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YOU DESERVE A COMEBACK STORY

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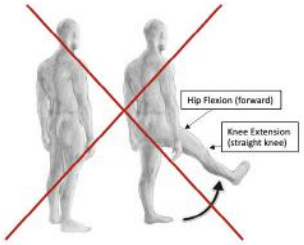
UTAH ORTHOPAEDIC SPECIALISTS

Rehabilitation Protocol for Proximal Hamstring Repair

PHASE I: *Immediate Post-Op* (0-2 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Allow healing of repaired tendon • Initiate early restricted and protected ROM • Prevent muscular atrophy • Decrease pain and inflammation
Weight Bearing	• Touch-down weight-bearing (TDWB) with crutches
Precautions	• Avoid hip flexion with knee extension • Limit hip flexion to 45° other than with PT 
Range of Motion	• Active assisted and passive hip and knee flexion • Hip flexion ROM limit 60° flexion
Interventions	*Patient Education* • Activity modification, bed mobility, positioning *Manual Therapy* • Peri-incisional mobilization • STM along hamstring muscle group as needed • Myofascial (no lotion) release to posterolateral glute and lateral hamstring fascia/muscle (proximal 1/3 of lateral thigh) • Attain and maintain neutral iliac position ipsilateral and contralateral to injured side with manual posterior rotations to ilium *Stretching* • Nerve gliding (sciatic neural flossing): if neural tension exists – Do not stretch the hamstring • Hip flexors in Thomas test position (maintain neutral pelvis/spine throughout stretch) • Gastrocnemius/Soleus stretching *Gait Training* • Gait training with B axillary crutches maintaining indicated weight bearing status

	Therapeutic Exercise • Ankle pumps • Quad sets • AA and PROM hip flexion (60° limit) and knee flexion • Upper body circuit training or upper body ergometer (UBE)
Criteria to Progress	• 2+ weeks postoperative

PHASE II: *Intermediate Post-Op* (2-6 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Reduce/resolve pain and edema • Good motor control and pain-free functional movements
Weight Bearing	• Partial weight-bearing 50% with crutches
Precautions	• Avoid hip flexion with knee extension • No active hamstrings yet • No active hip extension exercises
Range of Motion	• Active-assisted and passive hip and knee flexion
Interventions *-Continue with Phase I interventions*	*Manual Therapy* • Scar mobilization • Gentle cross friction massage to proximal tendon including proximal to attachment on ischial tuberosity • Manual trigger point release as needed (common area is within distal 1/3 of biceps femoris) • Manual trigger point release as needed with ART (active release therapy) to piriformis, quadratus femoris • Anterior hip glides with and without external rotation at the hip (hip in neutral to slightly extended) • Posterior/inferior belted hip mobilizations as needed for full flexion (belted quadruped position with active movement into child's pose) *Stretching* • Hip external rotation in flexion • Limit/avoid piriformis stretching (massage instead) *Therapeutic Exercise* • Gluteal setting in prone • Gluteal setting in supine *above must be mastered before progressing any gluteal or hamstring muscle strengthening* • Low Double Leg (DL) Bridge • Side-lying hip abduction • Standing calf raises • Strengthening of uninvolved limb ok

Criteria to Progress	• 6 weeks postoperative

PHASE III: *Late Post-Op* (6-12 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Normalized gait • Gradually progress to full ROM • Improve neuromuscular control • Increase strength • Enhance proprioception and kinesthesia
Weight Bearing	• Progressively wean crutches over the next 2 weeks to FWB
Range of Motion	• Progressive active hip and knee flexion • Active stretching all uninvolved muscle groups

Interventions
-Continue with Phase I-II interventions
	Therapeutic Exercise
	• DL Bridge with band around thighs
	• DL Bridge with ball squeeze
	• DL Bridge with Upper back on the bench
	• Plank with alternating leg lifts
	• Side plank with leg lift (on left knee until stronger) or oblique twists
	• Straight Leg Raise (SLR)
	• Hamstring (HS) curls antigravity
	• Hip extension antigravity
	• 10 weeks postop:
	  ○ Single Leg (SL) bridge, back on floor, foot on bench
	  ○ Progress to ankle weight for all leg lifts PRE
	  ○ Wall slides
	  ○ Clam shells
	  ○ Partial squats
	  ○ Step ups
	  ○ Step downs
	
