Beth Israel Lahey Health
Lahey Hospital & Medical Center

Rehabilitation Protocol:

Hip Arthroscopy for Femoroacetabular Impingement: Acetabuloplasty, Femoral Osteochondroplasty, Labral Repair

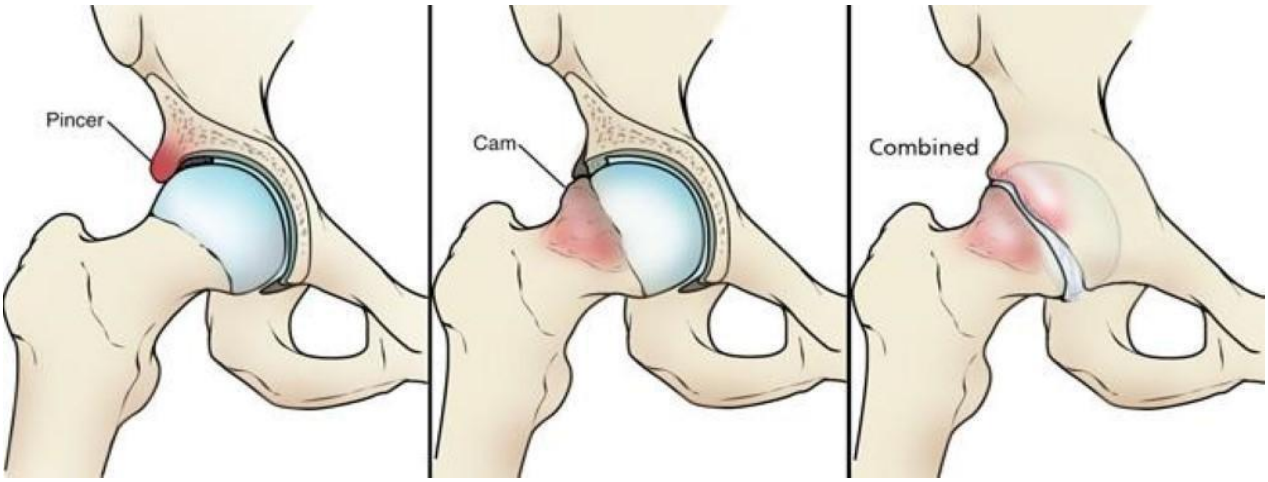
Brian T. Samuelsen M.D., M.B.A.

Department of Orthopaedic Surgery
Lahey Hospital & Medical Center, Burlington 781-744-8650
Lahey Outpatient Center, Lexington 781-372-7020
Lahey Medical Center, Peabody 978-538-4267

Department of Rehabilitation Services
Lahey Hospital & Medical Center, Burlington 781-744-8645
Lahey Danvers 978-739-7400
Lahey Outpatient Center, Lexington 781-372-7060

Femoroacetabular Impingement (FAI) is abnormal contact between the proximal femur and acetabulum due to structural abnormalities, or bone overgrowth[1]. When resulting in symptoms, this becomes known as Femoroacetabular Impingement Syndrome (FAIS).

- There are three main types of impingement: Cam, Pincer, and Combined Impingement[2].
- A Cam deformity is a bony prominence at the femoral head and neck junction with resultant asymmetry of the femoral head. This typically leads to limited internal rotation and impingement which can result in labral tearing and cartilage damage[2].
- A Pincer deformity is focal or global over coverage at the acetabular rim (i.e. deep socket)[3], and can also lead to labral or chondral injury[2].
- Combined impingement is when both types of impingement are present.



https://orthoinfo.aaos.org/en/diseases--conditions/femoroacetabular-impingement/.

The goal of the arthroscopic procedure is to remove areas of bony impingement, while preserving and repairing the labrum and soft tissue structures[1]

- The procedures covered in this protocol are acetabuloplasty, femoral osteochondroplasty, and labral repair.
    - Acetabuloplasty is the procedure performed to remove the pincer deformity (extra bone along the acetabulum) that contributes to impingement[4].
    - Femoral osteochondroplasty is the reshaping of the femoral head neck area to address the Cam deformity.
    - Labral repair is preferred over debridement for its superior outcomes[5]. The labrum is repaired by inserting small anchors into the bone. Sutures that are connected to the anchor are used to reattach the labrum into its normal anatomical position and allow for healing.

