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Post-Operative PT Protocol: Proximal Hamstring Repair

General Guidelines/ Precautions:

- **Crutches x 5-6 weeks. Begin with Toe-Touch weight bearing for 4 weeks, then Partial weight bearing for 1 week. Begin weight bearing as tolerated in the 6th week and wean from crutches as able** - Avoid unsafe surfaces, uneven ground, etc.
- **Avoid active knee flexion for 6 weeks**
- Avoid hip flexion (lifting knee towards the chest) coupled with knee extension (straightening knee) for 6 weeks
- **A hinged knee brace will be worn for 4-6 weeks** – locked at 30° knee flexion. Discontinue brace after 4-6 weeks (Dr. Haber will determine 4 vs 6 weeks based on how much tension is on the repair). You may remove the brace only for showering and doing gentle passive range of motion exercises per your PT. Please leave this on when you sleep for the first 4 weeks.
- Utilize appropriate clinical judgment with progression through stages (timing of progression may differ slightly from patient to patient)
- **Expected return to sport: approximately 6 months. The following must first be achieved:** Normal gait and running mechanics; >80% hamstring strength and quad strength compared to uninjured extremity with isokinetic testing; no symptoms with sport specific dynamic activities.

Proximal Hamstring Re-attachment Rehabilitation Guideline (28weeks)

Phase	Suggested Interventions	Goals/ Milestones for Progression
Phase I <i>Patient Education Phase</i>	<i>Discuss:</i> Anatomy, existing pathology, post-op rehab schedule, bracing, and expected progressions <i>Immediate Post-Operative instructions:</i> - Gait training/ assisted device/ brace fitting - Avoid coupled hip flexion with knee extension - Toe touch weight bearing w/axillary crutches for up to 6 weeks - Teach patient how to safely transfer with brace on: (supine to sit, sit to stand)	<i>Goals of Phase:</i> 1. Prevention of post-operative complications
Phase II <i>Max Protection Phase</i> Weeks 0-4 Expected visits: 2-5	<i>Weight Bearing:</i> - Utilize Axillary Crutches - Toe Touch Weight bearing <i>Brace</i> - Locked at 30° knee flexion. Discontinue knee brace at end of week 4 (or week 6 based on Dr. Haber's instructions) <i>Precautions:</i> - No Hamstring stretching/long sitting position - Avoid coupled hip flexion with knee extension <i>Suggested Treatments:</i> ROM: hip, knee, ankle PROM to patient tolerance (hip 0-90°) Manual Therapy: soft tissue & patellar mobilization, Modalities as indicated: Edema controlling treatments, NMES <i>Exercise Examples:</i> -Quad sets (sidelying), ankle ABC's, Core stabilization, passive knee ROM, glute squeezes, passive calf stretching with no hip flexion	<i>Goals of Phase:</i> 1. Provide environment of proper healing of repair site 2. Restore ROM within restricted ranges 3. Prevent muscle inhibition <i>Criteria to Advance to Next Phase:</i> 1. Resolution of post-operative swelling/ecchymosis 2. Pain well controlled
Phase III <i>Protection Phase</i> Weeks 4-6 Expected visits: 6-10	<i>Weight Bearing:</i> - Week 4: Continue Toe-Touch weight bearing with crutches - At beginning of week 5, initiate Partial (50%) weight bearing with crutches; Transition to full weight bearing at beginning of week 6 and wean from crutches over 1 week <i>Precautions:</i> - No Hamstring stretching/long sitting position - Avoid coupled hip flexion with knee extension	<i>Goals of Phase:</i> 1. Improve ADL's (stand, stairs, walking, etc.) 2. Improve ROM 3. Progress weight bearing <i>Criteria to Advance to Next Phase:</i> 1. Full weight bearing pain free 2. Level ground ambulation with minimal faults by week 6

