
Total Hip Replacement Posterior Approach

Goals

- Guard against dislocation of the implant.
- Gain functional strength.
- Strengthen hip and knee musculature.
- Prevent bedrest hazards (e.g., thrombophlebitis, pulmonary embolism, decubiti, pneumonia).
- Teach independent transfers and ambulation with assistive devices.
- Obtain pain-free ROM within precaution limits.

Rehabilitation considerations in Cemented and Cementless Techniques

- Cemented total hip
 - Weight-bearing to tolerance (WBTT) with walker immediately after surgery.

Preoperative Instructions

- Instruct on precautions for hip dislocation (handout).
- Transfer instructions
 - In and out of bed.
 - Chair
 - Depth-of-chair restrictions: avoid deep chairs. We also instruct patient to look at the ceiling as they sit down to minimize trunk flexion.
 - Sitting: avoid crossing legs.
 - Rising from chair: scoot to edge of the chair, then rise.
 - Use of elevated commode seat: elevated seat is placed on commode at a slant, with higher part at the back, to aid in rising. Have elevated seat sent to house prior to surgery for installation.
- Ambulation: instruct on use of anticipated assistive device (walker).
- Exercises: demonstrate day 1 exercises (see following).

Postoperative Regimen

- Out of bed in stroke chair twice a day with assistance 1 or 2 days postoperative. DO NOT use a low chair.
- Begin ambulation with assistive device twice a day (walker) 1 or 2 days postoperative with assistance from therapist.

Weight-bearing Status

Cemented prosthesis: weight-bearing as tolerated with walker for at least 6 weeks, then use a cane in the contralateral hand for 4-6 months. **Cementless Techniques:** touch-down weight-bearing with walker for 6-8 weeks (some authors recommend 12 weeks), then use a cane in the contralateral hand for 4-6 months. A

wheelchair mat be used for long distances with careful avoidance of excessive hip flexion of more than 80 degrees while in the wheelchair. Therapist must check to ensure that the foot rests are long enough. Place a triangular cushion in the wheelchair seat with the highest cushion point posterior, to avoid excessive hip flexion.

Isometric Exercises (Review Restrictions)

- SLR (if not contraindicated): tighten knee and lift leg off bed, keeping the knee straight. Flex the opposite knee to aid this exercise. SLRs are more important after total knee arthroplasty than after total hip arthroplasty. Surgeon may desire holding SLR depending on construct.
- Quadriceps sets: tighten quadriceps by pushing knee down and holding for a count of 4.
- Ankle pumps: pump ankle up and down repeatedly.
- Isometric hip abduction with self-resistance while lying. Later, wrap a Theraband around the knees and perform abduction against the Theraband.
- Four-point exercises
 - Bend knee up while standing.
 - Straighten knee.
 - Bend knee back.
 - Return foot to starting position.
- Hip abduction-adduction (hold initially if patient has a trochanteric osteotomy):
 - Supine position: abduct (slide the leg out to the side) and back, keeping the toes pointed up. Make sure the leg is not externally rotated so the gluteus medius will not be strengthened.
 - Standing position: move the leg out to the side and back. Do not lean over to the side.
 - Side-lying position (probably 5-6 weeks postoperative): Lying on side, the patient abducts the leg against gravity. The patient should be turned 30 degrees toward prone to utilize the gluteus maximus and medius muscles. Most patients would otherwise tend to rotate toward the supine position, thus abducting with the tensor fascia femoris.

ROM and Strengthening Exercises

- 1 or 2 days postoperative, begin daily Thomas stretch to avoid flexion contracture of the hip. Pull the uninvolved knee up to the chest while lying supine in bed. At the same time, push the postoperative leg into extension against the bed. The hip extension stretches the anterior capsule and hip flexors of the involved hip and aids with previous flexion contracture and avoidance of postoperative contracture. Perform this stretch five to six times per session, six times a day.
- May begin stationary exercises bicycling with a high seat 4-7 days postoperative. To mount the bicycle, the patient stands facing the side of the bicycle and places one hand on the center of the handle bars and the other on seat. Place the uninvolved leg over the bar and onto the floor so that the seat is straddled. Protect the involved leg from full weight-bearing by putting pressure on the hands. With both hands on the handle bars and partial weight on the involved leg, place the

uninvolved leg on the pedal. Stand on the uninvolved leg to sit on the seat. Then turn the pedals so that the involved leg can be placed on the pedal at the bottom of the arc.

