YOUSIF
Orthopedic Surgery

Functional Hip Protocol
Matthew Yousif, DO

Phase 1: Acute Phase

Goals

- Relieve pain and inflammation
- Maintain/Improve flexibility/ROM
- Patient education
- Retrain and correct preferred muscle patterns

Activity Modification

ROM:

- Active and Passive ROM
  - ITB Stretch
  - Hamstring Stretch
  - Hip Flexor Stretch
  - Self Anterior Capsule Stretch

Joint Mobilization:

- Capsular mobs in prone with hip externally rotated and flexed to 45 degrees with knee flexed (for patients who have tight external rotation)

Neuromuscular Control:

- QS
- SLR
- Sidelying Hip Abduction with hip distraction
- Sidelying Adduction
- Prone hip extension with knee flexed to 90 degrees
- Hip external rotation in quadruped (fire hydrant) on involved side only
- Clamshells

Core:

- Beginner Curl Ups
- Bridges- double, single leg, roll out
- Side Planks

Phase 2: Subacute Phase

Criteria for progression to Phase 2

- No pain at rest
- Normal gait pattern

- Able to support full body weight on involved limb without pain and Trendelanburg
- Decreased pain with activity
- Improved muscular strength to 4/5 or better in all directions using manual muscle testing

Goals

- Restore full painfree ROM
- Improve strength
- Ascend and descend stairs with maximum pain of 2/10
- Prolonged sitting with knees flexed without difficulty

ROM:

- Maintain full ROM
    - Continue with stretches as necessary

Joint Mobilization:

- Continue with capsular mobs if needed

Neuromuscular Control:

- Standing 4 way hip resistive exercises with theraband
- Single leg balancing with upper extremity activity
- Seated resisted internal and external rotation with theraband, progress to standing
- Mini squats with theraband around thighs/ Leg press with theraband around thighs
- 3 Cone Drill
- Step ups/downs
- Clock Steps
- Split Squats (only after mini squats have been achieved painfree, may need to be done in phase 3)

Strengthening:

- Start functional based weight lifting program with slow movements to increase strength

Core:

- Continue with exercises from Phase 1 and add/or progress
- Standing TAP, FAP, SAP

Phase 3: Recovery of Function

Criteria for progression to Phase 3

- Full painfree AROM
- Squatting painfree to 90 degrees
- Able to walk unlimited painfree
- Ascending and descending stairs painfree

Goals

- Maintain full ROM/Flexibility
- Restoration of normal activities symptom free
- Equal strength bilaterally MMT or 85% of uninvolved side with hand held dynamometry
- Initiate sport specific drills and component activities

ROM:

- Maintain full ROM/Flexibility

Neuromuscular Control: continue with foundational exercises from Phase 2 and add/or progress to:

- Lunge with theraband resisting abduction of lead leg (affected leg)
- Lunge with rotation toward the lead leg
- Lateral walking with theraband around ankles
- Single leg squat leaning into physioball against wall

Activity Specific Strengthening

Figure 8's with kettle bell Strengthening

Sport specific drills

- Running criterion test (ACL)
    - If passed start running progression at this time
- Agilities

Phase 4: Return to Sport

Criteria for progression to Phase 4

- No pain
- Grade functional readiness
- Pass return to sport criteria (ACL)

Goal

- Symptom free full activity

Strengthening:

- Sport specific

Phase 5: Maintenance

Criteria for progression to Phase 5

- Successful full return to sport/function

Goals

- Remain symptom free with full activity
- Continue with exercises 1-3 times per week at the discretion of the physical therapist.

ROM:

- ITB stretch
- Hip Flexor stretch
- Hamstring stretch

Strength:

- Maintain full strength of external rotators and abductors

Education:

- Educate on the six most important exercises for the individual patient to continue with once discharged from therapy.

Hip Flexibility and Strength Assessment

Name: Date:
MRN:
DOB:

Flexibility Test	**Assessment / ROM**
Passive SLR Test	R: positive/ negative ROM: _____. L: positive/ negative ROM: _____.
Obers Test	R: positive/ negative L: positive/ negative
Thomas Test (rectus femoris and illiopsoas testing)	R: positive/ negative Comments: L: positive/ negative Comments:

Strength Testing	**Assessment (HHD average of 2 trials OR MMT)**
Hip ABD single rep sidelying	R: L:
Repeated resisted hip ABD (sidelying 10 reps)	R: L:
Hip IR seated	R: L:
Hip ER seated	R: L:
Hip flexion seated	R: L:
Hip extension straight leg prone	R: L:
Hip extension with knee flexed 90 deg prone	R: L:

