University Hospitals Rehabilitation Services

University Hospitals Orthopedics

Total Hip Arthroplasty Rehabilitation Post-Operative Guidelines

Total hip arthroplasty (THA), frequently referred to as a hip replacement, is a surgical procedure aimed at alleviating pain and restoring function in patients with severe hip joint damage. The hip joint is a ball-and-socket structure comprised of the femoral head and the acetabulum. When a THA is performed, both the femoral head and the acetabulum are replaced with prosthetic components. There are several surgical approaches for a THA. The most common are the anterior, anterolateral, posterior and direct lateral approaches, each with specific benefits and considerations. Adherence to a physical therapy program and following the post-operative guidelines are essential for optimal outcomes. It is vital to understand the anatomy of the hip, the various surgical approaches and the post-operative precautions for the successful recovery of hip arthroplasty patients.

Listed below is a suggested THA rehabilitation guideline. Please confirm with the surgeon for specific precautions (i.e., look for an * in the guideline) and guidelines if necessary.

Patient Information:

Wound care	Bandage removed at home by homecare staff (can shower but do not submerge) Negative pressure wound vac post-op 7 or 14 days post-op based on model
Assistive Device and Equipment	UH DME will provide pre-operatively or in the hospital Provided via therapist recommendation and MD requirements Abduction brace recommended by MD only
Home Health PT	If recommended, will be established with care transitions team prior to discharge (DC) home
Out-patient PT	Will complete following home health care for most patients. 3-4 weeks post-surgery date. Recommended to schedule prior to surgery. DO NOT DELAY SCHEDULING.

Total Hip Replacement Red Flags

Signs of deep vein thrombosis (DVT) – Refer directly to emergency department

- Localized tenderness along the distribution of deep venous system
- Entire LE swelling or calf swelling >3 cm compared to asymptomatic limb
- Pitting edema
- Erythema
- Collateral superficial veins

Infection

- Fever, chills, night sweats
- Redness, warmth around wound or incision
- Abnormal pain at the surgical site
- Drainage

Mechanical block or clunk and/or Reported episode of instability

Total Hip Arthroplasty Replacement Recommendations

Precautions (Strictly adhered to first 6 weeks post-op, guarded progression thereafter)
Dislocation Precautions are based on surgical approach and the direction in which the hip is dislocated intra-operatively (if at all) to gain exposure to the joint.

Anterior, Anterolateral, Direct lateral approach
- No hip extension past 20 degrees (to allow normal gait)
- No hip external rotation past 50 degrees
- Caution with active hip abduction weeks 0-6

Posterior approach
- No hip flexion past 90 degrees
- No active hip internal rotation or adduction past neutral
- None of the above motions combined

General Precautions
- Weight bearing as tolerated (WBAT) with use of assistive device as needed
- No crossing legs (crossing at ankle okay)
- Use good bending/lifting mechanics — Avoid floor height lifts
- Keep hips above knees when sitting, avoid sitting in deep chairs

Range of motion (ROM)/Manual Therapy
- Early ROM as tolerated within the restricted range
- Soft tissue mobilization as needed, scar mobilization once incision heals (2-3 weeks)

Effusion
- Wear thrombo-embolic deterrent (TED) hose, bilateral lower extremities (LE) x 4 weeks post-op (not at night)

Therapeutic Exercise
- Proper activation and recruitment of all hip and core musculature without compensation is required for successful strengthening
- Neuromuscular re-education is required for balance and correction of faulty mechanics
- Exercise should be performed on double and single limb

Functional Patient Outcomes
- Lower Extremity Functional Scale (LEFS)
- Performance tests: Timed Up and Go (TUG), 30 Second Chair Stand Test

Considerations Regarding Running and Plyometrics
- Patients are advised to participate in low-impact exercise and activity
- Following surgery, goal is to prevent damage to new prosthetic
- High-impact activities are generally not advised

Patient should consult with physician if considering returning to running or other high-impact sport

Criteria for Discharge (Athletic)
- Physician clearance at last check-up
- Strength >90% compared to uninvolved LE
- Demonstrate ability to simulate recreational activities
- Functional Patient Outcome Measures achieves MCID (minimum clinically important difference)

