

# SuperPath® THA Physical Therapy Guidelines\*

(For Orthopedic Surgeons and Physical Therapists)

SOUTHEAST KANSAS ORTHOPEDIC CLINIC KEVIN M. MOSIER M.D

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## Phase I

### Early ROM and Open Chained Strengthening

#### Time frame: Begins at 3 weeks up to 4 weeks

Most patients with degenerative joint disease of the hip will have very tight adductors as well as limited motion into hip flexion and internal rotation.<sup>(1,2)</sup> Once they have a new hip joint in place, most patients do extremely well with the exception of muscle tightness around the hip joint and some weakness of hip abductors; especially gluteus medius. This guideline contains very specific stretching techniques, which are then followed by gentle strengthening of the hip abductors and external rotators. The goal is to normalize the hip biomechanics for normal gait pattern.

#### Manual Therapy:

- Adductor strumming soft tissue mobilization technique. Soft tissue strumming along the adductors by lifting the muscle belly from medial to lateral.



- Lateral glide/traction grade I-II mobilization of the femur, progress by adding passive hip ER to end range. Hip should be kept in most comfortable position of flexion from 60-90 degrees. Gentle lateral glide of the femur at the hip joint first manually and then using a yoga or mobilization belt around the therapist's hip area for stability. The lateral glide of the hip helps to decrease the tension on gluteal region and thus helps decrease the greater trochanteric pain syndrome (GTPS).



- Inferior grades II-III mobilization of the femur, progress by increasing physiological passive hip flexion to end range. In supine near the edge of the bed, hip flexed, pelvis fixated, knee allowed to be flexed to comfort. Use the belt or both hands and place at anterior hip and apply inferior glide with belt and body weight shift by therapist.

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- PROM into hip abduction (supine adductor stretch) while stabilizing contralateral LE.



- Supine iliopsoas stretch in a modified Thomas position addresses anterior soft tissue restrictions. Patient is on the edge of table or bed with knee flexed and contralateral LE in hip flexion with foot supported.



Manual force is applied to maintain posterior tilt at ASIS, treating the anterior restrictions and moving hip into extension. Adding knee flexion at the end range will stretch Rectus Femoris as well.

- S/L quadratus lumborum (QL) stretch with contract/relax D1 and D2 pelvic patterns. (AE/PD-PE/AD)



QL Start position



QL- Hold around



Apply traction caudally



Patient assist with UE

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This is achieved by rising the pelvis in opposite V fashion and implementing contract/relax with pelvic D1 and D2 PNF patterns. Pelvic PNF patterns include:

- 1) Anterior elevation (toe off and swing phase) with posterior depression (stance phase)
- 2) Posterior elevation (double stance) and anterior depression (Heel strike)

The QL muscle is typically overactive, so shortness is a common finding in total hip patients due to the hip hiking gait pattern prior to surgery. Correct firing sequence for hip abduction should be gluteus and TFL, followed at around 25° elevation by QL. To normalize gait pattern QL stretch is performed and self-stretching exercises are shown to the patient.

- Anterior Glide (PA) Indications: Increase extension, increase ER.

This can be achieved once patient has achieved 10° of hip extension and iliopsoas flexibility.



## Therapeutic Exercise:

Side lying (S/L) clams in 30° and 60° of hip flexion. (Try the most comfortable position of flexion to start with for this exercise.) Gluteus Medius is a hip internal rotator when working in flexion and hip external rotator when the hip is in extension.<sup>3</sup>



Initial Position



Anterior fibers of gluteus medius with hip into flexion



Posterior fibers of gluteus medius and minimus with hip into extension and abduction

If the patient is deficient in abductor strength, strengthening can be done with clamshell exercises with the hip in 30° and 60° of flexion and S/L hip abduction watching for substitution of the QL. Research shows that S/L hip abduction without any substitution from the QL muscle is the most effective strengthening for hip abductors demonstrating an 81% recruitment of the gluteus medius muscle group.<sup>4</sup> Posterior fibers of the gluteus medius and minimus also can be strengthened isometrically

