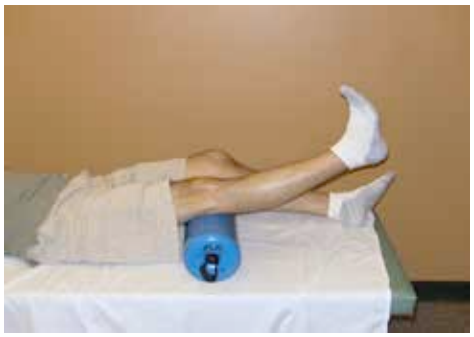
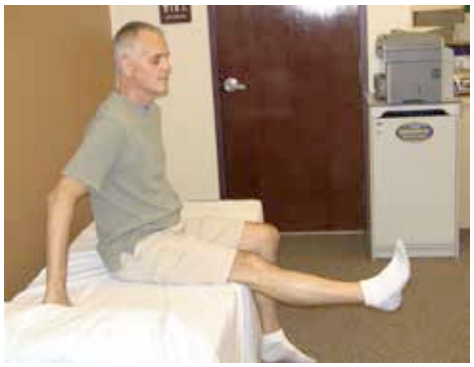
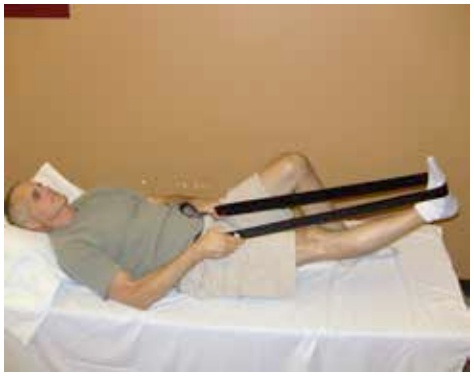
Phase 1 Initial Hip Exercises (Weeks 1-3 Days 1-21)

Begin all exercises with the first physical therapy appointment. Perform with both legs 3 x 10 each x 10 second hold.

Isometric: gluts, quads, hams, abd, add (provide verbal and tactile cues), kegels, trans abdominal (draw belly button in), and core stabilizations.

A/ROME perform 3 x 10 each 3 times per day consisting of ankle DF, PF, INV, EVE, both rotations, toe flex, ext, knee extension over a bolster (focus on patella-femoral joint) and on bed edge, passive calf and hams stretch (for involved leg). P/ROME for operative LE perform 3 x 10 each 3 times per day.

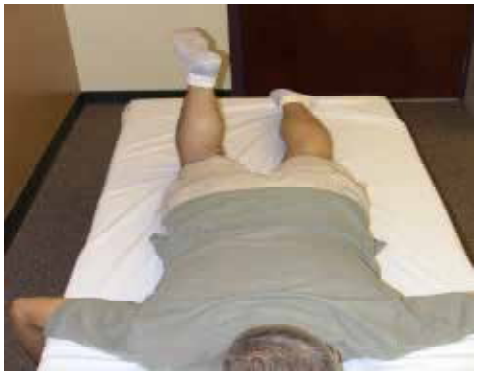

In supine with hip/knee in neutral, therapist or partner will move LE in a circular motion both directions (remember for hip circumduction ER = 20° x 3 weeks, Hip Abd = 40^0 x 3 weeks, Hip IR = no limit, Hip Flex = 90°).

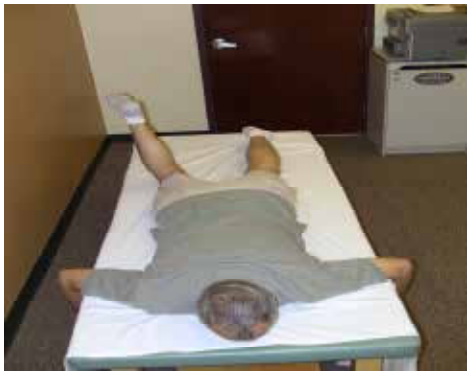
In supine with hip flex (Hip Flex = 90°) therapist or partner will move move knee in circular motion (pendulum rotation).