Until successful completion of a full arc on the bicycle, the seat should be set as high as possible. Initially, most patients find it easier to pedal backward until they can complete a revolution. The seat may be progressively lowered to increase hip flexion within safe parameters.

Initially, the patient should ride the bicycle with minimal tension at 15 mph, two to four times a day. We leave a stationary bicycle on the hospital floor for use in the room. By 6-8 weeks, may increase the tension until fatigue occurs after approximately 10-15 min of riding.

- May also perform extension stretching of the anterior capsule (to avoid hip flexion contracture) by extending the involved leg while the uninvolved leg is mildly flexed at the hip and knee, supported by a walker (the therapist stabilizes the walker). Slowly thrust the pelvis forward and the shoulders backward for a sustained stretch of the anterior capsule.
- Observe and correct gait faults, because many of these faults involve the patient's avoidance of stretching the anterior structures of the hip secondary to pain.

Abduction Pillow

- Keep an abduction pillow between the legs while in the bed.

Bathroom Rehabilitation

- Permit bathroom privileges with assistance and an elevated commode seat.
- Teach bathroom transfers when the patient is ambulating 10-20 feet outside of room.
- Use elevated commode seat at all times.

Assistive Devices

Occupational therapist brings these and instructs patient on assisted activities of daily living:

- "Reacher" or "grabber" to help retrieve objects on the floor or assist with socks or stockings. Do not bend to put on slippers.
- Shoe horn and loosely fitting shoes or loafers.

Transfer Instructions

- Bed to chair
 - Avoid leaning forward to get out of chair or off of bed.
 - Slide hip forward to the edge of the chair first, then come to standing.
 - Do not cross legs when pivoting from supine to bedside position.
 - Nurse or therapist assists until able to perform safe, secure transfers.
- Bathroom
 - Use elevated toilet seat with assistance.
 - Continue assistance until able to perform safe, secure transfers.

Transfer to Home

- Instruct patient to travel in the back seat of a four-door sedan, sitting or reclining lengthwise across the seat, leaning on one or two pillows under the head and shoulders to avoid sitting in a deep seat.
- Avoid sitting in conventional fashion (hip flexed more than 90 degrees) to avoid posterior dislocation in the event of a sudden stop.
- Urge those without a four-door sedan to sit on two pillows with the seat reclined (minimize flexion of hip).
- Adhere to these principles for 6 weeks until soft tissue stabilization is achieved (Steinberg and associates [1988]).
- May begin driving 6 weeks postoperative.
- Review hip precautions and instructions with patient.

Exercise Progression

- Hip abduction: progress exercises from isometric abduction against self-resistance to Thera-band wrapped around the knees. At 5-6 weeks, begin standing hip abduction exercises with pulleys, sports cord around the hips, as well as lateral step-ups with a low step, if clinically safe.

Progress hip abduction exercises until the patient exhibits a normal gait with good abductor strength. Our progression for a postoperative cemented prosthesis with no *trochanteric osteotomy* generally follows the outline below.

1. Supine isometric abduction against hand or bedrail (2 or 3 days).
2. Supine abduction, sliding the involved leg out and back.
3. Side-lying abduction with the involved leg on top and abduction against gravity.
4. Standing abduction, moving the leg out to the side and back.
5. Theraband exercises, sports cord, and step-ups (5-6 weeks).

Perform prone-lying extension exercises of the hip to strengthen the gluteus maximus. These may be performed with the knee flexed (to isolate the hamstrings and gluteus maximus) and with the knee extended to strengthen the hamstrings and gluteus maximus.

Initiate general strengthening exercises: develop endurance, perform cardiovascular exercise, and general strengthening of all extremities.

Instructions for Home

- Continue previous exercises and ambulation activities.
- Continue to observe hip precautions.
- Install elevated toilet seat in home.
- Supply walker for home.
- Review rehabilitation specific to home situations (e.g., steps, stairwells, narrow doorways).
- Ensure home physical therapy and/or home nursing care has been arranged.

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- Orient family to patient's needs, abilities, and limitations, and review hip precautions with family members.
 - Reiterate avoidance of driving for 6 weeks (most cars have very low seats).
 - Give patient a prescription for prophylactic antibiotics that may be needed eventually for dental or urologic procedure.