Daniel J. Kaplan, MD
Assistant Professor of Orthopaedic Surgery
Chief, Division of Sports, Bellevue Hospital
Telephone number: 929-455-2500

OPEN OR ENDOSCOPIC HAMSTRING REPAIR REHAB PROTOCOL

Phase 1—Weeks 0-6: NWB, Locked Brace Only

Rehabilitation Goals

1. Initiate home exercise program, including DVT prevention and isometric exercises, allowing for optimal healing
2. Protection of the repaired tendon(s) and pain control
3. **Weight Bearing** - use axillary crutches for up to 8 weeks
4. **Post-operative weeks 0-2**: toe touch weight bearing as tolerated
5. **Brace**: hinged knee brace locked at 45-50 degrees at all times until week 4 (endoscopic) or week 6 (open)
6. Formal PT deferred until **4 weeks (endoscopic)** or **6 weeks (open) post-op**

Precautions

1. ***AVOID*** hip flexion coupled with knee extension (hamstring stretch)
2. ***AVOID*** unsafe surfaces and environments

Suggested Therapeutic Exercises

1. Quad sets
2. Ankle pumps
3. Abdominal isometrics
4. Passive knee ROM without hip flexion during knee extension
5. Scar mobilizations
6. **Cardiovascular Exercise**: Upper body circuit training or upper body ergometer (UBE)
7. **Post-operative weeks 3-4**: Begin pool walking drills (if incision healed, without hip flexion coupled with knee extension), hip abduction, hip extension, and balance exercises
8. **Progression Criteria**: 6 weeks post-operative

Phase 2—Weeks 6-12: WBAT, Gradual Wean From Brace

Rehabilitation Goals

1. **Post-operative weeks 4-8:** Unlock hinged knee brace to 30 degrees flexion for several days, then 0 degrees flexion/extension. Progress weight bearing as tolerated with weaning from crutches
2. Normalize gait
3. Good control and no pain with functional movements, including step up/down, squat, partial lunge (do not exceed 60° of knee flexion)

Precautions

1. ***AVOID*** dynamic stretching
2. ***AVOID*** loading the hip at deep flexion angles
3. ***NO*** impact or running

Suggested Therapeutic Exercises

1. Non-impact balance and proprioceptive drills – beginning with double leg with gradual progression to single leg
2. Stationary bike
3. Gait training
4. **Begin hamstring strengthening** – start by avoidance of lengthened hamstring position (hip flexion combined with knee extension) via working hip extension and knee flexion moments separately

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Phase 2: Weeks 6-12 – Suggested Therapeutic Exercises continued

   a. Begin with isometric and concentric strengthening with hamstring sets, heel slides, double leg bridge, standing leg extensions, and physioball curls
5. Hip and core strengthening
6. **Cardiovascular Exercise**: Upper body circuit training or UBE
7. **Progression Criteria**
   a. Normal gait on all surfaces
   b. Ability to carry out functional movements without unloading the affected leg or pain while demonstrating good control
   c. Single leg balance >15 seconds
   d. Normal (5/5) hamstring strength in prone with the knee in a position of at least 90° knee flexion

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Phase 3—Weeks 12-16: Sports Specific Movements

Rehabilitation Goals

1. Good control and no pain with sport/work specific movements (including impact activities)

Precautions

1. No pain during strength training
2. Post-activity soreness should resolve within 24 hours

Suggested Therapeutic Exercise

1. **Continue/advance hamstring strengthening** – progress toward strengthening in lengthened hamstring positions
   a. Begin to incorporate eccentric strengthening with single leg forward leans, single leg bridge lowering, prone foot catches, and assisted Nordic curls
2. Hip and core strengthening
3. **Impact control** exercises: 2 feet to 2 feet → 1 foot to the other → 1 foot to same foot
4. **Movement control** exercises: low velocity / single plane activities → higher velocity, multi-plane activities
5. Initiate running drills ***(NO sprinting until Phase IV)***
6. **Cardiovascular Exercise:** Biking, elliptical machine, Stairmaster, swimming, and deep water running
7. **Progression Criteria**
   a. Dynamic neuromuscular control with multi-plane activities at low/medium velocity without pain or swelling
   b. **< 25%** deficit for side to side hamstring comparison on Biodex testing at 60° and 240° per second

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Phase 4—Weeks 16-24: Gradual Return to Sports

Rehabilitation Goals

1. Good control and no pain with sport and work specific movements, including impact

Precautions

1. No pain during the strength training
2. Post-activity soreness should resolve within 24 hours

Suggested Therapeutic Exercise

1. **Continue/advance hamstring strengthening** – progress toward higher velocity strengthening and reaction in lengthened positions, including:
   a. Eccentric strengthening with single leg forward leans with medicine ball, single leg dead lifts with dumbbells, single leg bridge curls on physioball, resisted running foot catches, and Nordic curls
2. Running / sprinting mechanics and drills
3. Hip and core strengthening
4. **Impact control exercises**: 2 feet to 2 feet → 1 foot to the other → 1 foot to same foot

5. **Movement control exercises:** low velocity / single plane activities → higher velocity, multi-plane activities
6. Sport/work specific balance and proprioceptive drills
7. Stretching for patient specific muscle imbalances
8. **Cardiovascular Exercise**: Replicate sport or work specific energy demands
9. **Return to Sport/Work Criteria**
    a. Dynamic neuromuscular control with multi-plane activities at high velocity without pain or swelling
    b. **< 10%** deficit for side to side hamstring comparison on Biodex testing at 60° and 240° per second
    c. **< 10%** deficit on functional testing profile