Hip Arthroscopy Rehabilitation Protocol

The following document is an evidence-based protocol for hip arthroscopy rehabilitation. The protocol is both chronologically and criterion based for advancement through four post-operative phases:

- Phase 1 – Initial Exercises
- Phase 2 – Intermediate Exercises
- Phase 3 – Advanced Exercises
- Phase 4 – Return-to-Sport and Activity

There are multiple factors which affect hip arthroscopy rehabilitation including:

- Size, location, and complexity of lesions
- Tissue quality
- Procedures performed
- Concomitant repairs
- Anticipated functional demands
- Individual patient characteristics

The physician will determine the appropriate rate of progression in rehabilitation for each patient based on the complexity of the procedures performed:

- **Simple** – faster rate of progression
  - Younger patients, better tissue quality, higher anticipated functional demands
  - Less complex lesions
    - Less significant osteoplasty
    - Isolated labral debridement or labral repair

- **Complex** – slower rate of progression
  - Older patients, poorer tissue quality, lower anticipated functional demands
  - More complex lesions
    - More significant osteoplasty
    - More complicated labral repair or labral reconstruction
    - Microfracture procedure
  - Concomitant repairs
    - Hip abductor tendon repair

There are numerous post-operative precautions following hip arthroscopy:

- Do not push through pain and inflammation
- Maintain weight bearing restrictions and range of motion limitations
- Avoid excessive range of motion during maximum protection
- Avoid hip impingement
- Avoid hip joint inflammation
- Avoid hip flexor inflammation
- Avoid twisting, turning, or pivoting on the involved side
- Avoid prolonged sitting on low or soft surfaces
- See the chart on the following page for post-operative precautions for specific hip arthroscopy procedures performed
<table>
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<th>Procedure</th>
<th>Weight Bearing</th>
<th>Crutches or Assistive Device</th>
<th>Post-Op Brace</th>
<th>ROM Limitations</th>
<th>CPM Machine</th>
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</thead>
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<tr>
<td>Labral Debridement and Chondroplasty</td>
<td>WBAT</td>
<td>Wean over 1-2 weeks with FWB and normal gait</td>
<td>Wean over 1-2 weeks with FWB and normal gait</td>
<td>None</td>
<td>4-6 hours per day, 3-6 weeks</td>
</tr>
<tr>
<td>Simple Labral Repair and Osteoplasty</td>
<td>WBAT</td>
<td>Wean over 1-2 weeks with FWB and normal gait</td>
<td>Wean over 1-2 weeks with FWB and normal gait</td>
<td>No EXT &gt; 0° No ER &gt; 0° 3 weeks</td>
<td>4-6 hours per day, 3-6 weeks</td>
</tr>
<tr>
<td>Complex Labral Repair and Osteoplasty</td>
<td>20# PWB, 2-4 weeks, then WBAT</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>No EXT &gt; 0° No ER &gt; 0° 3 weeks</td>
<td>4-6 hours per day, 3-6 weeks</td>
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<td>Labral Reconstruction and Osteoplasty</td>
<td>20# PWB, 2-4 weeks, then WBAT</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>No EXT &gt; 0° No ER &gt; 0° 3 weeks</td>
<td>4-6 hours per day, 3-6 weeks</td>
</tr>
<tr>
<td>Microfracture Procedure</td>
<td>20# PWB, 6-8 weeks, then WBAT</td>
<td>6-8 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>6-8 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>None</td>
<td>4-6 hours per day, 6-8 weeks</td>
</tr>
<tr>
<td>Iliopsoas Release</td>
<td>20# PWB, 2-4 weeks, then WBAT</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>2-4 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>No active FLEX 4-6 weeks</td>
<td>Per physician</td>
</tr>
<tr>
<td>Hip Abductor Tendon Repair</td>
<td>20# PWB, 6-8 weeks, then WBAT</td>
<td>6-8 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>6-8 weeks, then wean over 1-2 weeks with FWB and normal gait</td>
<td>No active ABD No active EXT No passive ADD 6-8 weeks</td>
<td>Per physician</td>
</tr>
</tbody>
</table>
Pre-Operative Physical Therapy Visit