Functional Testing	Assessment
Bilateral Bridge	Glute Med: active inactive Glute Max: active inactive Hamstrings: active inactive
Unilateral bridge RLE	Glute Med: active inactive Glute Max: active inactive Hamstrings: active inactive
Unilateral bridge LLE	Glute Med: active inactive Glute Max: active inactive Hamstrings: active inactive
Vertical jump bilateral	Antalgic or Normal. Valgus on landing. Deg of knee flex:_____.
Eccentric step down	Score (0-6) R: L: height of step:

Additional Comments:

Signature: Date:

Hip Strength Evaluation Instructions

Flexibility Assessment

Hamstring Length: Patient supine with low back and sacrum flat on plinth. Examiner stabilizes contralateral limb firmly while raising extended test leg until resistance is felt. Measure degree of hip flexion.

Quadriceps/Hip Flexor Length: Pt sits with edge of plinth just distal to gluteal fold and lies supine with knees to chest with low back and sacrum flat on plinth. Contralateral limb stabilized to chest and test leg is extended with knee held in 80 degrees of flexion. Test leg is lowered until motion is ceased or rotation of femur occurs. Knee is then

extended and further motion indicates tight rectus femoris. Tight hip flexors are indicated by no further extension of hip after knee extension

ITB length: Pt side-lying on uninvolved side with limb in 90 degrees hip and knee flexion and pelvis stabilized in neutral rotation. With the test knee held in 90 degrees flexion the hip is abducted and hyperextended with neutral femoral rotation. Leg is lowered until motion is ceased or femoral rotation occurs and hip adduction is measured.

Strength Assessment (average of 2 using hand-held dynamometer/ MMT)
Hip Abduction: Patient side-lying on contralateral limb in slight flexion. Pelvis stabilized in neutral rotation while test leg is abducted slightly above horizontal in frontal plane. With the test leg in neutral femoral rotation, the break force is applied just proximal to lateral condyle into adduction.

Repeated Abduction: Following above test patient completes 10 reps of abduction using concentric/eccentric contractions through ROM with moderate manual resistance. Hip abduction strength test is repeated after 10 repetitions.

Hip Adduction: Pt side-lying on test leg, lifts straight leg in frontal plane 12 inches off plinth in neutral rotation with contralateral limb supported. Break force is applied proximal to medial condyle.

Hip Internal Rotation: Sitting with knees bent over plinth with femur in internal rotation. Break force is applied into arc of motion towards femoral external rotation just proximal to lateral malleolus with knee stabilized with counter pressure.

Hip External Rotation: Sitting with knees bent over plinth with femur in external rotation. Break force is applied into arc of motion towards femoral internal rotation just proximal to medial malleolus with knee stabilized with counter pressure.

Hip Flexion: Sitting, lift leg 8 inches with knees bent with neutral femoral rotation. Break force is applied proximal to patella into extension.
Hip Extension: Prone with knee extended and both ASIS on plinth and stabilized by examiner. Patient extends straight leg in saggital plane with no pelvic or femoral rotation; break force is applied just proximal to popliteal fossa.

Hip Extension/Knee flexed: Prone with knee flexed to 90 degrees and both ASIS on plinth. Patient extends bent leg in saggital plane with no pelvic or femoral rotation; break force is applied just proximal to popliteal fossa.

Hip Strength Functional Evaluation

Functional Tests

Side Bridge: Patient lies on side while propped up on elbow with opposite hand on shoulder. Hand held dynamometer is placed just proximal to greater trochanter, patient goes into side plank position and break test is performed. If unable to complete side bridge from toes, then complete test from knees.

Bridge: Hook lying on plinth, patient completes bridge with bilateral lower extremities simultaneously. Palpate patient's gluteus medius (midway between ASIS and PSIS and midway between iliac crest and greater trochanter), gluteus maximus, and hamstring muscles for activation while performing activity. Then complete single leg bridge with non-involved then involved limb palpating for activation patterns of same musculature.

Eccentric Step Down Test: Measure length of tibia and divide by 2 for appropriate step height. Tell patient with uninvolved leg to "stand on your step, put your hands on your hips, and step down from the step 5 times until foot contacts floor." Repeat on involved side. Note pain level. Complete 0-6 grading scale. One point for using UE, one point for lateral trunk motion, a point for pelvic drop, elevation or rotation, a point if tibial tuberosity crosses over second ray and a second point if tibial tuberosity crosses over medial border of foot, and finally a point for steady dynamic unilateral stance. 0-1 is scored as good, 2-3 is moderate and 4 and over is poor quality of movement.

Vertical Jump: Patient stands equally on bilateral lower extremities and jumps maximally into air. Repeat 3 times observing for symmetry on takeoff and landing of lower extremities, quality of compression/recoil. Observe knee tracking over toes, amount of knee flexion and monitor pain.