General Guidelines:

- Range of motion restrictions: First 2-3 weeks
    - No external rotation past neutral for 21 days
    - No hip extension past neutral for 17 days
    - No sitting with hip past 90 degrees of flexion for 14 days
- Weight bearing restrictions
    - 20 lb FFWB (foot flat weight bearing) with crutches x 3 weeks then progress per the post-op checklist based on procedure performed
- Passive motion
    - CPM 6-8 hours/day for 4 weeks. Exact settings per the post-op checklist.
    - Circumduction 4 times per day for 5-10 minutes
    - Stationary bike if available
- Blood clot prevention
    - TED hose bilateral lower extremities for 4 weeks
    - Frequent foot and ankle pumps

Rehabilitation Goals:

- Seen post-op day 1
- Seen at least 1x/week for first month
- Seen 2x/week for second month
- Seen 2-3x/week for third month

Precautions following Hip Arthroscopy with Labral Repair:

- Hip flexors tendonitis
- Trochanteric bursitis
- Synovitis
- Manage scarring around portal sites
- Increase range of motion focusing on flexion, extension, and careful external rotation

◄ Phase I
0−6 Weeks

Goals

Protect integrity of repaired tissue
Minimize pain and inflammation
Minimize scarring around portal sites
Restore ROM focusing within provided parameters

Precautions

Weight bearing:

20lb FFWB x 3 weeks

50% WB to start week 4

Sustained stretching – no ballistic motions

No Isometric Hip Flexion

No resisted Hip Flexion

Avoid: Hip flexor tendonitis, Trochanteric bursitis, Synovitis

Weeks 0–4

- CPM 6-8 hours per day as instructed on Post-Op checklist
- Stationary Bike if available: no resistance for 20 minutes/day, progress to twice daily
- Manual
    - Scar Massage
    - Hip PROM within below guidelines
        - No sitting with hip past 90 degrees of flexion for 2 weeks
        - No hip extension past neutral for 17 days
        - Minimize hip ER to neutral for 3 weeks (foot bolster pillow at night)
    - Sustained psoas stretching (supine, 2 pillows under hips)
    - Progress rotation w/logrolling past neutral after 3 weeks
- Therapeutic Exercise:
    - Hip Isometrics – Avoid Isometric FLEXION
        - Glut sets, Adductor sets, Abductor sets, Quad sets, hamstring sets
    - CORE STAB w/
        - Bent knee fall outs
        - Pelvic tilts
        - Bridging
        - SAQ
    - Stool rotations (Hip AAROM ER/IR)
    - Quadruped rocking to facilitate hip flexion
        - Maintain WB restrictions on operative hip
- Gait Training
    - FFWB x 3 weeks
    - 50% WB starting week 4 then progress per checklist

- Modalities
    - Cryotherapy
    - NMES to quadriceps as needed

Weeks 5−6
ADD EXERCISES IN THIS PHASE WHEN APPROPRIATE BASED ON PATIENT SPECIFIC WEIGHT BEARING RESTRICTIONS

- Stationary Bike
- Manual
    - Scar massage
    - PROM as tolerated
    - Progress hip flexor stretch as tolerated
    - Progress hip rotation
- Gait Training
    - Increase WB per checklist and wean crutches as ordered (2 → 1→ 0)
- Continue with previous exercises
- Progress hip ROM
    - ER with FABER
    - Prone hip IR/ER
    - BAPS rotations in standing
- Glute/piriformis stretch
- Progress core strengthening (avoid hip flexor tendonitis)
- Progress hip strengthening to isotonics in all directions **except hip flexion**
- Progress isometrics to submaximal pain free hip flexion at ~ 3- 4 weeks
- Step downs
- Clam shells
- Begin proprioceptive/balance training
    - Balance boards
    - Single leg stance
- Treadmill side stepping from level surface holding on → inclines (week 4)
- Closed chain Trunk Rotation on pulleys
- Treadmill side stepping (holding on) low speed
    - Progress sidestepping on TM from level surface to incline at week 4
- Aquatic therapy in shallow water (no treading water)

◄ Phase II – Intermediate Phase

Weeks 6 - 12

Goals

Restore joint mobility and range of motion
Normalize gait pattern
Progress Balance and Proprioception
Progress Core Stability

Avoid: Hip flexor tendonitis, Trochanteric bursitis, Synovitis

Manual

- Scar Massage
- Progress ROM
    - Hip joint mobilization as needed
- Hip flexor and ITB stretching

Therapeutic Exercise

- Continue previous exercise
- Elliptical
- Progress to Hip flexion isotonics (avoid hip flexor tendonitis)
- Leg press (Bilateral Unilateral)
- Isokinetics knee flexion and extension
- Prone and side planks
- Progress dynamic stability: Bilateral/Unilateral, Level/Unlevel surfaces
- Side stepping with T-band
- Hip Hiking on stair stepper
- Hip flexor and ITB Stretching

◄ Phase III
Weeks 12 - 24

Goals

Hip strength within 80% of uninvolved side

Independent Home Exercise Program incorporating Core Stability, Dynamic Stability, LE strength and flexibility