Criteria for Discharge (Non-Athletic)
- Criteria for discharge from PT is less rigorous for those not returning to sport
- Ensure the patient can perform all activities of daily living (ADLs) without pain, reactive effusion and with appropriate functional mechanics

Phase I Functional mobility, Protection, and Home Health

THA PHASE I: Day 0-3

Precautions

- Protect healing tissue
- Control pain and edema
- Monitor post-op incision healing for excessive bleeding/drainage or separation
- Avoid twisting while weight bearing on the involved side
- Weight bearing as tolerated with walker
- Maintain post-THA precautions
- Sleep posture: avoid operative side, avoid surgical hip crossing mid-line, discuss with your therapist

Goals

- Perform bed mobility and transfers with least amount of assistance
- Ambulation with safest/least restrictive device for 50-100 feet
- Protect healing tissue
- Stair negotiation and car transfers
- Independent with home exercise program (HEP)
- Initiate home health care – schedule outpatient physical therapy to begin day 21

Interventions *(Exercise list is not exhaustive)*

Therapeutic Exercise / Activities / Neuromuscular Re-Education (NMRE)

- Ankle pumps
- Isometrics- quad sets, glute sets
- Long-Arc Quad (LAQ), Short-Arc Quad (SAQ), Abduction
- Heel slides
- Straight leg raises (SLRs) — avoid with anterior THA

Modalities

- Cryotherapy
  - 5x daily for the 1st week
  - 3x daily for weeks 1-6

Criteria to Progress to Phase II *Criteria supersedes time for progression to next phase

1. Mod I with bed mobility, transfers with appropriate device household distances
2. Independent with precautions and HEP
3. Complete stair training and car transfer, contact guard assist (CGA) to standby assist (SBA)

Criteria for Discharge of Assistive Device * Discuss with your therapist prior to DC

- Hip extension ROM of 5-10 degrees for normalized gait pattern
- Able to complete 5 reps of step-up to a 7" step
- Able to ambulate with minimal to no antalgia or asymmetry
- Demonstration of adequate strength and balance during functional activities

Criteria to Return to Driving:

- MD clearance
- Off narcotics
- *Passing of Driving Step Test
- If surgical side is right lower extremity: Able to perform 2 sets of 10 SLRs without quad lag
- Typical:
  - L side—3 weeks
  - R side—4-6 weeks

Phase II Range of Motion and D/C of AD

PHASE II: Day 3 - 6 weeks

Precautions

- Maintain THA precautions
- Lateral approach caution: Excessive early active abduction may increase the risk of scar tissue formation

Goals

- Protect healing tissue
- Control pain and edema
- **DVT Prevention – out of bed at least every 90 mins during waking hours**
- Gradually restore comfortable ROM within precautions
- Normalize muscle activation
- Promote safe ambulation, beginning with assistive device and progressing towards normalized gait mechanics without an assistive device (see additional details below)
- **Promote early and frequent ambulation with home program**
- Sit to stand transfer with equal weight bearing of bilateral lower extremities
- Regain independence with ADLs
- Consistent performance of HEP
- Safe stair climbing with progression toward reciprocal gait pattern

Phase II Range of Motion and D/C of AD

Interventions *(Exercise list is not exhaustive)*

Therapeutic Exercise
Early Exercises
- Isometrics + supine core stabilization
- Supine hip abduction
- Bridge
- Mini-squats
- Sit to stand

Late exercises
- Clamshells
- Side-lying hip abduction
- Step-ups
- SLRs (delay until 4-6 weeks with anterior approach)

Range of Motion
- Passive range of motion (PROM), active assisted range of motion (AAROM) and AROM (active range of motion) as tolerated within precautions
- Supine heel slides
- Prone lying
- Stationary bicycle without resistance (raised seat with posterior approach to avoid flexing beyond 90 degrees)

Balance progressions
- Weight shifts for equalization of weight bearing
- Bilateral then progressing to unilateral as able without hip drop
- Stable to unstable surfaces

Gait and Transfer Training
- Progress gait from walker to cane to no device as patient demonstrates adequate balance and LE muscular control
  - With posterior approach, cue on glut activation
  - With anterior approach, avoid over-striding (beyond 5-10 degrees of hip extensions) to protect anterior capsule
  - Promote early and frequent ambulation with home program
- Side-stepping
- Stair training
- Car transfers
- Bed mobility progressions as needed without device

