uchealth
Steadman Hawkins Clinic Denver

Orthopedics
UNIVERSITY OF COLORADO

FEMORAL ACETABULAR IMPINGEMENT
NON OPERATIVE PROTOCOL

Clinical Pearls:

1. Your assessment of what phase your patient is in is very important. If you are not having success you have likely chosen therapeutic exercises that are too advanced. You should see objective progress by 2 weeks, and functional progress by 3 weeks. If your patient is not progressing, return to earlier phase!
2. Activity modification is HUGE with this patient population. You must get buy-in from patient (and parents) in order to decrease irritation in the joint.
3. Soft Tissue assessment is also very important. Continually assess and re-assess after STM or FDN to determine effect of intervention on ROM.
4. Progress SLOWLY. Be sure that your patient has adequate muscle activation and functional stability before progressing. It is better to go slowly than to have a 2-3 week set back that frustrates both you and your patient.

	Guidelines	Goals
INITIAL EVAULATION	**EVALUATION** • Screen past medical history and current symptoms. • Assess Functional movement including lumbar and thoracic mobility • Evaluate both bilateral and unilateral squatting barefoot. Assess dynamic internal femoral rotation, valgus knee, pronation at the foot, and hip flexion angle. Medial cascade can contribute to and pre dispose the patient to FAI. Lacking hip flexion in weight bearing can be informative. **MUSLE BALANCE RESTORATION** • Assess muscle activation: patients ability to selectively turn on glute max and glute med • Patients will typically have significant weakness in the hip abductors and extensors demonstrated both with open/closed chain testing. • Assess hip flexor myofascial quality and length with Thomas Test. • Assess adductor muscle group: muscle quality and strength. This muscle group often compensates for weakness/muscle imbalance elsewhere • It is important to mobilize restricted soft tissue; strong attention must be given to the glut med/max, iliopsoas, rectus femoris and piriformis. The hip adductors, VL and ITB, posterior tibialis and ITB will typically need work as well. **ASSESSMENT** Determine primary impairments for your patient, and which phase of treatment is most appropriate. Note: If hip joint is significantly flared up it may take weeks of activity modification to see real change in patients symptoms. You should see steady objective progress in ROM, muscle function, movement before patient may note change in pain, function.	• Identify and eliminate aggravating factors: ◊ Running ◊ Sports Activities ◊ Prolonged sitting: discuss modifications to work chair, car seat and ergonomics ◊ Yoga or aggressive hip stretching ◊ Sleeping: prone frog leg position may aggravate symptoms • Activity is only modified if it aggravates the patient symptoms
PHASE I	**EXERCISE PROGRESSION** • Pelvic tilts • Glute Isometrics • Double leg bridge • Prone assisted hip extension (PAHE) • Hip extension off physioball • Quadruped series as tolerated • Self soft tissue techniques using foam roller or massage stick • Cardio: walking, biking, or elliptical only if pain-free • Quad, Hamstring stretching usually well tolerated in this phase **MANUAL INTERVENTION** • Soft Tissue and dry needling: iliopsoas, TFL, rectus femoris, adductors, glutes, hamstrings, pelvic floor • Hip ROM and joint mobilization to address restrictions	Criteria for Progression to Phase 2: ◊ Improving Pain-free ROM ◊ Good Glute Activation ◊ No pain with ADL's