In supine have a partner bend knee towards chest (Hip Flex = 90°) may increase hip flexion as tolerated after 10 days.

In supine with leg straight, have partner abduct leg (Hip Abd = 40^0 x 3 weeks).

In prone with knee bent to 90^0, have partner bring ankle away from body
(IR = no limitations but ER = 20° x 3 weeks) hold each for 10 seconds as a gentle stretch, Gradually progress without partner assistance.



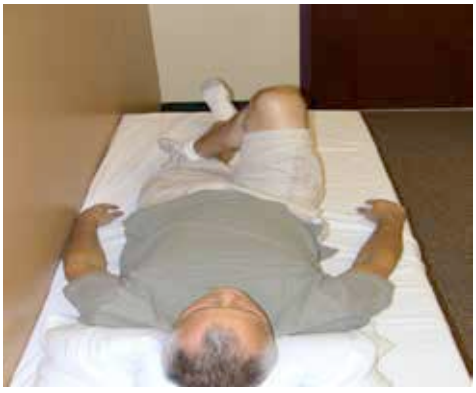


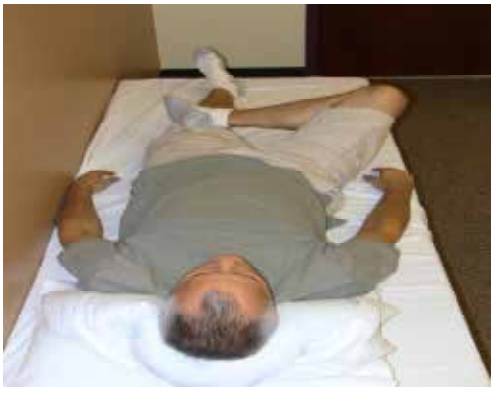
Stationary bike, upright bikes are tolerated better initially, may be performed at home/gym if bike is available, avoid clipping or strapping in (20 mins 2 x day, may increase x 5 mins every 3 days, may begin resistance at week 6)

Piriformis: lying on uninvolved side, bottom LE straight and pelvis stacked, bend involved hip to 50^0 to 70^0 flexion, and lower the involved knee towards the table. Stretch should be felt in buttock, avoid pinch in groin (DO NOT push on knee, perform 1-2 sets of 10 reps, hold stretches for 10 secs and progress to 30 secs, all to patient's pain tolerance).

Quadriceps: in prone, have partner bring ankle toward buttock, then stab pelvis with other hand, relax LB area, the patient should feel the stretch in front of thigh (perform 1-2 sets of 10 reps, hold stretches for 10 secs and progress to 30 secs, all to patient's pain tolerance).

FABER for ER: in supine, bring involved LE into a "figure 4" position with ankle resting on top of opposite knee (may need to start with ankle resting on shin and progress to top of knee), gently lower bent knee towards table, it is normal to feel lateral hip discomfort (DO NOT push on knee, perform 1-2 sets of 10 reps, hold stretches for 10 secs and progress to 30 secs, all to patient's pain tolerance).





General stretching of hip, knee, and calf: may begin to stretch each segment in all directions from this point forward (perform 1-2 sets of 10 reps, hold stretches for 10 secs and progress to 30 secs, all to patient's pain tolerance).

To stretch anterior hip, place patient in supine with operated leg off mat edge at mid thigh to proximal thigh. Flex opposite hip to 90 degrees and have patient hold in position. Allow operated leg to relax and gently stretch. Therapist or partner will move and may have to guide leg to prevent abduction and external rotation.

Phase 2 Gluteal Progression

(Weeks 2-3 Days 8-21 based on pt progress/proficiency)

Perform with operative leg 3 x 10 once a day

Glut Medius: Attempt to initiate glut medius with assisted side lifts (SLR Abd) in muscle test position; work on eccentrics (negatives) until pt can perform without pelvic compensation.