Manual
- Soft tissue mobilizations
- Scar mobilization

Modalities
- Cryotherapy: continue as needed
- Neuromuscular electrical stimulation (NMES) and/or biofeedback as needed for recruitment

Aquatic Exercise
- Incision must be fully closed
- *No earlier than week 4: Discuss with therapist as needed

Criteria to Progress to Phase III *Criteria supersedes time for progression to next phase
1. Good muscular activation patterns
2. Independent community ambulation (>800 feet) without assistive device, compensations or antalgia
3. Minimal pain or swelling
4. *TUG time of 12 seconds
5. 30 second sit to stand: Male 10* Female 9*

*Appendix B

*Aquatics: Dr. Cohen-Levy no earlier than week 8 and requires physician clearance

Phase III Pain Free ADLs

PHASE III: 6- 12 weeks

Precautions

- Standard THA precautions up to week 12 until lifted — may vary per surgeon, especially with respect to anterior approach
- Monitor for signs and symptoms of hip flexor tendonitis
- No impact activities
- Avoid floor height lifts with excessive hip flexion
- Post activity soreness should resolve within 24-48 hours

Goals

- Increase strength and endurance
- Recruitment of gluteal muscles, abductors and pelvic control
- Walk community distances and up to a mile without limp or compensation
- Pain-free ADL function. Discomfort and stiffness may remain, or some pain with or after over-activity, etc.
- Good hip ROM within precautions
- Good hip control and LE strength with stairs, single leg stance (SLS), ADLs and most light to moderate work-type activity
- Return to most light to moderate work activity

Interventions *(Exercise list is not exhaustive)*

Range of Motion

- Continue as per Phase II as needed and increase ROM of hip within precautions

Therapeutic Exercises

- Continue prior exercises as needed — strengthening, core, hip, knee, ankle, etc.
- Can advance resistance slowly and as appropriate — bands, ankle weights, etc.
- Sidestep with band
- Quadruped exercises

Late exercises

- Leg press
- 3-way hip on uninvolved extremity
- Gentle hip flexor stretches and other hip muscle stretching as needed, monitor precautions
- Work on ADL and work specific activity
- Cardiovascular can include bike, elliptical, treadmill walking, LE or upper body ergometer, and basic swimming if incision healed

Balance progressions

- Continued progression of prior balance exercises, exercises with continued progression from floor to dynamic surfaces
- Backward ambulation, reaching activities, standing with eyes closed, head turns, etc.
- Perturbations on floor or foam
- SLS activities as appropriate
- Cognitive multi-tasking

Gait and Transfer Training

- As needed

Manual

- As needed

Modalities

- Cryotherapy, NMES, biofeedback and transcutaneous electrical nerve stimulation (TENS) as needed

Aquatics

- *As needed and ONLY once incision fully closed

Criteria to Progress to Phase IV *Criteria supersedes time for progression to next phase

1. Normal, pain free hip ROM within any remaining precautions
2. Normal gait community distances and up to a mile
3. At least good (4+/5) LE strength or <15% deficit bilaterally
4. *Score of 0-1 on the Forward Step-Down Test

*Appendix B

*Aquatics: Dr. Cohen-Levy no earlier than week 8 and requires physician clearance

Phase IV Pain free ADLs and Return to Recreational Activities

PHASE IV: 12 Weeks and Beyond

Precautions and Considerations for Return to Recreational Activities

This phase is only required for patients who wish to participate in moderate-impact recreational sports and/or return to work that involve walking on uneven ground, climbing, and carrying objects like construction or other trades.

- Patients who wish to return to moderate-impact activities such as doubles tennis, doubles pickle ball, horseback riding or downhill skiing should only be on a case-by-case situation and should be cleared by their surgeon, meet the criteria and complete moderate impact training
- Running, jumping and contact sports are generally not recommended after a THA; therefore, low- to moderate-impact activities are suggested in place of high-impact sports

Goals

- Correct compensatory movement patterns
- Ongoing interventions to improve neuromuscular control and proprioception
- Progressively return to recreational activities by increasing aerobic participation and restoring cardiovascular fitness

Interventions *(Exercise list is not exhaustive)*

Low-Impact Activities

- Therapeutic exercise and balance progressions
- Leg press
- *Squats
- Reactive motor control drills
- Progress core stability
- *Deadlifts
- *Lunges
- Continue with aggressive strengthening including double leg (DL) to single leg (SL) strengthening
- Advance cardio training (bike, elliptical, row)

