedure.

IR — Internal rotation.

LSI — Limb Symmetry Index; the operative limb's strength or performance as a percentage of the contralateral limb (operative ÷ contralateral × 100).

mHHS — modified Harris Hip Score; a validated patient-reported outcome score for hip function.

POD — Postoperative day.

PWB — Partial weight-bearing; the patient loads the operative limb to a specified percentage of body weight (e.g., 50% PWB).

ROM — Range of motion.

RTS — Return to sport.

SLR — Straight leg raise; active hip flexion with the knee extended.



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Dr. Roth completed his orthopaedic surgery residency at Harvard Medical School and his sports medicine fellowship at the Kerlan-Jobe Orthopaedic Clinic in Los Angeles. In practice since 2013, he specializes in advanced arthroscopic techniques and sports medicine procedures, and sees patients at Palo Alto Medical Foundation's Palo Alto and Dublin offices. He welcomes calls from physical therapists about his patients or this protocol.

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