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Hip Arthroscopy Rehabilitation Protocol

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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 rim trimming and/or femoral 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 rim trimming and/or femoral osteoplasty
    - More extensive 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

	Weight Bearing	Crutches or Assistive Device	Post-Op Brace	ROM Limitations	CPM Machine
Labral Debridement and Chondroplasty	Flat foot WBAT	Wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	None	4-6 hours per day, 3-6 weeks
Simple Labral Repair and Osteoplasty	Flat foot WBAT	Wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	No EXT > 0° No ER > 0° 3 weeks	4-6 hours per day, 3-6 weeks
Complex Labral Repair and Osteoplasty	20# TTWB, 2-4 weeks, then WBAT	2-4 weeks, then wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	No EXT > 0° No ER > 0° 3 weeks	4-6 hours per day, 3-6 weeks
Labral Reconstruction and Osteoplasty	20# TTWB, 4 weeks, then WBAT	4 weeks, then wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	No EXT > 0° No ER > 0° 4 weeks	4-6 hours per day, 4-6 weeks
Microfracture Procedure	20# TTWB, 6 weeks, then WBAT	6 weeks, then wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	None	4-6 hours per day, 6-8 weeks
Iliopsoas Release	Flat foot WBAT	Wean over 1-2 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	No active FLEX 4-6 weeks	Not typically indicated
Abductor Tendon Repair	20# TTWB, 6 weeks, then WBAT	6 weeks, then wean over 2-4 weeks with FWB and normal gait	Outside of a safe environment until no longer limping	No active ABD No active EXT No passive ADD 6-8 weeks	Not typically indicated

Brace: set 0-90°, worn outside of a safe environment (i.e. home) until no longer limping
CPM: Beginning post-op day #1, initially set at 10-40° until first post-op visit. Starting at first post-op visit (~1.5 weeks post-operative), will be given instruction to increase ROM by 5° each day with a goal of reaching 90°. Work up to using two hours of every six while awake (goal 4-6 hours per day) from 10-40 degrees as pre-set.

- Labral reconstruction: use CPM until 4 weeks post op
- Microfracture: use CPM until 6 weeks post op

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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

Initial Post-Operative Exercises

- Lay prone 2 hours per day (continuous or intermittent)
- Ankle pumps
- Quad sets
- Glut sets
- Prone knee flexion AROM
- Prone terminal knee extension
- Hooklying pelvic tilts

Pre-Operative Physical Therapy Visit

- One-time visit to prepare patient for initial post-operative phase
  - Appointment with physical therapist if patient is from the local area

Post-Operative Precautions

- Educate on post-operative precautions following hip arthroscopy
  - Dependent on procedures performed (see page 2)

Weight Bearing Restrictions

- Instruct post-operative WB restriction
  - Dependent on procedures performed (see page 2)
  - **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 page 2)
  - **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
    - May take longer in abductor repair (progress weight bearing every 5-7 days)

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 outside of a safe environment
  - Brace is removed for sleep or basic ADL's in the home

ROM Limitations

- Instruct post-operative ROM limitations
  - Dependent on procedures performed (see page 2)

Sleep Precautions

- Instruct sleep precautions
  - If labral repair or labral reconstruction, position pillows under thigh 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
    - Labral reconstruction: 4 weeks
    - Microfracture: 6 weeks

Initial Post-Operative Exercises

- Instruct initial post-operative exercises
  - 3 times per day (ankle pumps, quad sets, glute sets)

Modalities

- Instruct use of cryotherapy to minimize pain and inflammation Game Ready, DonJoy IceMan, ice pack, etc.

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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

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
- Normalized gait pattern with proper lower extremity biomechanics

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
  - Circumduction, log roll
  - NO stiffness dominant hip joint mobilization (grade 3-4) x 6 weeks
  - If labral repair or 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, NO EXT and ER > 0° x 3 weeks
  - If labral reconstruction, NO EXT and ER > 0° x 4 weeks
  - If hip abductor tendon repair, NO passive ADD x 6-8 weeks

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
- Standing hip 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

Phase 1 – Initial Exercises (continued)

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

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
  - AVOID in abductor repairs
- 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
  - Consider a home program if availability to pool
- 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

Phase 2 – Intermediate Exercises

Simple: Post-Operative Weeks 6-12
Complex: Post-Operative Weeks 8-16

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

Criteria for progression to Phase 3

- Minimal pain with Phase 2 exercises
- Full hip PROM and AROM with minimal pain
- Ability to perform AROM hip flexion as 90°
- 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

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
- Lunges
- 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

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

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 stance without compensation (no Trendelenburg's sign)
- Initiate return-to-running progression with proper lower extremity biomechanics

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 2 strengthening exercises
- Step-ups/downs, lunges, SL squats, SL RDLs
  - Progress to multi-directional stepping patterns
  - 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 Initiate rotary patterns

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
  - Sagittal → Frontal → Rotational
  - Double leg → Single leg
  - Ascending → Descending → Repetitive box jumps/hops

Aquatics

- Advanced gait re-training
- Plyometric drills

Dry needling

- Ok to initiate at 12 weeks post-operative

Modalities

- Utilize cryotherapy, thermotherapy, and electrical modalities as needed

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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 ROM
- Restore muscle strength and endurance
- Restore neuromuscular control
- Safe and effective return to previous level of function for sport or activity

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 ≥ 80/80

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 to incorporate unstable surfaces and dynamic movement patterns with functional strengthening progression

Core Stabilization

- Continue to 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

Return to Sport Testing

- Balance: Y-balance testing within 4 cm of uninvolved side
- Hop testing: ≥ 90-95% limb symmetry
- Agility: Full speed sport-specific drills without pain or compensation

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