Sports Medicine, Joint Preservation & Cartilage Restoration
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Chronic Proximal Hamstring Repair Protocol

Phase	Goals	Precautions/Restrictions	Treatment
Weeks 0-6	• Decrease pain and inflammation • Minimize muscle atrophy • Protect healing repair	• Gait: Non weight bearing • Brace locked in 90° knee flexion, 24/7, except for hygiene • No hamstring stretching or tension on graft, comfortable range only • No position of maximum tension: hip flexion + knee extension	• PRICE principles • Isometrics: quadriceps, hip abduction, hip adduction, abdominals • Week 3: Passive range of motion ○ Knee: full flexion to 80 deg • Active range of motion: hip abduction, hip adduction, ankle • Upper extremity exercise as long as no stress to repair
Weeks 6-10	• Protect healing repair • Normalize gait mechanics • Return to normal movements of daily living	• Gait: Weight bearing as tolerated • Discontinue brace • No hamstring stretching • No isolated hamstring strengthening	• Progress to independent ambulation with normal gait mechanics • Begin unresisted active knee flexion • Begin straight leg raise (comfortable range) • Initiate closed kinetic chain exercises with squatting pattern • Initiate single leg proprioception • Initiate stationary bike (as ROM allows, may need high seat), aquatics as indicated
Weeks 10-16	• Symmetric ROM • Progress muscle strength, endurance, power • Return to vocational activities	• No hamstring stretching	• Progress lower extremity and core strengthening • Initiate bridging progression • Week 10: Elliptical • Week 10: Begin hamstring isometrics • Week 12: Initiate isolated hamstring strengthening*
Weeks 16+	• Return to jog • >90% hamstring and hip extension strength symmetry; prefer concentric and eccentric isokinetic testing • Single leg hop testing >90% limb symmetry (if returning to level I sport) • Progressive return to sport	• Anticipated return to sport between 24+ weeks	• Initiate hamstring stretching, if needed • Initiate walk/jog progression • Progress plyometrics and agility as appropriate • Isokinetic hamstring strength testing as indicated

This protocol is not meant to be prescriptive but a recommendation to guide the rehabilitation process.

Each patient's progress may vary based on specifics of their injury and procedure
The following pages provide supplemental direction if needed

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PHASE I (1-6 weeks post-op)
** Patient will perform HEP including DVT prevention and isometric exercises to allow time for optimal healing

Rehabilitation Goals

- Protection of the repaired tendon(s) Pain control
- Weight Bearing
- Use axillary crutches for up to 6-8 weeks
- Post-operative weeks 0-2: Touch down weight bearing
- Brace: hinged knee brace locked at 90 degrees at all times until week 6-8 (based on physician order)

Precautions
Avoid hip flexion coupled with knee extension (hamstring stretch) - **AVOID**
Avoid unsafe surfaces and environments

Suggested Therapeutic Exercise
- Quad sets
- Ankle pumps
- Abdominal isometrics
- Passive knee range of motion (ROM) with no hip flexion during knee extension
- Scar mobilizations
- Cardiovascular Exercise: Upper body circuit training or upper body ergometer (UBE)
- Progression Criteria: 6 weeks post-operative

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PHASE II (begin after meeting Phase I criteria, usually 6 weeks after surgery)
Appointments: 2x/week for 5-12 weeks

Rehabilitation Goals

- Post-operative weeks 6-8: 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
- Normalize gait
- Good control and no pain with functional movements, including 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 Exercise

- Non-impact balance and proprioceptive drills – beginning with double leg and gradually progressing to single leg
- Stationary bike
- Gait training
- Begin hamstring strengthening – start by avoidance of lengthened hamstring position (hip flexion combined with knee extension) by working hip extension and knee flexion moments separately; begin with isometric and concentric strengthening with hamstring sets, heel slides, double leg bridge, standing leg extensions, and physioball curls
- Hip and core strengthening
- Cardiovascular Exercise: Upper body circuit training or UBE
- Progression Criteria
- Normal gait on all surfaces
- Ability to carry out functional movements without unloading the affected leg or pain while demonstrating good control
- Single leg balance greater than 15 seconds
- Normal (5/5) hamstring strength in prone with the knee in a position of at least 90° knee flexion

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PHASE III (begin after meeting phase II criteria, usually three months after surgery)
Appointments 2x/week for 12-16 weeks

Rehabilitation Goals

- 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 Exercise

- Continue hamstring strengthening – progress toward strengthening in lengthened hamstring positions; begin to incorporate eccentric strengthening with single leg forward leans, single leg bridge lowering, prone foot catches, and assisted Nordic curls
- Hip and core strengthening
- Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to the other and then 1 foot to same foot
- Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
- Initiate running drills, but no sprinting until Phase IV
- Cardiovascular Exercise: Biking, elliptical machine, Stairmaster, swimming, and 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


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PHASE IV (begin after meeting phase III criteria, usually 4-5 months after surgery)
Appointments: 1-2x/week for 16+ weeks

Rehabilitation Goals

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

Precautions

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

Suggested Therapeutic Exercise

- Continue hamstring strengthening – progress toward higher velocity strengthening and reaction in lengthened positions, including 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
- Running and sprinting mechanics and drills
- Hip and core strengthening
- Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to other and then 1 foot to same foot
- Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
- Sport/work specific balance and proprioceptive drills
- Stretching for patient specific muscle imbalances
- Cardiovascular Exercise: Replicate sport or 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


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