Restore prior level of cardiovascular fitness

Participate in controlled sports specific agility drills week 12

Participate in and slowly progress plyometric training

Treadmill running program after week 16

Precautions

Return to work/sports activities as advised by surgeon

AAROM = active-assisted range of motion, ADL = activity of daily living, AROM = active range of motion, PROM = passive range of motion, ER = external rotation, IR = internal rotation,
ROM= Range of Motion

Hip Arthroscopy FAI with Labral Repair/Osteochondroplasty: Summary Table

Post –op Phase/Goals	Range of Motion	Therapeutic Exercise	Precautions
Phase I (a) **0 – 4 weeks after surgery** **Goals:** Protect integrity of repaired tissue Minimize pain and inflammation Minimize scarring around portal sites Restore ROM focusing on rotation and flexion Normalize gait pattern within WB limitations	**Weeks 0-4** CPM as per checklist for first 4 weeks Hip PROM within below guidelines No sitting with hip past 90 degrees of flexion for 2 weeks No hip extension past neutral for 17 days Minimize hip ER to neutral for 3 weeks (foot bolster pillow at night)	<u>Stationary Bike</u>: 20 minutes/day, progress to twice daily if available at home <u>Manual:</u> Scar Massage Sustained psoas stretching (supine, 2 pillows under hips) Progress rotation w/logrolling <u>Therapeutic Exercise</u>: Hip Isometrics – Avoid Isometric FLEXION Glut sets, Adductor sets, Abductor sets, Quad sets, hamstring sets CORE STAB w/ Bent knee fall outs Pelvic tilts Bridging SAQ Stool rotations (Hip AAROM ER/IR) Quadruped rocking to facilitate hip flexion within WB restrictions <u>Gait Training:</u> Normalize gait within WB restrictions <u>Modalities:</u> Cryotherapy NMES to quadriceps as needed	FFWB x 3 weeks 50% WB to start week 4 and progress per checklist Sustained stretching – no ballistic motions Avoid: Hip flexor tendonitis Trochanteric bursitis Synovitis No Isometric Hip Flexion No resisted Hip Flexion

Post –op Phase/Goals	Range of Motion	Therapeutic Exercise	Precautions
Phase I (b) **Weeks 5-6** ***ADD EXERCISES IN THIS PHASE WHEN APPROPRIATE BASED ON PATIENT SPECIFIC WEIGHT BEARING RESTRICTIONS***	Hip PROM as tolerated	<u>Stationary Bike:</u> Increase time as tolerated <u>Manual</u> Scar massage PROM as tolerated Progress hip flexor stretch as tolerated Progress hip rotation <u>Gait Training</u> Wean assistive device as ordered (2 → 1→ 0) <u>Therapeutic Exercises</u> Continue with previous exercises Progress hip ROM ER with FABER Prone hip IR/ER BAPS rotations in standing Glut/piriformis stretch Progress core strengthening Progress hip strengthening to isotonics in all directions **except hip flexion** Progress isometrics to submaximal pain free hip flexion at ~ 3- 4 weeks Step downs Clam shells Begin proprioceptive/balance training Balance boards Single leg stance Aquatic therapy in shallow water if available (no treading water)	Progressive Weight Bearing per postop checklist Avoid: Hip flexor tendonitis Trochanteric bursitis Synovitis No Isotonic Hip Flexion

Post –op Phase/Goals	Range of Motion	Therapeutic Exercise	Precautions
Phase II – Intermediate Phase **Weeks 6-12** **Goals** Restore joint mobility and range of motion Normalize gait pattern Progress Balance and Proprioception Progress Core Stability	ROM as tolerated	<u>Manual</u> Scar Massage Progress ROM Hip joint mobilization as needed Hip flexor and ITB stretching <u>Therapeutic Exercise</u> Continue previous exercise Treadmill side stepping from level surface holding on progressing to inclines Elliptical Closed chain Trunk Rotation on pulleys Progress to Hip flexion isotonics (avoid hip flexor tendonitis) Leg press (Bilateral progressing to Unilateral) Isokinetics knee flexion and extension Prone and side planks Progress dynamic stability: Bilateral/Unilateral Level/Unlevel surfaces Side stepping with T-band Hip Hiking on stairmaster Hip flexor and ITB Stretching	Full Weight Bearing Avoid: Hip flexor tendonitis Trochanteric bursitis Synovitis

◄ Phase III Weeks 12-24	
Hip strength within 80% of uninvolved side Independent Home Exercise Program incorporating Core Stability, Dynamic Stability, LE strength and flexibility Restore prior level of cardiovascular fitness Participate in controlled sports specific agility drills week 12 Participate in and slowly progress plyometric training Treadmill Running program after week 16	• Return to work/sports activities as advised by surgeon