Suggested Interventions

Goals/ Milestones for Progression

Phase II (continued)	<i>Suggested Treatments:</i> ROM: progress PROM, begin gentle AROM of hip and knee Manual Therapy: soft tissue, patellar, scar mobilizations Modalities as indicated: NMES if showing quad inhibition <i>Exercise Examples: (Continue with phase II exercises)</i> - Gentle LE AROM exercises (no hamstring contraction), sidelying hip abd/add, hip abduction isometrics, clamshells, <i>Other Activities:</i> - Initiate aquatic exercises if available (fwd/retro ambulation, LE AROM avoiding terminal stretching, partial WB mini-squats)	
Phase IV <i>Motion and Muscle Activation Phase</i> Weeks 6-12 Expected visits: 11-20	<i>Weight Bearing:</i> - Progress to full weight bearing without use of assistive device <i>Precautions:</i> - No running or high impact activities <i>Suggested Treatments:</i> ROM: gentle progressive static stretching, gradually working towards end range Strengthening: begin with mid-range, avoid lengthened hamstring position initially (isometric, eccentric, concentric) Equipment use: stationary bike, elliptical, stair master, treadmill walking when gait mechanics are normal <i>Exercise Examples: (Continue with phase III exercises)</i> 6-8weeks: submax hamstring various angle isometrics, heel raises, single leg balance/proprioceptive activities, hip ext/flex SLR, terminal knee extension, step ups, standing SLR's, supine heel slides 8-12weeks: fwd lunge, SL RDL's, KB swings, bridges, hamstring curls, step <i>Other Activities:</i> Initiate aquatic exercises if available (fwd/retro ambulation, LE AROM, squats, etc.)	<i>Goals of Phase:</i> 1. Restore full ROM & pain free functional movements 2. Normal gait mechanics 3. Improve muscular strength and endurance 4. SLR PROM >70 <i>Criteria to Advance to Next Phase:</i> 1. Pain free ambulation 2. Full hip, knee, and ankle ROM 3. Restoration of full hip strength 5/5 with MMT
Phase V <i>Advanced movement and Impact Phase</i> Weeks 12-16	<i>Precautions:</i> - No pain during strength training - Soreness should resolve within 24 hours <i>Suggested Treatments:</i> - Progress FWB double to single leg plyometrics - Progress strengthening & core stability, begin isokinetics, Nordic hamstring exercises	<i>Goals of Phase:</i> 1. Normal pain-free ADL's 2. Improved hamstring/quad strength 3. Improved single leg proprioception (85% or greater on anterior and posterior lateral reach of Y Balance test)

	Suggested Interventions	Goals/ Milestones for Progression
Expected visits: 21-30	Exercise Examples: (Continue with phase IV exercises) -Progressive height hop downs, lunge matrix, slide board, BOSU, etc. Other Activities: - aquatic or alter-G progressive jogging in partial weight bearing environment	Criteria to Advance to Next Phase: 1. Met all previous phase goals 2. No evidence of dynamic instability with hop downs 3. Cleared by surgeon
Phase VI Return to Sport Phase Weeks 16-28 Expected Visits: 30-36	Specific Instructions: -Initiation of dry land jogging at 16 weeks progressing to running to improve/normalize form and shock absorption (as cleared by MD) -Progression to higher level activities and sports specific activities as strength and control dictate (as cleared by MD) Exercise Examples: -Initiate deceleration -Initiate cutting activities -Initiate agility (floor ladder and cone drills) and sport specific activities	Suggested Criteria for Discharge: 1. <20% hamstring and quad deficit compared to contralateral side with isokinetic testing 2. 45/50 on Biomechanical functional assessment tests (if performed) 3. No pain or complaints of instability with functional progression of sport specific skills 4. 2:3 hamstring to quadriceps ratio with isokinetic testing

****NOTE:** Progression of functional activities should be performed only as pain and proper biomechanics allow. Emphasis should be on proper shock absorption and control of dynamic valgus stress at knee (hip medial rotation with knee valgus) with each task performed. Progression to single limb based tasks (deceleration, hopping, and cutting) should not be performed until double limb activities have been mastered. Activities requiring dynamic control of rotational stress at the knee (cutting, multiple plane lunges/jumps/hops) should not be performed until sagittal and frontal plane control has been mastered. Return to sport may occur at any time during this stage as cleared by physician and as progress and goal achievement occurs.

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