

Rehabilitation Protocol for Proximal Hamstring Repair

This protocol provides guidance for clinicians managing the post-operative recovery following a proximal hamstring repair. The protocol is both time-based, reliant on tissue healing, and criterion-based, tailored to individual patient needs and clinical evaluations. Timelines for recovery and expected outcomes may vary depending on the surgeon's methods, additional procedures, and potential complications. Clinicians should consult the referring surgeon for any questions regarding patient progression.

Post-Operative Considerations:

- **Factors Influencing Outcomes:** Several factors affect recovery from proximal hamstring repair, including the duration of the injury before surgery, extent of tendon retraction, number of tendons repaired, pre-surgical strength and motor control of the gluteal muscles, and any sciatic nerve tension present. Close collaboration with the referring physician is recommended to address these factors effectively.

If you notice symptoms such as fever, severe calf pain, uncontrolled pain, or any other concerns, please contact your physician for further guidance.

PHASE I: IMMEDIATE POST-OP (WEEKS 0-2 AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Allow healing of repaired tendon • Initiate early restricted and protected ROM • Prevent muscular atrophy • Decrease pain and inflammation
Weight Bearing	<ul style="list-style-type: none"> • TDWB with crutches
Precautions	<ul style="list-style-type: none"> • Post-op hip brace to limit hip flexion (45°) • Brace at all times (aside from exercise and bathing) • Avoid hip flexion with knee extension
Range of Motion	<ul style="list-style-type: none"> • Active assisted and passive hip and knee flexion • Hip flexion ROM limit 60° flexion
Interventions	<p><i>Manual Therapy</i></p> <ul style="list-style-type: none"> • 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 <p><i>Stretching</i></p> <ul style="list-style-type: none"> • 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 <p><i>Therapeutic Exercise</i></p> <ul style="list-style-type: none"> • Ankle pumps • Quad sets • AA and PROM hip flexion (60deg limit) and knee flexion • Upper body circuit training or upper body ergometer (UBE)
Criteria to Progress	<ul style="list-style-type: none"> • 2+ weeks post-operative

PHASE II: INTERMEDIATE POST-OP
(WEEKS 2-6 AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Reduce/resolve pain and edema • Good motor control and pain-free functional movements
Weight Bearing	<ul style="list-style-type: none"> • PWB 50% with crutches
Precautions/Guidelines	<ul style="list-style-type: none"> • Continue post-op hip brace Hip flexion limit to 60° • Increase brace hip flexion limit at week 4 gradually to 90° by week 6 • Avoid hip flexion with knee extension • No active hamstrings yet • No active hip extension exercises
Range of Motion	<ul style="list-style-type: none"> • Active-assisted and passive hip and knee flexion
Additional Interventions *Continue with Phase I Interventions	<p><i>Manual Therapy</i></p> <ul style="list-style-type: none"> • 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) <p><i>Stretching</i></p> <ul style="list-style-type: none"> • Hip external rotation in flexion • Limit/avoid piriformis stretching (massage instead) <p><i>Therapeutic Exercise</i></p> <ul style="list-style-type: none"> • Gluteal setting in prone • Gluteal setting in supine <p>*above must be mastered before progressing any gluteal or hamstring muscle strengthening*</p> <ul style="list-style-type: none"> • Low Double Leg (DL) Bridge • Side-lying hip abduction • Standing calf raises • Strengthening of uninvolved limb ok
Criteria to Progress	<ul style="list-style-type: none"> • 6 weeks post-operative

PHASE III: LATE POST-OP
(WEEKS 6-12 AFTER SURGERY)

Rehabilitation Goals	<ul style="list-style-type: none"> • Normalized gait • Gradually progress to full ROM • Improve neuromuscular control • Increase strength • Enhance proprioception and kinesthesia
Weight Bearing	<ul style="list-style-type: none"> • Progressively wean crutches over the next 2 weeks to FWB
Precautions/Guidelines	<ul style="list-style-type: none"> • Discontinue brace at 6-8 weeks, per MD
Range of Motion	<ul style="list-style-type: none"> • Progressive active hip and knee flexion • Active stretching all uninvolved muscle groups

PHASE III: LATE POST-OP
 (WEEKS 6-12 AFTER SURGERY) CONTINUED

<p>Additional Interventions *Continue with Phase I-II Interventions</p>	<p><i>Therapeutic Exercise</i></p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ◦ 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 <p><i>Cardiovascular Exercise</i></p> <ul style="list-style-type: none"> • Stationary bike • Progressive slow walking on level surfaces • No running
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • 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
 (WEEKS 13-16 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Full ROM • Improve neuromuscular control • Improve strength/power/endurance • Enhance dynamic stability
<p>Precautions/Guidelines</p>	<ul style="list-style-type: none"> • Neoprene support as needed • No pain during strength training
<p>Additional Interventions *Continue with Phase I-II Interventions</p>	<p><i>Therapeutic Exercise:</i></p> <ul style="list-style-type: none"> • 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 <p><i>Cardiovascular Exercise</i></p> <ul style="list-style-type: none"> • Walk progression on level surface with gradual increase in speed and distance • Preparing to run

PHASE IV: TRANSITIONAL
(WEEKS 13-16 AFTER SURGERY) CONTINUED

<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • Good neuromuscular control in all planes without pain • HHD testing: To initiate plyometrics: <ul style="list-style-type: none"> ◦ LSI hamstring strength >70/80% ◦ LSI glute med strength >80% ◦ LSI quad strength >80% • To initiate running: <ul style="list-style-type: none"> ◦ 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%
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PHASE V: EARLY RETURN TO SPORT
(WEEKS 16-20 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Emphasis on gradual return to recreational activities
<p>Precautions/Guidelines</p>	<ul style="list-style-type: none"> • Neoprene support as needed
<p>Additional Interventions *Continue with Phase II-IV Interventions</p>	<p><i>Therapeutic Exercise:</i></p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ◦ 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 <p><i>Cardiovascular Exercise</i></p> <ul style="list-style-type: none"> • Walk-to jog progression • No sprinting • No speed work
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • Full ROM • No pain/tenderness • Satisfactory clinical exam including isokinetic testing • Walk to jog progression

PHASE VI: UNRESTRICTED RETURN TO SPORT
(WEEKS 20-24 AFTER SURGERY)

<p>Rehabilitation Goals</p>	<ul style="list-style-type: none"> • Progressively increase activities to prepare for unrestricted functional return
<p>Additional Interventions *Continue with Phase II-V Interventions</p>	<p><i>Therapeutic Exercise</i></p> <ul style="list-style-type: none"> • Continued isotonic strengthening exercises above • Continue ROM exercises • Progressive running/speed and agility • Jump training after 22 weeks <p><i>Cardiovascular Exercise</i></p> <ul style="list-style-type: none"> • Progress step ups to resisted jump onto steps

PHASE VI: UNRESTRICTED RETURN TO SPORT
 (WEEKS 20-24 AFTER SURGERY) CONTINUED

<p>Additional Interventions *Continue with Phase II-V Interventions</p>	<ul style="list-style-type: none"> • Plyometric progression <ul style="list-style-type: none"> ◦ 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- see below for details • 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%
<p>Criteria to Progress</p>	<ul style="list-style-type: none"> • To Return to Play: <ul style="list-style-type: none"> ◦ 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

For further assistance or to schedule an appointment, please contact **iOrtho - The Orthopedic Institute** at **833-464-6784** or visit our website at **iorthomd.com** to text/email us. Our team is dedicated to providing personalized care and guidance throughout your rehabilitation journey.