

ADDUCTOR LENGTHENING POST-OPERATIVE GUIDELINES

The following hip adductor lengthening guidelines were developed by HSS Rehabilitation. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression and will be dependent on the patient's prior level of function, surgeon specific parameters, concomitant surgeries, and the patient's response to physical therapy (PT) intervention. Tendon lengthening(s) are often part of a multilevel surgery, which includes multiple soft tissue and/or skeletal procedures that occur during one anesthetic event. **It is important to review the guidelines for each individual procedure.**

As part of a comprehensive PT evaluation and plan of care development for an individual with cerebral palsy, the clinician may also need to assess for additional pathology, such as spasticity or selective motor control impairment, that may alter the postoperative PT timeline and overall outcomes. The assessment parameters within these guidelines are recommended for the post-operative phase of this specific surgical procedure and may need to be modified on a case by case basis. In addition, the clinician must take patient/caregiver goals, access to care and equipment, and barriers to learning into consideration when developing a postoperative plan of care. Cardiovascular endurance, postural control activities, and upper body, lower body and trunk strengthening should be addressed throughout the patient's rehabilitation course as appropriate. Criteria for discharge following the final phase is characterized by the completion of the **post-operative** PT plan of care. Some individuals may transition to episodic care based upon functional goals of the patient/caregiver(s).

A hip adductor lengthening is indicated for individuals with cerebral palsy who are ambulatory and non-ambulatory. Tightness of the hip adductors may contribute to gait deviations such as a 'scissoring' pattern or a narrow base of support leading to increased incidence of tripping. Hip adductor tightness can also lead to difficulty with positioning in bed, in a wheelchair and with activities of daily living (ADL) such as lower body dressing and hygiene. In addition, limitations in hip abduction range of motion may play a role in progressive hip displacement in this population (Shore et al., 2012). Hip adductor lengthening(s) are often performed in combination with skeletal procedures of the hip such as proximal femoral and acetabular osteotomies.

Italicized information is not intended to be all inclusive and is designed to suggest examples of functional activities or therapeutic exercises that can be performed during each phase.

Follow physician's modifications as prescribed.

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Acute Care Phase: Post-Operative Day 1 to Hospital Discharge

EMPHASIZE

- Early range of motion (ROM) and positioning
- Parent/caregiver independence with home exercise program (HEP)

PRECAUTIONS

- Avoid prolonged periods of hip adduction in all positions
- Avoid increased pain with therapeutic exercise and functional activities
- Monitor incision site(s) for color changes, swelling, discharge, or drainage
- Weight bearing status: weight bearing as tolerated (WBAT)

ASSESSMENT

- Preoperative functional and cognitive status
 - Gross Motor Function Classification System (GMFCS)
- Pain
 - Face, Legs, Activity, Cry, Consolability scale (FLACC); Wong Baker FACES (FACES); Numeric Rating Scale (NRS)
- Muscle spasms
- Integumentary status
- Sensation
- ROM and flexibility
- Post-operative functional mobility (bed mobility, transfers, ambulation, stair negotiation)
- Home environment (stairs, time with direct caregiver support/supervision)
- Equipment needs for discharge (reclining wheelchair, assistive device, abduction pillow as needed)

TREATMENT RECOMMENDATIONS

- Positioning
 - Abduction pillow
 - Place towel roll under ankles to elevate the heels in supine and in wheelchair to:
 - Promote pressure relief of heel(s)
 - Encourage passive knee extension
- ROM and flexibility
 - Gentle active, active assisted, and passive ROM (A/AA/PROM) with emphasis on hip abduction

- Functional activities
 - Bed mobility, transfers (sit to stand, bed to chair) with assistive device and assistance, as needed
 - Ambulation with assistive device
 - Stair training with assistance as needed
- Other
 - Cryotherapy for comfort