Straight leg raises (ABD), [glut medius focus]: Lying on uninvolved side, raise top leg up and slightly back without moving the trunk and without pelvic compensation. Start only when pt can properly perform without and avoid any compensatory movements.

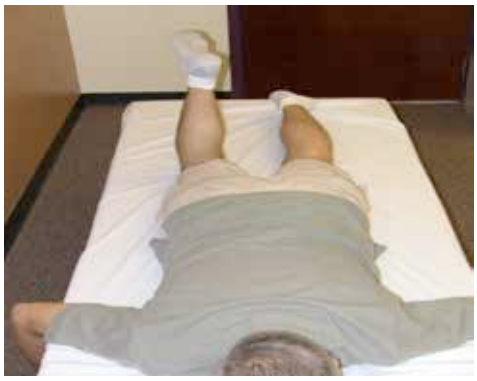

Straight leg raises (EXT), [glut maximus focus]: In prone flex involved side knee to 90^0 or further, lift that knee off the table keeping the knee flexed, raise leg 6-8 inches and avoid any compensatory movements.

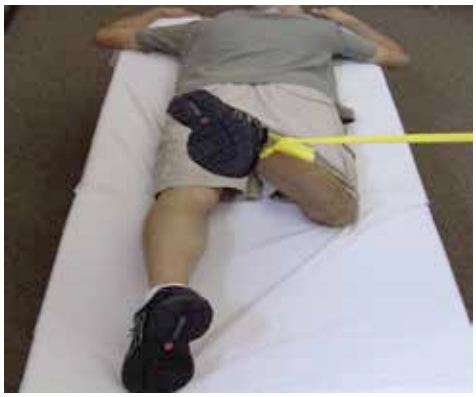

Straight leg raise (EXT): In prone keep knee extended and slowly lift involved leg off table then slowly lower back to table and avoid any compensatory movements.


Rose Wall Slides: Lying on uninvolved side with shoulders, hips, and heels flush up against wall, slowly slide top (involved) leg along wall, while moving heel maintain firm abdominal muscles.


Clams: Lie on uninvolved side with knees flexed and pelvis and legs stacked, slowly lift then slowly lower effected leg back to starting position, while moving leg maintain firm abdominal muscles.


Active Prone IR/ER: In prone with involved knee bent to 90^0, allow foot to drop out so that the hip is in full IR, actively rotate hip back to NEUTRAL ONLY (may go beyond neutral after 4 weeks), partner may gradually add manual resistance (then progress to resistance bands) to this motion in both directions.





Water Progression

Perform 3 x a week for 20-30 minutes

Swimming: Frog kick as performed in the breaststroke

Motion: Any type of A/ROME that is within the patient's pain tolerance is acceptable. All non-weight bearing activities are to be performed in chest deep water.

All weight bearing activities will begin at the 6 or 8 week (day 36 or day 50) mark.

Dr. Carreira will determine the weight bearing date and it will be on a case-by-case basis.

During the non-weight bearing period of time, the patient may go into the pool and focus on ROME, may ride a stationary bicycle as outlined, and focus on their HEP.

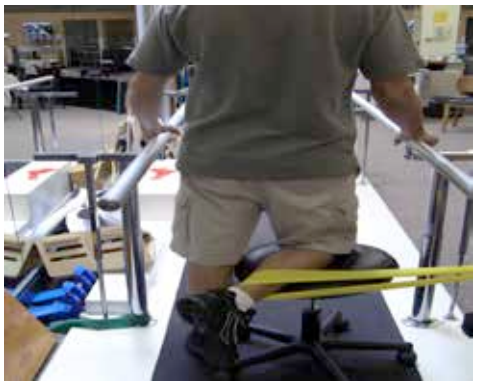
Increasing weight bearing: Gradually add 25% weight on the surgical leg every 1-3 days until 100%, continue to use both crutches during this period. Avoid early fatigue by taking rest periods, avoid limping and focus on correct walking and weight shifting techniques and proper body mechanics. When the pt is steady and able, have them initially amb around their home without their assistive device before attempting to amb in the community without their assistive device. Have them take care when traversing uneven surfaces/terrain (i.e. grass, gravel, sand, etc.).