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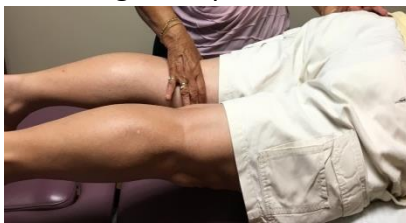
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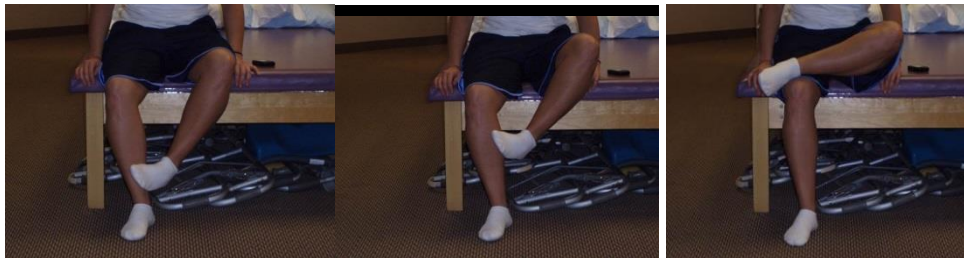
once the patient has some functional hip extension by placing the hip into approximately 10° of hip extension, knee slightly into flexion at 10°-15°, hip externally rotated and abducted 10°-15°. The Posterior fibers of the gluteus medius are considered to be more active with the hip into extension, abduction and external rotation, while the anterior fibers are more active with the hip into flexion and internal rotation. The posterior gluteus medius & minimus is the main hip stabilizer during the loading phase of the gait cycle.<sup>5</sup> Active hip horizontal abduction with lateral glide and traction of femur into functional position of the hip abduction, external rotation and flexion.



- Prone gluteus maximus press-ups with manual resistance. As long as the patient has no severe spine issues or a hip flexion contracture he or she will next assume a prone position. 2-3 pillows can be placed under the abdomen to support the hip and the lower lumbar spine and to increase patient comfort. The patient is asked to do a toe push-off in prone by extending the knee and holding the gluteus maximus isometrically against manual resistance applied at the mid femur (see photo). Recent electromyographical analysis showed prone hip extension had higher gluteus maximus recruitment than any other exercise tested<sup>4</sup>. These maximal contractions of gluteus maximus have the dual effect of strengthening the gluteals and actively stretching the hip flexors.



- Active hip ER in sitting with contralateral UE reach to foot to train in functional position.



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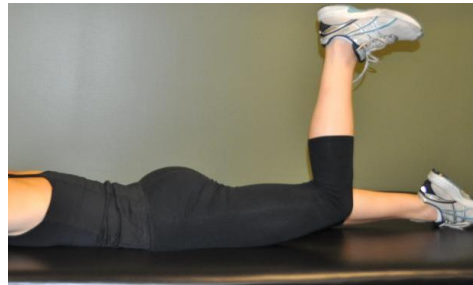
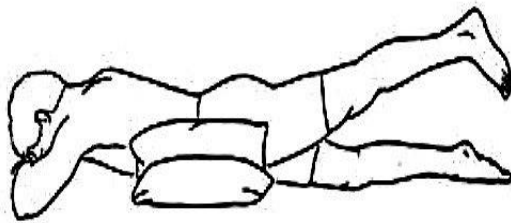
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- Prone hip ER using Posterior to anterior force through hip. Hip is in abducted and externally rotated position with knee bent to 90 degrees. Patient performs active or assisted hip ER. Contract/relax and perform isometric hold in new range.



- Prone hip extension with and without knee flexion. Use pillows to prevent low back pain.



- Fire hydrants. Hip Extension with abduction and ER



- Standing hip flexor and adductor stretch.



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- Seated QL self-stretch, weight bearing on the operated hip reach the ceiling with UE while stabilizing with contralateral UE.



## **Goal for this phase:**

- Increase ROM actively and passively to restore normal gait pattern and improve functional activities such as donning and doffing footwear.
- Strengthen gluteus medius and minimus which are frequently weaker after SuperPath® hip replacements.
- Begin to recruit gluteus maximus as a majority of patients will demonstrate impaired Gluteal activation.

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## Phase II

**Begin Closed Chain weight-bearing exercises to improve strength, balance, co-ordination and normal gait pattern**

**Time frame: Begins at 4<sup>th</sup>-5<sup>th</sup> week up to 3 weeks**

### Manual Therapy:

- Same as phase I, focus on restoring hip extension and ER.
- Progress supine iliopsoas/ Rectus Femoris stretch to S/L.



