O·S·M·S
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Physical Therapy Protocol: Proximal Hamstring Repair

Philosophy:
The vast majority of hamstring injuries occur at mid-substance and can be managed without surgery. The proximal hamstring tendon, when ruptured, represents a moderately rare injury with surgery sometimes required. The occurrence of proximal hamstring rupture is more common in middle-age men & women, during athletic activities or falls. This particular tendon injury and muscle damage can be addressed surgically in an attempt to restore hip motion and core function. The failure to heal proximal hamstring injuries can lead to chronic limping, pain, and weakness. For hamstring repairs to heal thoroughly, patients must adhere to an initial period of (partial) protection to the area, followed by gentle return to function. A strong, pain-free hamstring with functional range-of-motion comes about by addressing the injury, and planning physical therapy with the therapist and at home.

Phase I, surgery to 6 weeks

OSMS appointments:

- Medical appointments at 2 and 6 weeks, with films
- Physical therapy will begin as directed by your physician and as indicated on your physical therapy order

Rehabilitation Goals:

- Protect the integrity of the repaired tissue
- Restore ROM within restrictions
- Reduce pain & inflammation
- Prevent muscular inhibition

Precautions:

- Hinged knee brace locked at 45° at all times until week 6
- Avoid hip flexion coupled with knee extension
- Avoid unsafe surfaces and environments
- 0-2 weeks: TTWB
- 2-6 weeks: 15-40% WB progression

Range-of-Motion Exercises:

- Passive knee ROM, with no hip flexion during knee extension

Suggested Therapeutic Exercises:

- Quad sets

- Ankle pumps
- Abdominal isometrics
- Scar mobilization
- After 3 weeks, ok to initiate pool walking drills, hip abduction, hip extension and balance exercises (Avoid hip flexion coupled with knee extension)

Cardiovascular Exercises:

- Upper body circuit training
- UE ergometer

Progression Criteria:

- Patient may progress to phase II if minimal pain with all phase I exercises

Phase II, (after Phase I criteria met, usually at 6-12 weeks)

OSMS appointments:

- Medical appointments at 6 and 12 weeks
- Physical therapy appointments continue at once or twice weekly

Rehabilitation Goals:

- Protect the integrity of the repair
- Restore full ROM
- Initiate limited gait
- Progressively increase muscle strength

Precautions:

- Avoid dynamic stretching
- Avoid loading the hip at deep flexion angles
- No impact or running

Range-of-Motion Exercises:

- Progress PROM hip flexion past 90

Suggested Therapeutic Exercises:

- Non-impact balance & proprioceptive drills (begin with double leg & progress to single)
- Gait training
- Hip and core strengthening
- Begin hamstring strengthening: initiate hip extension and knee flexion moments separately (avoid lengthened hamstring position i.e., hip flexion combined with knee extension)
- Isometric and concentric strengthening with hamstring sets, heel slides, double leg bridge, standing leg extension, and physio ball curls

Cardiovascular Exercises:

- Stationary bike or UE ergometer
- Aqua therapy

Progression Criteria:

- Patient may progress to phase III with normal gait on all surfaces, single leg balance >15 seconds, 5/5 hamstring strength in prone with the knee in a position of at least 90° knee flexion, and ability to carry out functional movements without unloading the affected leg while demonstrating good control

Phase III, (after Phase II criteria met, usually 12-16 weeks)

OSMS appointments:

- MD appointment at 12 weeks
- Physical therapy appointments fade to every 10-14 days, progress to home program

Rehabilitation Goals:

- Restoration of muscular strength & endurance
- Initiate impact exercise
- Restoration of cardiovascular endurance
- Optimize neuromuscular control/balance/proprioception

Precautions:

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

Range-of-Motion Exercises:

- Progress with ROM
- Passive ER/IR allowed

Suggested Therapeutic Exercises:

- Progress hamstring strengthening: progress toward strengthening in lengthened hamstring positions, and 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 two feet to two feet, progressing from one foot to the other and then one foot to same foot

- Movement control exercise beginning with low velocity, single plane activities and progress to higher velocity, multi-planar activities
- Initiate running drills (no sprinting)

Cardiovascular Exercises:

- Stationary bike
- Elliptical machine or Stairmaster
- Swimming, including deep water running

Progression Criteria:

- Dynamic neuromuscular control with multi-plane activities at low/medium velocity without pain or swelling
- Surgical hamstring strength at >75% compared to unaffected leg on Biodex testing at 60° and 240° per second

Phase IV, (after Phase III criteria met, usually 16+ weeks)

Rehabilitation Goals:

- No pain during strength training
- Post-activity soreness should resolve within 24 hours
- Restoration of muscular strength & endurance
- Optimize neuromuscular control/balance/proprioception

Suggested Therapeutic Exercises:

- Progress hamstring strengthening: progress towards higher velocity strengthening and rection in lengthened positions, including eccentric strengthening with single leg forward leans with medicine ball, single leg deadlifts with dumbbells, single leg bridge curls on physioball, resisted running foot catches and Nordic curls
- Running and sprinting mechanics/drills
- Hip and core strengthening
- Impact control exercises beginning two feet to two feet, progressing from one foot to the other and then one foot to same foot
- Movement control exercise beginning with low velocity, single plane activities and progress to higher velocity, multi-planar activities
- Sport specific balance & proprioceptive drills
- Stretching for patient-specific muscle imbalances

Cardiovascular Exercises:

- Sport (or work) specific energy demands

Progression Criteria & Return to Sport (12+ weeks):

- Return to sport is MD directed, and includes dynamic neuromuscular control with multi-plane activities at high velocity without pain/swelling, hamstring strength >90% of the uninvolved side on Biodex testing at 60° and 240° per second, and functional testing at >90%