	Guidelines	Goals
PHASE II	**EXERCISE PRGOESSION** • Pelvic tilt progression: avoiding active hip flexion if irritating. • Double leg bridge • Single leg bridge • Standing abduction/cord kick series avoiding hip flexion if not tolerated • Side lying adduction • Quadruped hip extension leg straight • Clams • Foam Roller Bridging Series • Wall Squats • TRX Squats with more open hip angle as tolerated • Step up progression with emphasis on proper knee alignment • Bilateral calf raises with emphasis on proper push off • Hamstring Curls: Ball or Machine • Hip Bucks and Hip Thrust for glute strength usual are tolerated well • Balance and single leg balance with good hip stability • Hamstring and calf, quad stretching • Gentle hip flexor stretching **HIP STABILITY PROGRAM END OF PHASE II** • Prone Hip Extension (1x10) • Pelvic Tilt (1x10) • Double Leg Bridge (2x10) • Single Leg Bridge (2x10) • Wall Abduction (3x10) • Wall Adduction (3x10) • Quadruped Kick Back (3x10) **MANUAL TREATMENT** • Manual soft tissue, dry needling and joint mobilizations as indicated. • Self soft tissue work with foam roller and massage stick. • Gentle flexibility work as tolerated.	<u>Criteria for Progression to Phase 3:</u> ◊ Hip abduction strength 4/5 ◊ Flexion, ER and IR ROM within normal limits ◊ 50% FABER ROM compared to uninvolved side ◊ Normal Gait ◊ No Trendelenberg with Single Leg Stance/descending stairs ◊ Pain-free bilateral squat without compensation
PHASE III	**EXERCISE PROGRESSION** • Continue with phase 2 progression • May add more abdominal work with dead bug progression • Add unilateral squat, dip, or reverse lunge progression • Unilateral calf raises with emphasis on proper push off mechanics • Instruct on squat; Emphasize proper technique. • Leg press • Introduce multi-directional movement: Understand that these patients struggle with lateral movement and multi-directional stability. • May be more aggressive with hip ER and hip flexor passive stretching • For impact athletes begin basic ladder series • If basic ladder series tolerated well, may introduce light jogging for short periods- no significant distance in this phase. • Self manual maintenance work with foam roller and massage stick **MANUAL INTERVENTION** • Continue soft tissue mobilization and dry needling. • Goal to reduce need/frequency of dry needling in this phase. • Continue joint mobilization as needed. • May begin more aggressive flexibility work in this phase as needed. • Manual self soft tissue maintenance work with foam roller/massage stick	<u>Criteria for progression to Phase 4:</u> ◊ Hip abduction and extension strength 5/5 ◊ Single Leg Squat symmetrical with uninvolved side ◊ No Impingement pain with ROM ◊ Pain-free with all ADL's and activity as allowed to this point
PHASE IV	**EXERCISE PROGRESSION** • Continue with phase 3 progression • Return to distance running protocol can begin in this phase per protocol • Advance Lunge progression • Advance ladder series to include jumping • Plyometric progression • Begin linear and lateral running with progression to multidirectional drills • Begin drills on field/court as symptoms allow.	• Return to full activity

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POST OPERATIVE HIP ARTHROSCOPY (DELAYED)

LABRAL REPAIR, LABRAL RECONSTRUCTION, FEMOROPLASTY, CHONDROPLASTY, ACETABULOPLASTY

	Time Frame (Weeks)	Guidelines	Precautions
PHASE I	0 to 3	**MANUAL THERAPY / RANGE OF MOTION** • SOFT TISSUE MASSAGE ◊ Light quad, hamstring, glute STM or retrograde • PASSIVE ROM ◊ Flexion as tolerated in supine ◊ Circumduction in about 10° of hip flexion ◊ Hip Abduction in about 10° of hip flexion ◊ Log roll: if painful in supine, perform over a foam roller ◊ IR supine @ 90° and prone @ 0° • PASSIVE ROM (to be done by caregiver) ◊ Circumduction in about 10° of hip flexion ◊ Hip abduction in about 10° of hip flexion ◊ Log roll ◊ IR supine 90° **EXERCISE PROGRESSION** • POST-OP DAY 1 ◊ Stationary bike with no resistance: 15 minutes up to 2x per day; as tolerated ◊ Isometrics: (2x/day) Glute, quadriceps, hamstring, abduction, and adduction; as tolerated ◊ Prone lying with pillow under hips cumulative 1 hour per-day (consider feet off bed to avoid unintentional ER) • POST-OP DAY 8-14 ◊ Add Hip IR/ER isometrics (2x/day) ◊ Initiate basic core: pelvic tilting, TVA and breathing re-education ◊ Quadruped rocking (POD 7) ◊ Short ROM bridging ◊ Standing TKE, standing hamstring curls, pilates ring adduction/abduction ◊ Standing abduction/adduction (full WB on uninvolved side only) ◊ Heel raises @ 50% weight bearing ◊ Butterflies and reverse clams as tolerated ◊ BFR protocol per availability (see Appendix 1) **POOL PROGRAM** • Dr. Genuario allows per SHC pool program in chest high water @ 1 week if incisions are well covered with tegaderm • Dr. Mayer: Not until full would closure at 3-4 wks post op	**WEIGHTBEARING:** • 50% flat foot PWB x 3 weeks. Make sure that their foot is on the ground demonstrating a normalized walking pattern (NO HOLDING THE HIP UP INTO HIP FLEXION **ROM RESTRICTIONS** • No hip extension • No hip ER • Flexion to tolerance **BRACE/BOOTS:** Dr. Genuario: • Bledsoe brace: 30°-75° x 3 weeks, not required with sleeping Dr. Mayer: • De-rotational boots while sleeping x 2 weeks **CPM:** • 4 hours/day cumulatively OR stationary bike 30 min/day without resistance, may be discharged 2 weeks post op **SLEEPING:** • No sleeping on stomach • No Sleeping in CPM **OTHER:** • Avoid anterior aggravation/hip flexor irritation • Start bandage changes the first day post-op using the dressing change kit provided. Make sure covered with tegaderm if in shower.