CAREGIVER EDUCATION

- HEP
 - A/AA/PROM of lower extremities with emphasis on hip abduction
- Positioning
 - Maintaining hip abduction in all positions
 - Use of pillow between legs as needed
 - Place towel roll under ankle to elevate the heels in supine and in wheelchair
- Functional mobility
 - Transfers and ambulation with assistive device and assistance, as needed
 - Use of wheeled mobility for longer distances, as needed
- Other
 - Equipment safety and management
 - Cryotherapy for comfort
 - Continuation of skin checks and monitoring of incision site(s)

CRITERIA FOR ADVANCEMENT

- Equipment needs met for safe discharge home
- Postoperative spasms, pain, and swelling are controlled
- Patient/caregiver is independent with positioning, transfers, ambulation, and HEP

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Post-Operative Outpatient Phase: Hospital Discharge to 8 Weeks

EMPHASIZE

- Hip abduction range of motion
- Hip abductor strength
- Quality and efficiency of gait

PRECAUTIONS

- Avoid prolonged periods of hip adduction in all positions
- Avoid increased pain with therapeutic exercise and functional activities
- Monitor incision site(s) for color changes, swelling, discharge, or drainage
- Weight bearing status: WBAT

ASSESSMENT

- Pain (FLACC, Faces, NRS)
- Muscle spasms
- Integumentary status
- Available equipment (activity chair, stander, posterior rolling walker)
- Postural alignment in standing (pelvic, trunk alignment, and proximal lower extremity)
- ROM and flexibility
 - A/AA/PROM hip abduction
 - Knees extended/flexed
 - A/AA/PROM of lower extremities
- Strength
 - Hip abductors
 - Functional strength assessment
 - Sit to stand/stand to sit with graded control
 - Squat
 - Floor to stand transfer
 - Step-up/step-down
- Functional mobility
 - Independence with bed mobility, transfers, and ambulation
 - Tolerance for weight bearing activities

- Observational gait
 - Procedure-specific observations
 - Presence/absence of lower extremity scissoring
 - *Edinburgh Visual Gait Score (EVGS)*
- Postural control
 - Steady state and dynamic (anticipatory and reactive postural control) in sitting and standing
 - *Pediatric Balance Scale, Functional Reach*

TREATMENT RECOMMENDATIONS

- ROM and flexibility
 - A/AA/PROM of lower extremities with emphasis on hip abduction
 - Hip flexor and hamstring stretching
- Strengthening
 - Hip abductors
 - *Clamshells, side stepping, resistive bands*
 - Hip extensors
 - *Bridges, retro-walking, resistive bands*
 - Knee extensors
 - *Quad sets, step-ups, leg press*
- Functional Activities
 - Sit to stand/stand to sit transfers with emphasis on graded control
 - Progress ambulation (distance, level of assistance) and stair negotiation with assistive device, and assistance, as needed
- Postural control activities
 - Steady state and dynamic (anticipatory and reactive postural control) in sitting and standing
 - *Reaching without support, throwing/catching without support, stop and go while walking, direction changes*
 - Progression from static to dynamic activities as appropriate
- Gait specific activities
 - Activities to promote an increased base of support

CAREGIVER EDUCATION

- HEP
 - A/AA/PROM of lower extremities with emphasis on hip abduction
 - Therapeutic exercises *such as bridges, clamshells, side stepping, step up*
- Positioning
 - Maintaining hip abduction in all positions
 - Use of pillow between legs as needed
- Functional mobility
 - Transfers, standing, ambulation, and stair negotiation with progression toward preoperative level of assistance and use of assistive device as needed
- Other
 - Cryotherapy for comfort
 - Monitoring of incision site(s)
 - Equipment safety and management
 - Return to equipment used preoperatively, as appropriate

CRITERIA FOR DISCHARGE *defined as completion of post-operative PT episode of care

- Able to ambulate pre-operative distances with preoperative level of assistance and use of assistive device as needed
- Able to discontinue use of wheeled mobility for longer distances if not used preoperatively

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