Quadruped Racking: On hands and knees, shift your body weight forward on your arms then back onto your legs, then shift side to side, then shift into diagonal directions (Keep shoulders and hips in position and in line and maintain firm abdominal muscles).

Additional Quadruped Exercises: Have the patient alternate lifting upper extremities and lower extremities and then progress to moving contra lateral extremities. Emphasize smooth movements, firm core, breathing, and correct exercise technique using a rod, dowel, etc across lower back to ensure patient does not use compensatory movements to complete exercise.

Standing Hip IR/ER: place knee of the involved LE on a stool, rotate hip without moving trunk so that the stool turns moving foot outward from body, progress using a resistance band for internal rotation and then progress to external rotation as per guideline milestones (not to exceed 0^0 for the first 21 days). Begin with least resistance first and progress pt, emphasize correct technique).






Bridging Series Exercises

Perform with operative leg 3 x 20 each 1-2 x a day

Double Leg Bridges: In supine with hip and knees bent [hook lying position] place rubber tubing around knees if needed, keep core stable/firm and then slowly raise buttocks and then slowly lower buttocks, progress to ball squeeze between both knees and then to single leg bridging as patient becomes more proficient with technique and coordination and endurance increases.

Bridge on Swiss Ball: In supine place feet up on Swiss ball and keep knees bent and keep core stable/firm, slowly raise buttocks and hold for 5 seconds, then slowly lower buttocks. Then progress to extending knees and keep core stable/firm, slowly raise buttocks and hold for 5 seconds, then slowly lower buttocks, progress to laying with shoulders on ball and with feet on the floor, keep core stable/firm and then slowly raise buttocks and then slowly lower buttocks, progress to add arm rotations in this position or perform with single leg bridge.

Water Progression

Perform 3 x a week for 20-30 minutes

Water walking: Walk forward, backward, and side-to-side in chest deep water

Water Jogging: Jog in place in deep water

Swimming: Frog kick as performed in the breaststroke

Motion: Any type of A/ROME that is within the pt's pain tolerance is acceptable

Gait Progression "crutch weaning" (use 2 crutches)

Perform 3 x 10 each 1-2 x a day

Weight shifting exercises: Focus on avoiding Trendelenburg and/or other compensatory gait patterns

Stair and Curb Training: Provide education for both with and without assistive device and/or hand rail/s.

Balance Progression Exercises

Perform 3 x 10 and hold for 30 seconds 1 x a day

Single leg stance

Dyna-disc: Progress to touching the opposite foot to the ground at 9:00, 10:30, 12:00, 1:30, and the 3:00 o'clock positions. Emphasize firm core, breathing, and correct exercise technique.

Add dynamic balance activities as tolerated by the patient. Emphasize firm core, breathing, and correct exercise technique. Therapist can be creative.

Phase 3 Intermediate Exercises

(Week 6 Days 36-42 based on pt progress/proficiency)

Closed Chain and Single Plane

Perform 3 x 20 once a day (may need to decrease reps initially).

Double 1/3 knee bends: In standing with feet shoulder width apart, bend at the knees to 60^0 of flexion, DO NOT allow knees to go past toes, progress using a sport cord for resistance

Mini Squats with the Swiss ball (make sure the patient's knees do not pass their toes). Flex down to mid-range and progress to 90^0 knee flexion (as per timeline milestones). May have patient hold down position and increase hold time as patient's proficiency and strength increases. Make sure patient's weight is evenly distributed onto both feet and that patient does not compensate during the movements. Emphasize firm core, breathing, and correct exercise technique.

Sit <--> Stand transfers: Have patient perform on high table and progress to low surface. Make sure patient's weight is evenly distributed onto both feet and that patient does not compensate during the movements. Emphasize firm core, breathing, and correct exercise technique.