CRITERIA FOR PROGRESSION (must be met before progression into PHASE II)

1. Passive hip flexion to 90 degrees without irritation/pain.
2. Pain-free prone lying > 10 minutes consecutively
3. Proper TA activation with biofeedback x 60s without tenting, doming or holding of breath
4. Single leg isometric glut activation x 10/side with only glut activated and no hamstring or low back compensation

	Time Frame (Weeks)	Guidelines	Precautions
PHASE II	3 to 6	**MANUAL THERAPY / RANGE OF MOTION** • MANUAL THERAPY ◊ Anterior thigh STM of retrograde ◊ Prone glut release as needed ◊ Sidelying ITB/lateral quad ◊ Light incision mobilit y • PASSIVE ROM TO BE DONE BY THERAPIST ◊ Flexion as tolerated in supine ◊ Circumduction in about 10° of hip flexion ◊ Hip abduction in about 10° of hip flexion ◊ Log roll: if painful in supine, perform over a foam roller · IR supine @ 90° and prone @ 0° ◊ ER in hip flexion ◊ Prone IR/ER arcs of motion • PASSIVE ROM (to be done by caregiver) *Patients may wean from caregiver assisted ROM at week 5-6* **EXERCISE PROGRESSION** Weeks 3-4 • Prone Assisted Hip Extension (PAHE)- NO LIFT OFF FROM FOAM ROLLER • Bridging double leg with progression to single leg • Quadruped hip extension series • Tall kneeling glut thruster progressions • Standing hip abduction (no sidelying until 6 weeks post op) with foot slightly internally rotated • Heel raises Weeks 4-6 • Prone over swiss ball hip extension • Single leg glut progression as appropriate • Proximal > distal band progressions of standing hip abduction • Hip hike on step • Clamshell progressions • Single leg balance progressions • Step up progressions: sagittal plane first • DL squat progressions • Hamstring curl: machine or ball • Supine samurai hip flexor submax iso w/ ball • Side plank on knees • Stretching: quads, piriformis as tolerated, hamstrings NO HIP FLEXOR!! • Continue BFR protocol as available	**WEIGHTBEARING** • Weaning from crutches weeks 3-5 • Alter-g as appropriate for gait re-training **ROM** • Hip ER as tolerated 45-90 deg hip flexion x2 weeks, followed by 30-45 deg hip flexion x1 weeks. NO FABER. • Hip extension to 0 x1 additional week **BRACE / BOOTS** Dr. Genuario: • Brace is discharged at 3 weeks Dr. Mayer: • De-rotational boots are discharged at 2 weeks **SLEEPING** • No restrictions on sleeping position. Preferred either supine or on surgical side. **RESTRICTIONS:** • No rotational lumbar/SIJ mobilizations or hip mobilizations • Per SHC policy, no dry needling should be performed in a patient who has had surgery < 6 weeks ag **AS APPROPRIATE, CLEARED TO:** • Stationary bike w/ light resistance • Light walk for exercise being mindful of distance, grade and surface type • Experienced swimmers can swim with LE buoy and no flip turns

CRITERIA FOR PROGRESSION (must be met before progression into PHASE III)

1. >75% of passive hip flexion, IR, abduction and extension relative to non-surgical side
2. Glute max prone hip extension x 10 reps/side with proper activation without compensatory patterns/muscle activation
3. Appropriate hip hinge pattern with mini squat
4. Normalized and pain-free walking pattern without AD
5. SL stance x 30 seconds/side

