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PHYSICAL THERAPY PROTOCOL

Hip Arthroscopy Rehabilitation

Labral Repair · Femoroplasty · Acetabuloplasty

FOR THE PHYSICAL THERAPIST

Overview and Goals

This protocol governs rehabilitation following hip arthroscopy for labral repair, femoroplasty (cam resection), or acetabuloplasty (rim trimming) — typically performed in combination for femoroacetabular impingement (FAI) syndrome. The protocol follows a four-phase, criterion-based framework consistent with current published consensus.[1,2,3]

Two principles guide hip arthroscopy rehabilitation. First, protect healing tissue in the early weeks through controlled weight-bearing, ROM restrictions, and avoidance of impingement positions. Second, restore normal motion and gait early — extended immobilization is not protective and contributes to capsular adhesions, hip flexor compensation, and prolonged recovery.[3,6] 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; patients who do not meet criteria should remain in the current phase regardless of elapsed time. Hip strength and ROM remain measurably below age-matched controls at six months postoperatively in many patients[9] — continued progression beyond formal PT discharge is expected.

READ BEFORE STARTING — CONCOMITANT PROCEDURE MODIFICATIONS

This protocol applies to labral repair, femoroplasty, and acetabuloplasty as the standard FAI / chondrolabral pathway. Two concomitant procedures require modifications applied in addition to the standard protocol below:

- If **capsular plication** was performed (microinstability, ligamentous laxity, or borderline dysplasia), see the Capsular Plication Modification section.
- If **microfracture** was performed for a chondral defect, see the Microfracture Modification section.
- If the procedure was a **labral reconstruction** (irreparable native labrum requiring graft), use Dr. Roth's dedicated Labral Reconstruction protocol instead — a substantively different framework.

Rehabilitation Phases

PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
PHASE 1 Weeks 0–4 *Tissue protection & early motion*	• Foot-flat weight bearing (FFWB), 20 lbs, with crutches for the first 2 weeks[1,7,8] • Progress to full weight bearing over weeks 2–4 as gait quality and pain allow.	None.[1,4]	**Pain-free passive ROM within these limits for the first 2 weeks:** • Flexion 0–90° • Extension 0° (no hyperextension) • Abduction 30° • External rotation: neutral only for the first 2 weeks — the capsule is closed in every case, and the foot should not	**Pain & effusion control:** • Cryotherapy, scar massage once incisions healed **Stationary bike (no resistance):** • Initiated POD #1 as tolerated — a key element of early rehab supporting capsular healing 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 • Tolerates progression to full weight bearing • Quad and gluteal activation

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PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
			be allowed to fall outward at rest. From week 3, progress to 30° at 90° flexion as tolerated. • Internal rotation neutral at 90° flexion From week 3: progress toward full ROM as tolerated. • Avoid the impingement position (combined deep flexion + adduction + internal rotation) throughout Phases 1 and 2.	• Quadriceps sets, gluteal sets • Hamstring digs with knee support • Ankle pumps, plantarflexion / dorsiflexion **Avoid:** • Active hip flexion / SLR — defers hip flexor tendinopathy[3,6] • Joint or capsular mobilization through Phase 2 • Resistance on the bike • Aggressive stretching past listed ROM limits	symmetric on palpation
PHASE 2 Weeks 4–8 *Gait restoration & controlled mobility*	• Full weight bearing without assistive device, typically by weeks 4–6.[1,3]	• None.	• Progress toward full pain-free ROM in all planes. Avoid loaded extremes of motion. • Continue to avoid the combined impingement position (deep flexion + adduction + internal rotation) through Phase 2; resume within pain-free, unloaded range from week 8.	**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 5–6. Pool walking once incisions fully healed. **Straight leg raise (from week 6):** • SLR may begin at week 6 — progress active hip flexion gradually and reduce volume if anterior hip pain develops. **Continue to avoid:** • Active hip flexion / SLR before week 6 • Joint or capsular mobilization • End-range stretching	• 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 8–16 *Strengthening & neuromuscular control*	• Full weight bearing.	• None.	• Full, pain-free ROM in all planes.	• Continue the SLR progression begun at week 6 — progress active hip flexion gradually with attention to flexor tendinopathy, and reduce volume if anterior hip pain develops. **Progressive resistance (all planes):** • Hip abduction, adduction, extension — progressive band / cable / weight	• Hip abductor LSI ≥ 70% by hand-held dynamometry (intermediate gate; the same method is used for clearance) • Quadriceps LSI ≥ 70% by the same

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PHASE	WEIGHT BEARING	BRACE	ROM GOALS	EXERCISES	CRITERIA TO ADVANCE
				• External and internal rotators • Quadriceps and hamstring strengthening • Squat progression: bodyweight → goblet → loaded; partial → full depth 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	method • Pain-free single-leg squat with controlled mechanics • No anterior hip pain with active hip flexion • Tolerates running gait simulation without flare
PHASE 4 Months 3–6+ (Weeks 12+) *Return to running, sport & activity*	• Full weight bearing.	• None.	• Full, pain-free ROM.	• Running progression when Phase 3 criteria met (typically 12 weeks; literature range 6–19 weeks):[1] • 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	*See Return-to-Sport Criteria section below.* • Athletes meeting all RTS criteria may clear at ~4 months.[1,10,11,12] • Recreational return typically at ~6 months as criteria are reached.