Therapeutic Exercise and Impact Progressions

- Progress from single to multiplanar movements with emphasis on neuromuscular control
- Sport-specific drills that fit low- to moderate-impact guidelines

Criteria to progress to moderate impact activities* *Physician clearance required

1. Restore to functional, pain-free ROM
2. >85% strength compared to uninvolved LE
3. Perform 10 forward step downs without dynamic knee valgus, pelvic drop or hip adduction
4. Patient demonstrates proper LE mechanics with functional testing and moderate impact activities

*Modified range recommended. Limit hip flexion ROM during lifts.
*Dr. Cohen-Levy – body weight max lift. Discuss with physician.

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Reviewed January 2025: Mario Gastaldo, Julie Drew, Danielle Ross, Lauren Frawley

Physician Review February 2025: Dr. Cohen-Levy and the physician group at the Center for Orthopedics

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Global Precautions

Appendix A

GLOBAL HIP PRECAUTIONS: Follow until told otherwise by your surgeon.

- Do NOT bend your hip beyond 90 degrees (don't reach beyond your knee).
- Do NOT sit on a low surface (chair, toilet, or sofa). Your knees should NOT be higher than your hips.
- Do NOT roll your leg inward or outward or twist your trunk over your legs. Pick up your feet when you turn.
- Do NOT let your surgical leg cross midline. When rolling, put a pillow between your legs.
- Do NOT reach to put socks on or tie your shoes.
- Do NOT cross your knees or legs.
- Do NOT lie completely flat. Elevate your trunk.
- Do NOT lie on your stomach.
- Do NOT bridge your hips up when lying down.
- Do NOT kick your leg away from your body.

WEIGHT BEARING (TBD by physician): _____ x _____ weeks

Functional Testing

Appendix B

Return to driving step-test
Set-up: Patient is seated with hips and knees flexed to 90 degrees. An object measuring 2.5cm x 2.5cm x 30cm is placed alongside the patient's right foot. The patient is educated to step across the object back and forth for 10 seconds. Each step must involve firmly planting the heel.

Passing Score: 13 steps

Forward step-down test
The Forward Step Down Test (FSDT), involves stepping down from a stair in order to enable the visual assessment of movement quality during weight bearing on one leg while performing flexion and extension of the knee. During the test, observation is being performed to evaluate joints alignment and neuromuscular control.

Subjects stand on a 20cm step with arms across chest. They are instructed to step down to the floor while keeping balance on the weight bearing leg. Once their heel touches the floor, they are instructed to return to the starting position. They repeat this for 5 repetitions with a rate of 1 step down per 3 seconds. 3 practice trials are recommended.

Criteria	Interpretation	Score
Arm Strategy	Subject used his arms in an attempt to recover balance	+1
Trunk Strategy	Trunk leaned to one side	+1
Pelvic Plane	Pelvis rotated or elevated	+1
Knee Position	Knee deviated medially, and the tibial tuberosity is medial to second toes	+1
	Knee deviated medially and the tibial tuberosity is medial to medial boarder of foot	+2
Steady Stance	Subject stepped down on the non-tested side or became unsteady	+1

Total score of 0 or 1 is classified as good quality of movement
Total score of 2 or 3 is classified as medium quality
Total score of 4 or above is classified as poor quality of movement

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Functional Testing

Appendix B

Timed Up and Go

Purpose: Identify fall risk based on the functional task of getting out of a standard chair (seat height 46 cm, arm height 65 cm), walking 3 meters, turning, and walking back to sit in the chair.

Equipment: standard chair, 10-ft walkway, stopwatch

Procedure: The subject wears their regular footwear and uses their customary walking aid (none, cane, walker) Instructions to the patient: "When I say 'go,' I want you to stand up and walk to the line, turn and then walk back to the chair and sit down again. Walk at your normal pace."

Considerations: Despite simplicity, TUG tests multiple components of balance and mobility. Does not have ceiling effect. Includes executive function. Appropriates initiation, acceleration and deceleration. Assesses an everyday motor task.

Recommendations: one practice trial

Goal: 12 seconds or less. An adult who takes greater than 12 seconds is at higher risk for falls.