	Time Frame (Weeks)	Guidelines	Precautions
PHASE III	6 to 12	**MANUAL THERAPY** • PROM as needed for full PROM • STM to all areas as appropriate including lumbar spine, hip adductors, hip flexors • Continue Incision mobility • Rotational lumbar and SIJ mobilizations may begin at weeks 6-8 **EXERCISE PROGRESSION** • May begin light, kneeling hip flexor stretching NO THOMAS POSITION • Prone IR/ER arcs of motion • Heels elevated glut bridges • Glut thrusters: supine off box or tall kneeling with superband resistance • Sahrmann Progressions/Light dead bug progressions • Forearm planks: start front plank on knees at 6 weeks and progress to full plank once 60 seconds is easy on knees with proper core activation • Leg press double to single leg progressions as tolerated (keeping in mind depth to avoid anterior hip pinching) • TRX DL to split squat progressions • Step up progressions: working into lateral and crossover planes • Lunge/split squat progressions starting with ½ depth until tolerance is developed • Monster walks starting with lateral and backwards walking • DL RDL/hip hinge progressions as appropriate form is demonstrated • Progress dead bug range as tolerated, can add band as appropriate • Continue BFR protocol as available	**WEIGHT BEARING** • Should be fully off crutches with normalized gait pattern **PRECAUTIONS** • Continue to avoid any anterior irritation/flare ups that could delay progression • Do not push through pain **AS APPROPRIATE, CLEARED TO:** • Outdoor biking: week 6 but no clips • Swimming without pool buoy • Elliptical: week 6 as long as the following criteria are met: ◊ Meet all above criteria for initiation of phase 3 ◊ Full pain-free hip extension ◊ No hip flexor tendon issues/ flare ups

CRITERIA FOR PROGRESSION (must be met before progression into PHASE IV, which includes running)

1. Full PROM in all planes relative to non-surgical side except for FABER which should be >75% (< 3 cm difference) relative to non-surgical side
2. Pain-free MMT of hip abduction (no TFL compensation), hip extension (no lumbar paraspinal or hamstring compensation), external rotator, internal rotator and adductor (no hip flexor compensation) all 5/5 bilaterally
3. Able to maintain forearm plank and side plank on toes x 60s without tenting, doming or holding of breath
4. Pain free, normalized gait x30 min
5. SL squat to 45 degrees of knee flexion without dynamic valgus x 15/side

	Time Frame (Weeks)	Guidelines	Goals
PHASE IV	12 to 20	**MANUAL THERAPY** • Continue as indicated based on patient presentation, ensure full pain-free ROM in all planes **EXERCISE PROGRESSION** • Maintain Hip Stability Program, trunk, hip and lower extremity strength and flexibility program • Single leg front and side plank progressions • Ladder drills: sagittal > frontal > rotational planes • Introduce and progress plyometric program after pain-free ladder drills • May begin return to "SHC Post Op Hip Return to Run Program" (see Appendix 2) at 16 weeks **ONLY IF** all of the above criteria have been met **CLEARED FOR IN APPROPRIATE PATIENT** • Stair Climber @ 12 weeks • Swimming: Breast Stroke kick @ 12 weeks • Golf: Chipping and putting 12-16 weeks • Light hiking being mindful of grade, surface and duration • Hockey: Return to ice, no shooting 12-16 weeks	• FABER < 3 cm relative to non-surgical side • Long lever hip flexor 5/5 MMT to decrease risk of tendinopathy with return to run • Pain-free incorporation of return to run progression per SHC protocol once all previous goals/criteria have been met • Drop box jump without valgus to demonstrate appropriate landing form

	Time Frame (Weeks)	Guidelines	Goals
	20+	**MANUAL THERAPY** • Continue as indicated based on patient presentation, ensure full pain-free ROM in all planes **EXERCISE PROGRESSION** • Continue more sport specific/patient-goal specific with continued emphasis on CKC glut/core progressions • Field drills, multi-planar • Must pass hip return to sports test prior to clearance to play, (typically at 24+ weeks post-op) **CLEARED FOR IN APPROPRIATE PATIENT (AT 20+ WEEKS AS CRITERIA ARE MET):** • More strenuous hiking • Golf: driving, possibly executive/short courses • Soccer/lax: ball drills and stick work • Hockey: shooting	• Pain-free progression of return to run progression with ability to tolerate 15 minutes of running consecutively without pain/irritation • Pass hip RTS test • Unrestricted return to activity