Hip Hiking on Step: Stand with operative leg on a step, slowly lower non-operative leg in a downward direction and then slowly lift it to the starting position.

Stepping: Have the perform sidestepping, front stepping, and backward stepping with their operative leg on a step, slowly lower non-operative leg in a downward direction and then slowly lift it to the starting position. Emphasize firm core, breathing, and correct exercise technique.

Phase 3 Advanced Core Progression Exercises

(Week 6 Days 36-42 based on pt progress/proficiency)

Planks: Lie on either side with knees bent resting on an elbow, slowly lift the hips up in a straight line, then slowly lower hips, progress by performing with legs straight, progress to performing in supine and then in prone.

Pilates: (ONLY WITH AN INSTRUCTOR) footwork and skater series, and hip extensions.

Sidestepping: Place rubber tubing around ankles (progress resistance as pt progresses), bend at knees (knee not to pass toes) and sidestep in each direction while maintaining the bent knee position and keeping chest in an upright position. Distance of sidestepping is based on pt's progress, ability, and the therapist's judgment.

Single 1/3 knee bends: Use the same starting position as the double knee bends but with only the surgical leg, bend knee to 60^0 of flexion while maintaining a level pelvis AND not letting the knee "fall in" (corkscrew), progress by adding a sport cord for resistance (sports test exercise).

Balance squats: with one leg behind you on a chair, squat with your opposite leg to 70^0, perform with opposite leg on a chair (single leg closed kinetic chain exercise)
Lunges (single leg closed kinetic chain exercise) short distance initially then progress based on pt's progress, ability, and the therapist's judgment.

Reverse Lunges (single leg closed kinetic chain exercise) based on pt's progress, ability, and the therapist's judgment.

Elliptical trainer: Begin with minimal resistance and increase intensity over time as tolerated by the patient. Perform 3 x a week x 15-20 minutes.

Phase 4 Advanced Exercises

(Week 8 Days 50-56 based on pt progress/proficiency)

Multi-Directional and Plyometric

Perform 10 sets for 1-2 minutes x 3-5 x a week

Plyometrics: Water to dry land progression.

Begin in water (chest deep) perform forward bounding and focus on absorption when landing, then progress to dry land ploymetrics.

Perform 3 x 50 for 3 x a week

Side-to-side lateral agility with a sports cord

Attach a sports cord from the side, with the involved leg facing the cord, step sideways to create tension on the sports cord, from a single knee bend position on the involved side, explode laterally, touching with the noninvolved leg momentarily, before the tension pulls you back, emphasize absorption back onto the involved leg.

Perform 3 sets for 1-2 minute intervals once a day

RUNNING: Expect to have mild limping/discomfort awkwardness- this should go away gradually, common sense dictates that if the limp worsens or if there is pain, RUNNING SHOULD STOP, progress to the next phase each week.

Forward/backward running with a sports cord.

Shift from one leg to the other leg while running in place without exaggerating the absorption and push off motion, face the sports cord for backwards running.

Walk to Run Ratio Table

Level	Walk/Run Ratio	Sets	Total Time	**Frequency**
R1	4 mins/1min	4 sets	20 min	4-5 times/week
R2	3 mins/2 mins	4 sets	20 min	4-5 times/week
R3	2 mins/3 mins	4 sets	20 min	4-5 times/week
R4	1 min/4 mins	4 sets	20 min	4-5 times/week
R5	10 mins Jog	2 sets	10 min	4-5 times/week

Golf Progression Table

Level	**Golf Progression**	**Volume**	**Frequency**
G1	Putt, Chip, 1/2 Swing Only	1 Bucket	For 1-2 weeks
G2	8-9 Irons, 3/4 Swing Only	1 Bucket	For 2 weeks
G3	All Irons, Use Cart, Full Swing	9 Holes	For 2 weeks
G4	Full Play, Walking 18 Holes	18 Holes	-

Phase 5 High Level Activities May Return to Sport at 12 weeks

(Week 12 Days 78-84 based on pt progress/proficiency)

Initial Agility Drills: Straight plane agility

For these agility exercises you will need to set up two cones initially about 10 yards apart so that the patient will have a clear understanding of the starting and end points. You may move the cones farther apart as the patient progresses.

