

Therapist Overview for SuperPATH THR Protocol

SuperPATH stands for **Supercapsular Percutaneously Assisted Total Hip**. The SuperPATH micro-posterior approach is a tissue-sparing approach where no muscles or tendons are cut. Surgical dislocation of the hip is not required with SuperPATH. It has many advantages over the traditional posterior approach and the anterior approach. It completely preserves the integrity of the capsule. Therefore, total hip replacement position restrictions are not required. Although the SuperPATH hip replacement patients are not asked to follow hip precautions, experience has dictated some movement restriction recommendations in certain cases. First, if someone has a history of aggressive stretching (i.e. yoga), I recommend following standard posterior hip precautions for 4 weeks. Second, I recommend all patients avoid combined motions of hip internal rotation and flexion for the first 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. Once they have a new hip in place, most patients do extremely well except for muscle tightness around the hip joint and some weakness of hip abductors; especially the gluteus medius which is a hip internal rotator when working in flexion and a hip external rotator when the hip is in extension.

The SuperPATH physical therapy protocol contains very specific stretching techniques, which are then followed by gentle strengthening of hip abductors and external rotators as well as stretching into internal and external rotation to normalize the hip biomechanics. The protocol begins with soft tissue strumming along the adductors by lifting the muscle belly (grade 1-2) from medial to lateral. This is then followed by visualization of the pelvic tilt on the side of the operative hip to see if there is any anterior tilt of the ilium due to hip flexor tightness. Once evaluated, the ASIS is stabilized and a gentle stretch of the iliopsoas (with contract relax) is applied. Once the stretching is performed, joint mobilization techniques are instituted with very gentle lateral glide of the femur at the hip joint first manually and then using a yoga 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). After this, an inferior femoral glide with passive hip flexion is performed. Along with increasing

hip flexion, this mobilization works to increase hip extension range of motion by stretching the iliopsoas.

Once joint mobilization techniques are completed, the patient assumes a side lying position and hip abductor strength is evaluated. 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 side lying hip abduction watching for substitution of the quadratus lumborum. Research shows that side lying hip abduction without any substitution from the quadratus lumborum muscle is the most effective strengthening for the hip abductors. Posterior fibers of the gluteus medius also can be strengthened isometrically once the patient has some functional hip extension by placing the hip into about 10° of hip extension, knee slightly bent, hip externally rotated and abducted 10°-15°. Posterior fibers of the gluteus medius are considered to be more active with the hip in extension and external rotation while the anterior fibers are more active with the hip in flexion and internal rotation. The posterior gluteus medius is the main hip stabilizer during the loading phase of gait.

As long as the patient has no severe spine issues or hip flexion contracture, he or she will next assume a prone position. Two or three pillows can be put under the abdomen to support the hip and the lower lumbar spine and 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 given at mid femur. These maximal contractions of gluteus maximus have the dual effect of strengthening the gluteals and actively stretching the hip flexors. Once the patient starts to improve, slowly implement supine hip joint mobilization techniques with the hip supported in approximately 80° to 90° of flexion. The patient actively externally rotates their hip to end range and then a manual grade 3 pressure is applied to tolerance.

As the patient's strength improves, core stabilization must be added with dynamic activities of the lower extremity in supine. Focus on diaphragmatic breathing and transversus abdominis contraction to help stabilize the lower lumbar spine for the hip to move in more mechanical fashion. Core strengthening is also a key component of total hip replacement rehab or any lower extremity orthopedic postsurgical procedure. It is important to monitor pelvic position and abdominal activity while patients perform gluteal exercises as proper pelvic position and abdominal contraction can decrease compensation from low back musculature.

Once the patient starts to improve the range of motion and gains better flexibility at the tighter structures like adductors, iliopsoas, rectus femoris and ITB band, then begin to focus on increasing hip strength; specifically the gluteus medius, minimus, and maximus. At this point also add quadratus lumborum stretching in side lying position. This is achieved by raising the pelvis in opposite V fashion and implementing contract/relax with pelvic D1 and D2 PNF patterns.

Pelvic PNF patterns are 1) anterior elevation with posterior depression and 2) posterior elevation and anterior depression. The quadratus lumborum muscle is typically tight in total hip patients due to the hip hiking gait pattern prior to surgery.

Gait training begins once the patient has sufficient hip range of motion, in most cases this is about 3 weeks post-op. Many different exercises can be performed to normalize balance, coordination and proprioception of the new hip joint in conjunction with daily activity. The most important functional activity to be worked on with the patient is getting their shoes and socks on and off; 75% of hip replacement candidates cannot don/doff a tied shoe. Patients must have adequate hip flexion, abduction, external rotation and lumbar flexion to achieve this. To increase lumbar flexion, paraspinals can be stretched with the hip in abduction and external rotation by stabilizing the hip and having the patient bend forward into lumbar flexion in a seated position. Lumbar flexibility is also important with this patient population as a rigid lumbar spine increases the likelihood of perceived leg length discrepancy.

Kevin M. Mosier, M.D.

Southeast Kansas Orthopedic Clinic

Parsons, Kansas

www.sekortho.com

620-421-0881