Strength testing standard. Limb-symmetry percentages are measured by hand-held dynamometry — isometric hip abduction in side-lying, or the named muscle group, best of three trials, operative ÷ contralateral × 100 — or by isokinetic testing where available; the same method is used for the phase gate and the clearance test. Where no dynamometer is available, single-leg sit-to-stand or step-down symmetry is documented as the substitute. Manual muscle testing is not sensitive enough to gate loading or return to sport. Phase gates are *intermediate* thresholds (≥ 70%); clearance thresholds are *final* (≥ 90% for the lower limb). Where symmetry cannot be reached, clearance is by Dr. Roth on a stable plateau — no gain over two consecutive measurements at least 6 weeks apart — together with pain-free motion and a completed sport-specific progression.

Procedure-Specific Considerations

Why No Active Hip Flexion / SLR Before Week 6

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.[3,6] Delaying SLR and resisted active flexion until week 6 substantially reduces this risk. Passive hip flexion ROM is safe and

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encouraged throughout. Once SLR begins at week 6, 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 is healing throughout the first 8 weeks and does not benefit from manual mobilization in this window. Stationary cycling without resistance — initiated POD #1 — provides sufficient controlled motion to support capsular healing and prevent adhesions. Resume manual mobilization, if clinically indicated, only after Phase 2 is complete.

Avoid the Impingement Position Throughout Phases 1 and 2

The combined position of deep flexion + adduction + internal rotation is the same position that produced the original impingement and loads the labral repair and resected cam region directly. Avoid this combined movement through Phases 1 and 2 — resuming within pain-free, unloaded range from week 8 — even where ROM is otherwise pain-free. 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 meaningful 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.[13] Formal supervised PT is most beneficial for:

- The first 4–8 weeks for gait restoration, ROM progression, 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 labral repair with 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 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: Foot-flat weight bearing (FFWB), 20 lbs, with crutches for 4–6 weeks. This extends the standard 2-week FFWB period.[1,4,5]

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ROM restrictions — extended duration and tighter ER limit:

- Flexion 0–90°, extension to 0° (no hyperextension), abduction 30° — as standard but extended through weeks 4–6 rather than 2.
- 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: Same as standard — defer SLR until week 6.

Running: Initiate later than the standard window — typically weeks 16–20 — once Phase 3 criteria are fully met.

Return to sport: Timeline similar to standard. Athletes meeting all criteria may clear at ~4–5 months; recreational return ~6 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. Published outcomes show 80–85% return to sport at minimum 2-year follow-up.

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: Foot-flat weight bearing (FFWB), 20 lbs, with crutches for 6 weeks, then progress over 1–2 weeks to full as gait quality and pain allow. This extends the standard 2-week FFWB period and is up to two weeks longer than the capsular-plication modification. If both procedures were performed, the 6-week microfracture window governs.

Continuous Passive Motion (CPM): After microfracture a CPM is recommended in addition to the stationary bike — not as a substitute for it — 8 hours daily for 6 weeks; the hours need not be consecutive. Set the machine from 0° and advance the arc to 0–70° by 2 weeks; never take the hip past 90° of flexion, and allow no adduction or internal rotation at end range. Overnight use is fine and counts toward the daily total.

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: Delay running to ≥ 4 months regardless of strength symmetry. Plyometrics typically begin at 5–6 months.

Return to sport: Athletes ≥ 6 months minimum; recreational return ≥ 8–9 months. 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.

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Return-to-Sport Criteria

Return to sport after hip arthroscopy is criterion-based, with functional reproduction of sport-specific demands as the primary clearance gate.[10,12] 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,[9] so achievable symmetry at 4–6 months is typically 75–85%, and the plateau pathway in the strength-testing standard below is the usual route to clearance. Functional criteria, not isolated strength numbers, drive clearance. Across published cohorts, mean time to return to sport is approximately 6.6–7.4 months, with return-to-sport rates of 85–90% and return to preinjury level of approximately 73%.[1,10,11]

Domain	Criterion
Pain & symptoms	No anterior, lateral, or groin pain at rest, with sport-specific positions, or with impact loading[12]
Range of motion	Pain-free reproduction of all sport-specific motions including end-range positions[12]
Strength symmetry	Hip abductor and quadriceps LSI ≥ 90% by hand-held dynamometry (final threshold). Where symmetry plateaus below 90% — common after hip arthroscopy — clearance is by Dr. Roth on a stable plateau per the strength-testing standard, with functional criteria carrying greater weight than isolated strength numbers.[9,10]
Single-leg squat	Controlled, pain-free, symmetric depth and mechanics; no Trendelenburg sign[12]
Running & impact	Pain-free running, jumping, and lateral agility drills[12]
Sport-specific function	Successful completion of sport-specific drills at progressive intensity without pain or compensation[10,12]
Time from surgery	Athletes meeting all criteria may clear at ~4 months; recreational return typically ~6 months[1,10,11]

Strength testing standard. Limb-symmetry percentages are measured by hand-held dynamometry — isometric hip abduction in side-lying, or the named muscle group, best of three trials, operative ÷ contralateral × 100 — or by isokinetic testing where available; the same method is used for the phase gate and the clearance test. Where no dynamometer is available, single-leg sit-to-stand or step-down symmetry is documented as the substitute. Manual muscle testing is not sensitive enough to gate loading or return to sport. Phase gates are *intermediate* thresholds (≥ 70%); clearance thresholds are *final* (≥ 90% for the lower limb). Where symmetry cannot be reached, clearance is by Dr. Roth on a stable plateau — no gain over two consecutive measurements at least 6 weeks apart — together with pain-free motion and a completed sport-specific progression.

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.

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Glossary

CPM — Continuous passive motion; a motorized device delivering controlled passive ROM from 0°. Recommended after microfracture in addition to the stationary bike; the hip arc reaches 0–70° by 2 weeks and never passes 90°, with no adduction or internal rotation at end range.

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.

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.

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 Pleasanton offices. He welcomes calls from physical therapists about his patients or this protocol.

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