Post-Operative Precautions
• Do not push through pain and inflammation
• Maintain weight bearing restrictions and range of motion limitations
• Avoid excessive range of motion during maximum protection
• Avoid hip impingement
• Avoid hip joint inflammation
• Avoid hip flexor inflammation
• Avoid twisting, turning, or pivoting on the involved side
• Avoid prolonged sitting on low or soft surfaces

Pre-Operative Physical Therapy Visit
• 1-time visit to prepare patient for initial post-operative phase
  ○ Appointment with physical therapist if patient is from the local area
  ○ Consultation with physician extender if patient is NOT from the local area

Post-Operative Precautions
• Educate on post-operative precautions following hip arthroscopy
  ○ Dependent on procedures performed (see chart)

Weight Bearing Restrictions
• Instruct post-operative WB restriction
  ○ Dependent on procedures performed (see chart)
  ○ 20# PWB status is intended to limit joint compression forces from both weight bearing through and muscular co-contraction around the hip by counterbalancing the weight of the lower extremity
  ○ Foot-flat gait pattern resembles a step-to gait pattern and is intended to limit hip extension during terminal stance phase of gait

Crutches or Assistive Device
• Instruct ambulation with crutches or assistive device
  ○ Dependent on procedures performed (see chart)
  ○ Weaning from crutches or assistive device is performed beginning with 25% WB and increasing 25% WB every 3-4 days until FWB AND normalized gait pattern are achieved

Post-Operative Hip Brace
• Instruct use of post-operative hip brace
  ○ Brace is pre-set to 0°-90° hip flexion
  ○ Brace is worn for ambulation in the community
  ○ Brace is NOT worn for sleep or basic ADL’s in the home

ROM Limitations
• Instruct post-operative ROM limitations
  ○ Dependent on procedures performed (see chart)

Sleep Precautions
• Instruct sleep precautions
  ○ If labral repair or labral reconstruction, position pillows to prevent EXT and ER x 3 weeks

Continuous Passive Motion Machine
• Instruct use of continuous passive motion machine
  ○ 4-6 hours per day (continuous or intermittent)
  ○ Initiate 10°-40° hip flexion until first post-operative MD appointment
  ○ Then progress in 5° increments per day as tolerated until 10°-90° hip flexion

Initial Post-Operative Exercises
• Instruct initial post-operative exercises
  ○ 3 times per day

Modalities
• Instruct use of cryotherapy to minimize pain and inflammation
  Game Ready, DonJoy IceMan, ice pack, etc.
Phase 1 – Initial Exercises

Simple: Post-Operative Weeks 0-6
Complex: Post-Operative Weeks 0-8

Goals for Phase 1

- Minimize pain and inflammation
- Protect integrity of the repair
- Prevent muscular inhibition
- Initiate hip PROM and AROM within limitations
- Restore normalized gait pattern

Post-Operative Physical Therapy

- 1st visit to occur 2 weeks post-op
  - Review initial post-operative exercises

Stretching

- Q-ped rocking
- Quadriceps and hamstring stretching
- Thomas stretch
- Gentle stretching of all hip musculature

Manual Therapy

- Pain dominant hip joint mobilization (grade 1-2) as needed
  - NO stiffness dominant hip joint mobilization (grade 3-4) x 6 weeks
  - If labral repair, NO long-axis distraction x 8 weeks
  - If labral reconstruction, NO long-axis distraction x 12 weeks
- Scar mobilization, soft tissue mobilization, lymph edema massage as needed
- Address lumbosacral dysfunction within post-op precautions as needed

PROM

- Hip PROM to tolerance within limitations
  - If labral repair or reconstruction, NO EXT and ER > 0° x 3 weeks
  - If hip abductor tendon repair, NO passive ADD x 6-8 weeks
- Hip log roll
- Hip circumduction

AAROM

- Stationary bike
  - Relatively high seat height
  - Low resistance level

AROM

- Hip AROM to tolerance within limitations
  - If labral repair or reconstruction, NO EXT and ER > 0° x 3 weeks
  - If iliopsoas release, NO active FLEX x 4-6 weeks
  - If hip abductor tendon repair, NO active ABD and EXT x 6-8 weeks
- Standing hip pendulum
- Short-lever hip flexion
  - Progress to long-lever hip flexion
- Short standing hip FLEX, EXT, ABD, ADD AROM
  - Progress to 4-way hip AROM in supine, prone, and sidelying positions
- Prone hip IR/ER AROM
  - Progress to standing hip IR/ER AROM with stool
- Hooklying butterflies and reverse butterflies

