Rehabilitation for Extra-Articular Hip Pathology

GLUTEUS MEDIUS REPAIR
PROXIMAL HAMSTRING REPAIR
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I HAVE NO FINANCIAL DISCLOSURES TO REPORT

Gluteus Medius Functions

- The posterior portion of the gluteus medius (along with the gluteus minimus) stabilizes the femoral head into the acetabulum during gait.
- The anterior and medial fibers of the gluteus medius help to initiate abduction (the TFL is the main abductor) and support the body while in single leg stance.
- With the hip extended, the gluteus medius acts as an external rotator.

Gluteus Medius Functions (con’t)

- Maintains a level pelvis
- Minimizes genu valgus

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Post-operative Gluteus Medius Repair

- Phase 1 - weeks 0-6 (protection phase)
  - 20# FFWB with A.D for 6 weeks
  - PT 2x/week
  - Scar management
  - Soft tissue mobilization
  - Edema management
  - Isometric hip exercises and core strengthening
  - Quadruped rocking
  - At 4 week can increase therapeutic exercises
    - Bridges
    - Advance core strengthening
    - Isometric hip flexion (sub-maximal)
  - PROM within ROM limitations
    - Hip flexion to 90 degrees
    - Abduction as tolerated
    - No active abduction and IR, no passive ER or adduction (6 weeks)

Phase 1 (con’t)

- Avoidance of hip flexor tendinitis/trochanteric bursitis
- Stationary bike 20 minutes/day
- CPM 4 hours/day (decrease 1 hour/20 minutes of stationary bike)
- May begin aquatic exercises in shallow end at 4 weeks

Phase 2 (Gait Progression)

- Frequent Gait Deficits
  - Decreased stride length on the affected side
  - Increased trunk rotation
  - Decreased PF during push off

- Weakened Muscle
  - Gluteus Medius
  - Iliosposas

- Compensatory Muscles
  - Glut min./Glut max./Semimembranosis/Psoas
  - Rectus Femoris/ Adductor
  - Longus/Biceps Femoris, Gastroc
Phase 3 and Phase 4 (Strength and Functional Activity Progression)

- Exercise Progression to target the Gluteus Medius
  - Sagittal plane exercises for gluteus medius stabilization of a level pelvis

Exercise Progression to target the Gluteus Medius (con't)

- Combination of 2 functions: Abduction and Lateral Rotation

Exercise Progression to target the Gluteus Medius (con't)

- Lumbo-pelvic and hip control of multiple planes of movement
Exercise Progression to target the Gluteus Medius (con't)

- Multi-planar stabilization of the trunk and pelvis in weight bearing (trunk in vertical alignment)

Exercise Progression to target the Gluteus Medius (con't)

- Control of pelvis-on-femur abduction and adduction

Exercise Progression to target the Gluteus Medius (con't)

- Increased activation with an increased excursion of the body's center of mass
**Proximal Control**

- DO NOT PROGRESS YOUR PATIENT UNTIL THIS HAS BEEN SUFFICIENTLY ACHIEVED!!!

**Tactile Cueing**

- Important with gait training, exercise and neuromuscular re-education!!!!
- Communication between patient and therapist
- Verbal and tactile cues should be used in unison
- Prevents compensation
- Objectively measures fatigue

**Phase 4 (con’t)**

- Improve Endurance
- Dynamic balance activities
- Treadmill running program
- Sport specific agility drills and plyometrics
- Precursor to Discharge
  - MMT within 10 percent of uninvolved LE
  - Pain free or at least a manageable level of discomfort with activities
Proximal Hamstring Repair

- Anatomy
  - Origin: Ischial Tuberosity
  - Insertion: Tibia/Fibula

- Main precursors to proximal hamstring tears
  - Muscle tightness
  - Muscular imbalances
  - Poor conditioning
  - Muscle fatigue
  - Choice of activity

Hamstring Functions

- 2 joints crossed (hip and knee) to allow for simultaneous knee flexion and hip extension
  - 2 of the most common movements in sports
  - The HS also works eccentrically at the hip and knee in terminal swing phase
    - Running
    - Kicking
    - Dancing

Proximal Hamstring Repair Phase 1

- PRECAUTIONS
  - AVOID hip flexion coupled with knee extension
  - AVOID unsafe surfaces and environments
  - PT 1x/week
  - Brace: hinged knee brace locked at 45 degrees at all times until week 6
  - TTWB
  - Pain and edema management
  - Gentle soft tissue mobilizations and scar management
  - DVT prophylaxis
Proximal Hamstring Repair Phase 1 (con’t)

- Ankle pumps, abdominal activation, quad sets
- Non-surgical leg single leg balance exercises
- Begin neuromuscular control of the lumbopelvic region
- Prevention of abnormal length-tension relationships
- Pool walking at 3-4 weeks (without hip flexion coupled with knee extension)
- Cardiovascular Exercise: UBE, upper body circuit training

Proximal Hamstring Repair Phase 2 (6 weeks)

- Unlock hinged brace and progress WBing
- Wean from crutches while avoiding gait abnormalities
- Begin isotonic HS strengthening
- Precautions
  - Avoid dynamic stretching
  - Avoid loading the hip at deep flexion angles
  - No impact or running

Proximal Hamstring Repair Phase 2 (con’t)

- Exercise progression criteria
  - Normal gait on all surfaces
  - Ability to carry out functional movements without pain while demonstrating good LE and proximal control
  - Single leg balance greater than 15 seconds
  - Normal (5/5) hamstring strength in prone with the knee in a position of at least 90° knee flexion
Proximal Hamstring Repair Phase 3 (3 months post-op)

- Good control and no pain with sport and work specific movements, including impact
- Avoid pain with all strength training
- Increase functional exercises

Proximal Hamstring Repair Phase 3 (con’t)

- Initiate Eccentric Hamstring Exercises
  - Failure to increase eccentric hamstring strength can predispose patients to subsequent re-injury

Proximal Hamstring Repair Phase 3 (con’t)

- Cardiovascular exercise including bike and elliptical
- Initiate running drills but no sprinting until Phase 4
- Progression criteria
  - Dynamic neuromuscular control with multi-plane activities at low to medium velocity without pain or swelling
  - Less than 25% deficit with HS strength comparison
Proximal Hamstring Repair Phase 4 (4-5 months post-op)

- Goal is good control and no pain with sport and work specific movements, including impact
- Post-activity soreness should resolve within 24 hours
- May initiate sprinting
- Advance eccentric training

Proximal Hamstring Repair Phase 4 (con't)

- Progress toward higher velocity strengthening
  - Plyometrics:
    - Eccentric Phase (loading)
    - Amortization Phase (transition phase—for optimal performance this phase must be short)
    - Concentric phase (contraction)

Proximal Hamstring Repair Phase 4 (con't)

- Return to Sport/Work Criteria
  - Dynamic neuromuscular control with multi-plane activities at high velocity without pain or swelling
  - Less than 10% strength deficit for side to side hamstring comparison
Precursors to Exercise Advancement

- Structure Influences Function
- Function Regulates Performance
- Performance Speed Can Mask Imbalance
- Imbalance Indicates Compensation
- Compensation Predicts Breakdown and/or Poor Performance. Failure to Recognize and Treat may Result in Continued Dysfunction and possible Re-injury.
- Clinical Decision Making is Key!!!

Articles


Articles (con’t)

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