Chop-Downs/Back Pedaling:

Jog forward from the starting cone, stutter step to a stop at the end point cone, absorb and push off smoothly into a back pedal to the starting cone.

Side Shuffles:

Start with feet shoulder width apart; maintain an athletic stance, from the starting cone shuffle to the right to the end point cone, and then shuffle back to the left to the starting cone.

Multi-Plane Agility

Z Cuts:

This type of agility drill will focus on lateral cuts, planting feet, and change of direction. Have the patient stand in an athletic stance facing forward. The patient will start off by jogging in a diagonal direction to the left side cone number 1, then will plant their left leg and change direction and jog toward right side cone number 1, plant their right leg and jog to the left cone number 2, and have them repeat this process alternating between line 1 and line 2 cones for 8 to 10 cones. Each time they change directions, have them plant the outside foot, absorb and stay low, then push off into the new direction. Start the patient slowly then have them progress their stepping speed as the proficiency increases.

Set up cones in two lines about 5 yards apart. The cones in Line 1 are placed 10 yards apart on the 0 (L1), 10 (L2), and 20-yard (L3) mark. The cones in Line 2 cones are placed on the 5 (R1), 15 (R2), and 25-yard (R3) mark. Place a starting cone at the midway point between lines 1 and 2.

Line 2	Starting Cone	Line 1
		L1
R1		
		L2
R2		
		L3
R3		

W Cuts:

This drill will emphasize backward pedaling; planting feet, keeping hips and shoulders square, and change of direction to forward jogging.

Set up cones in two lines about 5 yards apart. The cones in Line 1 are placed 10 yards apart at the 0 (L1), 10 (L2), and 20-yard (L3) mark. Line 2 cones are placed on the 5 (R1), 15 (R2), and 25-yard (R3) mark. Place a starting cone at the midway point between lines 1 and 2.

Have the patient stand in an athletic stance facing side-on slightly in front of the starting cone. They will jog backward to the first cone in Line 1 and they will plant the outside right foot and keep their hips and shoulders square. Then they will push off into a forward jog to the first cone in Line 2 and they will plant the outside right foot and keep their hips and shoulders square. Then they will jog backward to the second cone in Line 1. They will continue this process as they alternate between backward and forward jogging to each line. Each time they change direction, they will plant the outside foot, absorb and stay low. Continue in this manner for 8-12 cuts. Repeat using your left leg as the outside leg to ensure it is used to plant. Start the patient slowly then have them progress their stepping speed as their proficiency increases.

Line 2	Starting Cone	Line 1
		L1
R1		
		L2
R2		
		L3
R3		

Cariocas

Start with feet shoulder width apart; move to the left by stepping with the right foot across and in front of the left foot, keep moving to the left by moving left foot from behind the right foot to the original stance position, keep moving to the left by moving right foot behind the left foot, keep moving to the left by moving left foot to the original stance position.

Have patient maintain an athletic stance and perform the movements in a smooth and fluid motion throughout the exercise.

Have the patient perform this exercise by alternating legs for the initial step to ensure that each leg receives an equal workout.

Start the patient slowly then have them progress their stepping speed and distance as their proficiency increases.

Ghiardelli's

Start with feet shoulder width apart, then cross the right leg over the left iliac crest, swing the left leg out from behind the right leg (into the original stance position) absorbing and touching the ground with the left hand in one fluid motion. Cross the left leg over right iliac crest, swing right leg out from behind the left leg (into the original stance position) absorbing and touching the ground with the right hand in one fluid motion.

Start the patient slowly then have them progress their stepping speed and distance as their proficiency increases.

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