- Add Psoas and Iliacus release techniques if necessary.



- Seated erector spinae stretch with manual stabilization of pelvic ( to prevent anterior tilt)



### Therapeutic Exercise:

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- Gait training (elevating ipsilateral arm or holding ~15lb dumbbell by side on ipsilateral side will improve abductor lurch gait commonly seen s/p SuperPath® hip replacement).
- Partial squats progressing to full squats.
- Single leg stance with UE support
- Bridging with thera band for hip abduction.
- Supine marching with abdominal hollowing.

## **Goals for this Phase:**

- Begin closed-chained hip strengthening cautiously to avoid greater trochanteric pain.
- Begin to normalize gait, emphasizing an efficient and symmetrical gait pattern.

## **Phase III**

### **Intermediate to Advanced Closed Chained Strengthening and Return to Activity**

**Time frame: Begins at 5<sup>th</sup> week up to 3 weeks**

#### **Manual Therapy:**

- Patient should have a functionally sufficient ROM at this time, emphasize home stretching program for any continued discrepancies in ROM with contralateral side.
- Some patients will complain of continued soft tissue restriction in the peri-incisional area. This is often a restriction in the superior capsule which responds well to soft tissue mobilization (avoid foam rollers).

#### **Therapeutic Exercise:**

- Bridging with marching progressing to single Leg Bridge.
- Single leg stance on unstable surface.
- Standing isometric hip abduction and ER at wall with hip at 90° of flexion.
- Plank with hip extension.
- Single leg dead lift with dumbbell.
- Isometric squats with TB around knees and unilateral hip ER with accompanying trunk rotation in the same direction.

#### **Goals for this Phase:**

- Provide dynamic exercises that utilize multiple muscle groups and will help maintain hip strength and ROM.
- The more advanced exercises are often given as a HEP progression if appropriate (typically given to younger and more active patients).

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- **Precautions:**

Although the SuperPATH hip replacement patients are not asked to follow hip precautions, our clinical experience has dictated some movement restriction recommendations in certain cases. First, if someone has a history of aggressive stretching (yoga especially), we recommend following standard posterior hip precautions for 3 weeks. Second, we recommend all patients avoid 3 combined motions of hip adduction, internal rotation, and flexion for the first three weeks.

Depending upon the intra-op findings some patients will be restricted on weight bearing for few weeks. Please always communicate with MD if you have questions on any restrictions.

Please feel free to contact me with questions or guidance via email or my cell.

Thank you!

Chandrika Lotwala, PT, DPT

References :

1. Kaltenborn F. Manual Mobilization of the Extremity Joints. 1989: p 174
2. Birrell F, Croft P. Predicting radiographic hip osteoarthritis from range of movement. *Rheumatology* (2001) 40 (5): 506-512.
3. Müller M, Tohtz S, Dewey M, Springer I, Perka. Evidence of reduced muscle trauma through a minimally invasive anterolateral approach by means of MRI. *Clin Orthop Relat Res*. 2010 Dec;468(12):3192-200.
4. Distefano LJ, Blackburn JT, Marshall SW, Padua DA. Gluteal muscle activation during common therapeutic exercises. *J Orthop Sports Phys Ther*. 2009 Jul;39(7):532-40.
5. Gottschalk M. The functional anatomy of tensor fasciae latae and gluteus medius and minimus. *Journal of Anatomy*. 1989 Oct; 166:179-189.
6. Oh, JS. Effects of performing an abdominal drawing-in maneuver during prone hip extension exercises on hip and back extensor muscle activity and amount of anterior pelvic tilt. *J Orthop Sports Phys Ther*. 2007 Jun;37(6):320-4.
7. Visuri T, Honkanen R. The influence of total hip replacement on selected activities of daily living and on the use of domestic aid. *Scand J Rehabil Med*. 1978;10(4):221-5.
8. Koga D, Jinno T, Okawa A, Morita S, Shinomiya K. The effect of preoperative lateral flexibility of the lumbar spine on perceived leg length discrepancy after total hip arthroplasty. *J Med Dent Sci*. 2009 Mar;56(1):69-77.

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