Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

THE CENTER
ORTHOPEDIC & NEUROSURGICAL CARE & RESEARCH

Total Hip Arthroplasty/Hemiarthroplasty Protocol:

The intent of this protocol is to provide the clinician with a guideline of the post-operative rehabilitation course of a patient that has undergone a total hip arthroplasty. It is no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient, they should consult with the referring surgeon.

This protocol applies to the standard total hip arthroplasty/hemiarthroplasty and hip resurfacing. In a revision total hip arthroplasty, or in cases where there is more connective tissue involvement or bone grafting, Phase I and II should be progressed more cautiously to ensure adequate healing.

It should also be noted that some surgeons are more frequently discharging patients without an outpatient physical therapy referral and instead utilize the Force application, which guides patient through exercise programs based on their timeline progressions.

Progress to the next phase based on Clinical Criteria and/or Time Frames as appropriate.

Dislocation Precautions:

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. Precautions include:

- **Posterior Precautions**:
  - No hip flexion >90 degrees
  - No hip internal rotation or adduction beyond neutral
  - None of the above motions combined
- **Anterior Precautions**:
  - No hip extension or hip external rotation beyond neutral
  - No bridging, no prone lying, and none of the above motions combined
  - When the patient is supine, keep the hip flexed at or above 30 degrees
    - Pillow under the patient's knee or raise the head of the bed
- **Direct Anterior Precautions**:
  - No full bridging
- **Lateral Precautions**:
  - Hip abduction restrictions
- **Limited Precautions**:
  - Either posterior or direct anterior approach
  - Avoid any extremes of movement or uncomfortable positions
- **Global Precautions**:
  - Combination of both anterior and posterior precautions, described above
  - Often ordered for patients following hip resurfacing, due to full exposure of the femoral head and opening of joint capsule during surgery. Also often ordered after revision surgery due to a history of dislocations.

Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

- **No Dislocation Precautions**:
  - Determined by the surgeon, often after anterolateral and minimally invasive surgical approaches or hemiarthroplasty procedures
  - Do not assume there are no precautions if none are documented – clarify with the surgical team

All precautions are followed at least until the initial post-operative appointment and then as directed by the surgeon.

Weight Bearing Precautions:

Weight bearing precautions can vary and are determined by the surgeon on an individual basis. Patients are commonly discharged from the hospital as weight bearing as tolerated (WBAT). Partial (PWB) and greater weight bearing limitations such as touch toe (TTWB) are more often prescribed after complex revision surgeries, those requiring bone grafting, or those with intra-operative complications.

Trochanteric Precautions:

A trochanteric osteotomy may be performed with complex revisions, certain surgical procedures, and to gain better exposure of the joint space. In the post-operative order set this will present as "*Trochanter removed*" or "*Troch off precautions*." Active hip abduction exercises may be restricted due to the force of the contraction of the gluteus medius on the reattached greater trochanter. The surgeon may restrict the patient to:

- Passive Abduction Only
  - A patient may use a leg lifter or assist to abduct the operative extremity.
- Functional Abduction Only
  - No isolated hip abduction exercises, but the patient may perform functional mobility tasks that require hip abductor use such as bed mobility and ambulation.

Phase I – Immediate Post-Surgical Phase (Day 0-3):

Goals:

- Enable patient to perform bed mobility and transfers out of bed to chair/toilet as independently as possible
- Patient education on dislocation precautions, if applicable
- Gait training use of appropriate assistive device if appropriate
- Decrease inflammation, swelling and pain
- Initiate home exercise program focusing on the above as well as increasing ROM

Precautions:

- Follow appropriate surgical approach precautions and weight bearing precautions specified by the surgeon
- Range of motion as tolerated unless otherwise noted by surgical team
- Avoid torque or twisting forces
- No exercises with weights or resistance other than body weight

Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

- Observe for signs of hip dislocation
    - Signs include uncontrolled pain, an obvious leg length discrepancy, and/or the leg may appear rotated as compared to the non-operative extremity
- Observe the patient's hip dressing and wound
    - Note skin discoloration, edema, and dressing integrity
    - If large amount of drainage or blistering/frail skin, discuss with nursing
    - Contact surgical team if excessive bleeding or poor incision integrity
- Monitor for signs of pulmonary embolism, deep vein thrombosis, and/or loss of peripheral nerve integrity
    - In these cases, notify the MD immediately

Positioning Considerations:

- Bed position:
    - Posterior/Global Precautions
        - Foot of the bed shoulder be locked in a completely flat position
        - Nothing placed behind/under the knee
    - Anterior Precautions:
        - Foot of the bed may be unlocked and flexed while in supine
        - Pillow under the knee to maintain slight hip flexion

A trochanter roll should be used as needed to maintain neutral hip rotation when supine and thereby promote knee extension. A trochanter roll is a towel roll that is placed next to thigh just proximal to the knee.

A hip abduction pillow may be indicated in bed with posterior precautions or global precautions. Most often ordered with revision surgeries.