Criteria for progression to Phase 2

- Minimal pain with Phase 1 exercises
- Hip PROM and AROM ≥ 75% of the uninvolved side
- Normal neuromuscular firing patterns of hip and pelvic musculature
- Single leg stance without compensation (no Trendelenburg’s sign)
- Normalized gait pattern with proper lower extremity biomechanics
Phase 1 – Initial Exercises (continued)
Simple: Post-Operative Weeks 0-6
Complex: Post-Operative Weeks 0-8

Goals for Phase 1
- Minimize pain and inflammation
- Protect integrity of the repair
- Prevent muscular inhibition
- Initiate hip PROM and AROM within limitations
- Restore normalized gait pattern

Criteria for progression to Phase 2
- Minimal pain with Phase 1 exercises
- Hip PROM and AROM ≥ 75% of the involved side
- Normal neuromuscular firing patterns of hip and pelvic musculature
- Single leg stance without compensation (no Trendelenburg’s sign)
- Normalized gait pattern with proper lower extremity biomechanics

Strengthening
- Hip strengthening as tolerated within limitations
  - If labral repair or reconstruction, NO EXT and ER > 0° x 3 weeks
  - If iliopsoas release, NO active FLEX x 4-6 weeks
  - If hip abductor tendon repair, NO active ABD and EXT x 6-8 weeks
  - Initiate CKC strengthening following attainment of FWB status
- Sub-maximal hip isometrics
- Sidelying clamshell
- DL bridges
- DL partial squats
- Double and single leg press

Proprioception
- DL balance
  - Progress stable to unstable surfaces

Core Stabilization
- Hooklying deep abdominal activation and strengthening progression

Gait Re-Training
- Normalize gait pattern
  - Utilize Alter-G treadmill or underwater treadmill if available

Cardiovascular
- Stationary bike
  - Gradually progress resistance levels

Aquatics
- Consider alternating land- and aquatic-based physical therapy visits if available
  - Initiate aquatics when surgical incisions have healed
- Deep water hip mobility exercises
- Standing hip pendulum
- Standing hip FLEX, EXT, ABD, ADD
  - Buoyancy assisted and resisted exercises
- Initiate sub-body weight CKC strengthening
  - DL partial squats, lunges, step-ups
- Gait re-training
  - Forward, backward, lateral directions
- Flutter kicking

Modalities
- Utilize cryotherapy, thermotherapy, and electrical modalities as needed
Goals for Phase 2

- Minimize pain and inflammation
- Restore full hip PROM and AROM
- Progress muscle strength and endurance
- Initiate neuromuscular control exercises
- Perform ADL’s with minimal pain or compensation

Stretching

- Continue stretching of all hip musculature

Manual Therapy

- Stiffness dominant hip joint mobilization (grade 3-4) as needed
- Utilize hip joint mobilization to facilitate specific AROM and PROM deficits
- If labral repair, NO long-axis distraction x 8 weeks
- If labral reconstruction, NO long-axis distraction x 12 weeks
- Scar mobilization, soft tissue mobilization, lymph edema massage as needed
- Continue manual lumbosacral techniques as needed

PROM

- Hip PROM to tolerance
- Progress to end range stretching

AROM

- Continue Phase 1 AROM exercises

Strengthening

- Continue Phase 1 strengthening exercises
- Resisted standing hip FLEX, EXT, ABD, ADD
  - Progress to resisted 4-way hip in supine, prone, and sideling positions
- Resisted prone hip IR/ER
  - Progress to resisted standing hip IR/ER with stool
- Advanced bridges
  - Progress DL to SL bridges
  - Progress stable to unstable surfaces
  - Add perturbations
- DL squats
  - Progress stable to unstable surfaces
  - Add perturbations
- Step-ups/downs
- Lunge
- SL squats
- SL RDL’s
  - Lateral band walking

Proprioception

- SL balance
  - Progress stable to unstable surfaces

Core Stabilization

- Q-ped deep abdominal activation and strengthening progression

Cardiovascular

- Stationary bike, elliptical trainer, stair climber

Aquatics

- Continue Phase 1 aquatics

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

Criteria for progression to Phase 3

- Minimal pain with Phase 2 exercises
- Full hip PROM and AROM with minimal pain
- Hip FLEX strength ≥ 60% of the uninvolved side
- Hip EXT, ABD, ADD, IR, ER strength ≥ 70% of the uninvolved side
- Ambulate extended distances, negotiate stairs, and squat down to lift moderate size objects with minimal pain or compensation
Phase 3 – Advanced Exercises