	Cardiovascular Exercise
	• Stationary bike
	• Progressive slow walking on level surfaces
	• No running

Criteria to Progress	• Normalized gait all surfaces • Good control with functional movements without antalgic movement patterns • Hamstring strength 5/5 in prone with knee at 90° flexion

PHASE IV: *Transitional* (12-16 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Full ROM • Improve neuromuscular control • Improve strength/power/endurance • Enhance dynamic stability
Precautions/	• Neoprene support as needed

Guidelines	• No pain during strength training
Interventions *-Continue with Phase I-III interventions*	*Therapeutic Exercise* • Gentle hamstring stretching • Cautious use of weight training machines • Single leg closed chain exercises • Resisted step ups using sports cord around waist from behind • Double Leg Hamstring ball roll out (eccentric portion only) --> DL eccentric and concentric --> SL eccentric portion only --> SL eccentric and concentric • Double Leg deadlift, short range --> progressing to Single Leg no rotation • Double Leg deadlift – wide abducted leg stance with band around forefeet – pushing into abduction during eccentric phase of deadlift • Progress to single leg with spine rotation deadlift • Bridge on ball – eccentric portion only double leg progressing to single leg *Cardiovascular Exercise* • Walk progression on level surface with gradual increase in speed and distance • Preparing to run

Criteria to Progress	• Good neuromuscular control in all planes without pain
	• HHD testing: To initiate plyometrics:
	  ○ LSI hamstring strength >70/80%
	  ○ LSI glute med strength >80%
	  ○ LSI quad strength >80%
	• To initiate running:
	  ○ LSI hamstring strength >80/90%
	  ○ LSI glute med strength >90%
	  ○ LSI quad strength >90%
	  ○ Single leg hop cluster (distance, triple, cross over, 6 meter timed) >85%

PHASE V: *Early Return to Sport* (16-20 WEEKS AFTER SURGERY)

Rehabilitation Goals	• Emphasis on gradual return to recreational activities

Interventions
-Continue with Phase II-IV interventions
	Therapeutic Exercise
	• Progressive strengthening avoiding overload to HS
	• Progress speed of resisted steps and add forward lean
	• SL dead lift with band under stance leg: hold for resistance
	• Reverse Lunge on Slider: Progress load bearing and add concentric/eccentric phase:
	  ○ Part 1: Eccentric hamstring with core strength exercise
	  ○ Part 2: in full lunge position
	• Short range Nordic HS to physio ball height →progress range to ground depth
	• Kettle bell swing
	• Retro lunge slide
	
	Cardiovascular Exercise
	• Walk-to jog progression

	• No sprinting • No speed work
Criteria for Discharge	• Full ROM • No pain/tenderness • Satisfactory clinical exam including isokinetic testing • Walk to jog progression

PHASE V: *Unrestricted Return to Sport* (20+ WEEKS AFTER SURGERY)

Rehabilitation Goals	• Progressively increase activities to prepare for unrestricted functional return

Interventions
-Continue with Phase II-V interventions as indicated
	Therapeutic Exercise
	• Continued isotonic strengthening exercises above
	• Continue ROM exercises
	• Progressive running/speed and agility
	• Jump training after 22 weeks
	
	Cardiovascular Exercise
	• Progress step ups to resisted jump onto steps
	• Plyometric progression
	  ○ Double leg up/down
	  ○ Double leg forward/back
	  ○ Alternating lateral bounding
	  ○ Single leg jump
	  ○ Progress plyometrics to resisted plyometrics using sports cord around waist
	• Ladder drills
	• Falling start runs
	• Mini hurdle runs
	• Sprint progressions (5 times each)
	  10 yard → 20 yd → assisted deceleration with band around waist → deceleration lean
	• 40 yard sprints at 90%

Criteria for Discharge	• To Return to Play:
	  ○ LSI Hamstring strength > 95%
	  ○ LSI Glute strength >95%
	  ○ LSI quad strength >95%
	  ○ Single leg hop cluster (distance, triple, cross over, 6 meter timed) >95%
	  ○ Good acceleration, deceleration, change of direction control
	  ○ 60 second timed step-down test 80 bpm, with excellent control
	  ○ 60 second timed Lateral leap 60 bpm, with excellent control

Protocol adapted from Mass General Sports Medicine Physical Therapy Rehabilitation Protocols. See https://www.massgeneral.org/orthopaedics/sports-medicine/physical-therapy/sports-rehab-protocols