Therapeutic Exercise and Functional Mobility:

- Active/active assisted/passive (A/AA/PROM) supine and seated exercises including ankle pumps, heel slides, hip internal and external rotation, long arc quads, seated hip flexion, and hip abduction/adduction (if no troch off precautions)
- Isometric quadriceps, hamstring, and gluteal exercises
- Lower extremity range of motion (ROM) and strengthening as indicated based on evaluation findings
- Closed chain exercises (if patient demonstrates good pain control and muscle strength)
    - Consider bilateral upper extremity support to maintain weight bearing precautions
- Bed mobility on a flat bed and transfer training
- Gait training on flat surfaces with an appropriate assistive device
- Progress to stair training with upper extremity support if the discharge plan is home
- Patients are seen by Occupational Therapy (OT) for education regarding how to perform activities of daily living (ADLs) with modified independence
    - If the patient is discharged to a rehabilitation facility, they will receive OT at rehab

Criteria for Progression to the Next Phase and Discharge to Home:

- Minimal pain and inflammation
- Independent bed mobility, transfers, and ambulation at least 100 feet with appropriate assistive device

Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

- Ability to ascend/descend stairs independently or with appropriate available assistance
- Independent maintenance of post-operative precautions and home exercise program
- Ability to safely perform ADLs independently or with appropriate available assistance

Phase II – Motion Phase (Weeks 1-6):

Goals:

- Initiate outpatient physical therapy as early as week 2
- Improve range of motion (ROM) within dislocation parameters
- Decrease post-operative inflammation/swelling
- Muscle strengthening of the entire hip girdle of the operative extremity with focus on:
    - Hip abductor and extensor muscle groups
    - Lumbopelvic and core stability
    - Any notable weakness present in the operative extremity
    - Any generalized weakness in the trunk or contralateral lower extremity
- Proprioceptive training to improve body/spatial awareness of the operative extremity
- Endurance training to increase cardiovascular fitness.
    - Consider upper extremity endurance training if limited by precautions
- Gait training
    - Assistive devices are discontinued when the patient can ambulate without pain, balance difficulties, or a positive Trendelenburg test
    - Progress stair training with appropriate upper extremity support
- Functional training to promote independence with ADLs/IADLs

Joint Specific Outcome Measure: It is recommended upon the start of postoperative care in the ambulatory clinic that the patient completes a functional outcome measure during the first ambulatory visit. This measure is then completed every 30 days and upon discharge from physical therapy. Favorable options include:

- Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)
- Hip Disability and Osteoarthritis Outcome Score (HOOS)
- Lower Extremity Functional Scale (LEFS)

Precautions:

- Most surgical precautions are lifted between weeks 3-6
    - Refer to surgical team instructions

Therapeutic Exercise and Functional Mobility:

Weeks 1-3

- AA/A/PROM, stretching for hip abduction ROM within precautions
- Continue isometric quadriceps, hamstring, and gluteal isometric exercises
- Heel slides

Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

- Gait training to improve function and quality of involved limb performance during swing through and stance phase
    - Patients are encouraged to wean off their assistive device between weeks 2-3
- Postural cues/re-education during all functional activities as indicated
- Balance/Proprioception Training:
    - Weight-Shifting Activities
    - Closed Kinetic Chain Activities
- Modalities at the discretion of the therapist based on clinical findings

Weeks 3-6

- Continue above exercises
- Stretching (with consideration of dislocation precautions)
- Front/lateral step up and step down
- 4-way straight leg raise (SLR) with consideration of dislocation precautions
- Sit-to-stand to increase hip extension strength during functional tasks
- Sidestepping, backwards ambulation, and ambulation on uneven surfaces
- Lifting/Carrying. Pushing/Pulling, Squatting tasks
- Return-To-Work Tasks
- Can begin aquatic program if incision is completely healed
- Stationary bike, progress resistance starting at 3-4 weeks per patient tolerance

Criteria for Progression to the Next Phase:

- Active hip flexion range of motion 0-110’
- Good voluntary quadriceps control
- Independent ambulation 800ft without assistive device, deviations, or antalgic pattern
- Minimal pain and inflammation

Phase III – Intermediate Phase (Weeks 6-12):

Goals:

- Improve strength of all lower extremity musculature
- Return to most functional activities and begin light recreational activities
    - Pool/Aquatics, Walking, Stationary bike (resisted)

Therapeutic Exercise and Functional Mobility:

- Continue Phase II exercises with progression including resistance and repetitions
- Assess hip, knee, and trunk stability - provide patients with open/closed chain and dynamic activities that are appropriate for each patient’s individual needs
- Initiate endurance program, which could include walking, stationary bicycle, elliptical and/or pool (aquatics or swimming)
- Initiate and progress age-appropriate balance and proprioception exercises

Adam Lindsay, MD, M.S.
Shoulder Arthroplasty, Sports Medicine, Orthopedic Trauma Surgery
TheCenterOregon.com/Lindsay
www.lindsaysportsmed.com/
(P) - 541.382.2233

Criteria for Progression to the Next Phase:

- 4+/5 muscular performance based on MMT of all lower extremity musculature
- Minimal to no pain or swelling

Phase IV – Advanced Strengthening/Return to Activity Phase (Weeks 12-16):

Goals:

- Return to appropriate recreational sports/activities as indicated
- Enhance strength, endurance and proprioception as needed for activities of daily living and recreational activities

Therapeutic Exercises:

- Continue prior exercises with progression of resistance, repetitions, and dynamic tasks
- Increased duration of endurance activities
- Initiate sport/activity-specific training
- Carrying, Pushing, or Pulling
- Squatting or Crouching
- Return-To-Work Tasks

Considerations for Return to Sport:

Current recommendations to maximize longevity and success of arthroplasty encourage patients to return to lower impact activities, such as swimming, golfing, walking, doubles tennis, dancing, or biking.

Higher impact activities including jogging, football, soccer, and basketball are generally discouraged, but consideration must be given to patients' goals. Several studies show that a patient's level of experience with a recreational activity is an important consideration when recommending return to physically demanding tasks such as skiing, hiking, or horseback riding.

Criteria for Discharge:

- Pain-free AROM of operative hip
- Non-antalgic, independent gait without assistive device
- Independent step-over-step stair negotiation
- At least 4+/5 MMT of all lower extremity musculature
- Normal, age-appropriate balance and proprioception
- Patient is independent with home exercise program
- Patient has returned to previous level of function