Simple: Post-Operative Weeks 12-18
Complex: Post-Operative Weeks 16-24

Goals for Phase 3
- Minimize pain and inflammation
- Maintain full hip PROM and AROM
- Improve muscle strength and endurance
- Improve neuromuscular control
- Initiate return-to-running progression

Stretching
- Continue stretching of all hip musculature

Manual Therapy
- Continue stiffness dominant hip joint mobilization (grade 3-4) as needed
- Continue other hip and lumbosacral manual therapy techniques as needed

PROM
- Continue hip PROM as needed

Criteria for progression to Phase 4
- Minimal pain with Phase 3 exercises
- Full, pain free hip PROM and AROM
- Hip FLEX strength ≥ 70% of the uninvolved side
- Hip EXT, ABD, ADD, IR, ER strength ≥ 80% of the uninvolved side
- Single leg squat without compensation (no Trendelenburg’s sign)
- Initiate return-to-running progression with proper lower extremity biomechanics

Strengthening
- Continue Phase 2 strengthening exercises
- Step-ups/downs
  - Progress to multi-directional stepping patterns
  - Progress stable to unstable surfaces
  - Add perturbations
- Lunges
  - Progress to multi-directional lunging patterns
  - Progress stable to unstable surfaces
  - Add perturbations
- SL squats
  - Progress stable to unstable surfaces
  - Add perturbations
- SL RDL’s
  - Progress stable to unstable surfaces
  - Add perturbations
- Lateral band walking
  - Progress to multi-directional band walking patterns

Neuromuscular Control
- Incorporate unstable surfaces and dynamic movement patterns with functional strengthening progression

Core Stabilization
- Incorporate core integrated exercises with functional strengthening progression

Advanced Gait Re-Training
- Initiate return-to-running progression
  - Utilize Alter-G treadmill or underwater treadmill if available

Agility
- Initiate agility drills

Plyometrics
- Initiate plyometric drills

Aquatics
- Advanced gait re-training
- Plyometric drills

Modalities
- Utilize cryotherapy, thermotherapy, and electrical modalities as needed
Phase 4 – Return-to-Sport and Activity

Simple: Post-Operative Weeks 18+
Complex: Post-Operative Weeks 24+

Goals for Phase 4

• Minimize pain and inflammation
• Maintain full hip PROM and AROM
• Restore muscle strength and endurance
• Restore neuromuscular control
• Safe and effective return to previous level of function for sport or activity

Stretching

• Continue stretching of all hip musculature

Manual Therapy

• Continue stiffness dominant hip joint mobilization (grade 3-4) as needed
• Continue other hip and lumbosacral manual therapy techniques as needed

PROM

• Continue hip PROM as needed

Strengthening

• Continue Phase 3 strengthening exercises

Neuromuscular Control

• Continue incorporate unstable surfaces and dynamic movement patterns with functional strengthening progression

Core Stabilization

• Continue incorporate core integrated exercises with functional strengthening progression

Advanced Gait Re-Training

• Progress return-to-running program

Agility

• Advanced agility drills

Plyometrics

• Advanced plyometric drills

Sport-Specific Training

• Initiate sport-specific training programs
  ○ Interval sport programs for running, cycling, swimming, skating, throwing, golfing, etc.
  ○ Traditional weight lifting exercises
• Transition to Athletic Republic program if competitive or recreational athlete with specific goals for return-to-sport

Activity-Specific Training

• Transition to work re-conditioning program if physical laborer or if specific occupational demands

Modalities

• Utilize cryotherapy, thermotherapy, and electrical modalities as needed

HEP

• Establish HEP for long-term self-management

Criteria for Return-to-Sport and Activity

• Full, pain free hip PROM and AROM
• Hip strength ≥ 90% of the uninvolved side
• Lower extremity strength, power, and endurance ≥ 90% of the uninvolved side
• Full speed sport-specific drills without pain or compensation
• Successful completion of return-to-sport testing
• Lower Extremity Functional Scale score ≥ 70/80

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References


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