



Hamstring Repair Post-Operative Rehabilitation Protocol

0-6 Weeks (NWB with Crutches and Brace)

- **Weight Bearing Status:** Non-weight bearing (NWB) with crutches and brace for 6-8 weeks.
- **Brace Settings:**
 - Week 0-2: Locked at 60°.
 - Week 2-4: Locked at 40°.
 - Week 4-6: Locked at 20°.
- **Precautions:**
 - Avoid hip flexion coupled with knee extension (to prevent hamstring stretch).
 - Avoid unsafe surfaces and environments.
- **Suggested Therapeutic Exercises:**
 - Quad sets.
 - Ankle pumps.
 - Abdominal isometrics.
 - Passive knee range of motion (ROM) with no hip flexion during knee extension.
 - Post-operative weeks 3-4: Begin pool walking drills (if incision healed, without hip flexion coupled with knee extension).
 - Begin hip abduction, hip extension, and balance exercises.
 - Scar mobilizations.
 - Cardiovascular exercise: Upper body circuit training or upper body ergometer (UBE).

6-12 Weeks (WBAT Progression)

- **Weight Bearing Status:** Begin weight-bearing as tolerated (WBAT) progression starting at 6 weeks. Gradually advance to partial weight bearing (PWB 25% then 50%) and continue progressing to full WBAT.
- **Crutches:** Wean off crutches once gait normalizes and is non-antalgic.
- **Rehabilitation Goals:**
 - Begin pain-free functional movements:
 - Step up/down.
 - Squat.

- Partial lunge.
 - **Do NOT exceed 60° of knee flexion.**
- **Precautions:**
 - Avoid dynamic stretching.
 - Avoid loading the hip at deep flexion angles.
 - No impact or running.
- **Suggested Therapeutic Exercises:**
 - Non-impact balance and proprioceptive drills (progress from double leg to single leg).
 - Stationary bike.
 - Gait training.
 - Begin hamstring strengthening (avoid lengthened hamstring position by working hip extension and knee flexion separately).
 - Isometric and concentric strengthening for hamstrings:
 - Hamstring sets.
 - Heel slides.
 - Double leg bridge.
 - Standing leg extensions.
 - Physioball curls.
 - Hip and core strengthening.
 - Cardiovascular exercise: Upper body circuit training or UBE.
- **Progression Criteria:**
 - Normal gait on all surfaces.
 - Ability to perform functional movements without unloading the affected leg or pain, with good control.
 - Single leg balance > 15 seconds.
 - Normal (5/5) hamstring strength in prone with the knee at least 90° of flexion.

12-16 Weeks

- **Rehabilitation Goals:**
 - Achieve good control and no pain with sport and work-specific movements, including impact.
- **Precautions:**
 - No pain during strength training.
 - Post-activity soreness should resolve within 24 hours.
- **Suggested Therapeutic Exercises:**
 - Continue hamstring strengthening—progress to strengthening in lengthened hamstring positions.
 - Begin eccentric strengthening with exercises such as:
 - Single leg forward leans.
 - Single leg bridge lowering.
 - Prone foot catches.
 - Assisted Nordic curls.

- Hip and core strengthening.
- Impact control exercises (progress from 2 feet to 2 feet, then 1 foot to the other and 1 foot to the same foot).
- Movement control exercises (start with low velocity, single-plane activities, then progress to higher velocity, multi-plane activities).
- Initiate running drills, but no sprinting until Phase IV.
- Cardiovascular exercise:
 - Biking.
 - Elliptical machine.
 - Stairmaster.
 - Swimming.
 - Deep water running.
- **Progression Criteria:**
 - Dynamic neuromuscular control with multi-plane activities at low to medium velocity, without pain or swelling.
 - Less than 25% deficit for side-to-side hamstring comparison on Biodex testing at 60° and 240° per second.

16+ Weeks

- **Rehabilitation Goals:**
 - Achieve good control and no pain with sport and work-specific movements, including impact.
- **Precautions:**
 - No pain during strength training.
 - Post-activity soreness should resolve within 24 hours.
- **Suggested Therapeutic Exercises:**
 - Continue hamstring strengthening—progress to higher velocity strengthening and reaction in lengthened positions, including:
 - Eccentric strengthening with single leg forward leans (using a medicine ball).
 - Single leg deadlifts with dumbbells.
 - Single leg bridge curls on a physioball.
 - Resisted running foot catches.
 - Nordic curls.
 - Running and sprinting mechanics and drills.
 - Hip and core strengthening.
 - Impact control exercises (progressing from 2 feet to 2 feet, then 1 foot to the other, and 1 foot to the same foot).
 - Movement control exercises (progressing from low velocity, single-plane activities to higher velocity, multi-plane activities).
 - Sport/work-specific balance and proprioceptive drills.
 - Stretching for patient-specific muscle imbalances.
 - Cardiovascular exercise: Replicate sport/work-specific energy demands.

- **Return to Sport/Work Criteria:**

- Dynamic neuromuscular control with multi-plane activities at high velocity, without pain or swelling.
- Less than 10% deficit for side-to-side hamstring comparison on Biodex testing at 60° and 240° per second.
- Less than 10% deficit on functional testing profile.

Note: Progression through these phases should be based on individual recovery, with all exercises adjusted as necessary under the guidance of your surgeon and physical therapist. Regular follow-ups with the surgical team are crucial to ensure optimal recovery