30 Second Sit to Stand

Equipment: Stopwatch, standard chair 17" height

Purpose: Functional assessment of LE strength, discriminates those with low and high levels of functional activity, designed to overcome floor effect of 5x sit to stand

Procedure: stabilize the chair against wall, 17" height. Instruct patient to cross arms and try to stand up without use of arms. "Go" — patient rises to full standing and sits as many times as possible. Score a "0" for the test if patient is unable to do 1 rep.

Adaptations: Permitted but must be documented and cannot be compared to norms

Normative Values:

Males:

% Rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	23	23	21	21	19	19	16
75	19	18	17	17	15	14	12
55	17	16	15	15	13	12	10
35	15	13	13	12	11	9	8
15	12	11	10	10	8	6	6
5	9	8	8	7	6	4	3

Females:

% Rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	21	19	19	19	18	17	16
75	17	16	15	15	14	13	11
55	15	14	13	13	12	11	9
35	13	12	11	11	10	9	6
15	10	10	9	9	7	6	3
5	8	8	7	6	4	4	0

Surgeon Preferences: Post-Op/Discharge

	Shroyer	Cohen-Levy	Feighan	Fitzgerald	Ochenjele	Sontitch	Siljander	McElroy	Jonard
DC ABX		High Risk		x	X	X	High Risk	High risk	
Ace Wrap Removal (Knees)		On DC Home	On DC home	On DC Home	On DC Home	On DC Home	POD 2	On DC home	POD #3
Anticoagulant		ASA 81 BID	ASA 81 BID, Eliquis if high risk	ASA 81 BID, Eliquis if high risk	ASA 81 BID, Xarelto if high risk	ASA 81 BID, Xarelto if high risk	ASA 81mg BID ASA 325mg BID if mod risk Xarelto if high risk	Asa 81 BID Eliquis 2.5 BID high risk	ASA 81mg BID
Drains		**Knees Only -** If indicated based on patient	No, only if indicated. DC prior to DC	**Knees Only** - cover with folded ABD x2 and 6' ace wrap	**Hips Only** Based on patient. Usually removed on DC Home	X	**Knee Only -** If indicated based on patient need/Revision; Remove on DC home	Rarely (PRN revisions)	X
Dressing Removal		**1 week** - Patient or Homecare to remove / Steri-strips stay on for two weeks	1 week - Patient or Homecare to remove Mepilex /Prenia mesh stay on for two weeks	**1 week** - Patient or Homecare to remove / Steri-strips stay on for two weeks	**1 week** - Patient or Homecare to remove	1 week - Patient or Homecare to remove / Steri-strips stay on until they fall off or POV	**1 week -** Patient or Homecare to remove. Patient to have primary dressing and pin site dressing	**1wk:** Removal by patient or home care. Steri strips 2wks	7-10 days
Follow-Up		4 Weeks	2 weeks	6 Weeks	4 weeks	3-4 weeks	2 Weeks	2wks	2-4 weeks
PT		Homecare; Outpatient PT for knees and hips	Homecare	Homecare; Outpatient PT for knees	Homecare	1. Homecare 2. Outpatient PT for knees only	1. Home Care 2. Outpatient PT for all knees & highly motivated hips	Home care for all. Outpatient PT for all knees, some hips at pt request	Homecare
Shower		1 Day	1 day	On DC Home	1 day	1 Day but reinforce knee dressing by wrapping plastic/bag	On DC home	1d	POD #1
TEDs		Knee High x 4 Weeks	Knee High x 4 Weeks	Knee High x 4 Weeks	knee high x 4 weeks	knee high x 4 weeks	Knee High x 4 Weeks	Wks 1-2: Thigh high Wks 3-4: Knee high	High knee 4 weeks
X-rays		Pelvis 1 or 2 View	AP Pelvis PACU	Pelvis 1 or 2 View	Pelvis 1 or 2 views	Pelvis 1 or 2 views Knee 1 or 2 views	Hip: AP Pelvis in PACU Knee: AP/lat in full extension in PACU	Knee: PACU AP/lat in full extension	Pelvis 1 or 2 view

This document sis meant to serve as a reference for excepted orders and does not take place of active or missing orders. Specific orders are subject to change based on patient condition. If you notice an order is missing or need to clarify, please reach out to the surgeon to discuss.