

## PROXIMAL HAMSTRNG AVULSION REPAIR

### Rehabilitation Protocol

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#### PRECAUTIONS

- Non-weight bearing without bracing for 2 weeks
- Toe-touch weight bearing weeks 2-4
- No terminal/end-range hamstring stretching for 6 weeks
- Avoid long-sitting positions for 6 weeks
- No isolated isotonic hamstring strengthening for 8 weeks

#### POST-OP: WEEKS 0-2

**Goals:** control pain and inflammation; wound healing

- Home exercises only
- Maintain non-weight bearing status
- Compression, cryotherapy, ankle pumps

#### POST-OP: WEEKS 2-4

**Goals:** full hip, knee, and ankle PROM in protected positions, avoiding lengthened hamstrings, good quad control in non-weight bearing position, and continue pain and inflammation control

- Begin physical therapy
- Toe-touch weight bearing using crutches or walker
- Initiate gentle hip, knee and ankle PROM within patient tolerance 1-7, avoid lengthened hamstring positions
- Initiate quad sets, straight leg raises in abduction only
- Initiate gentle soft-tissue mobilization at proximal insertion/incision site, if wound is fully closed

#### POST-OP: WEEKS 4-6

**Goals:** normalization of gait at 6 weeks, achieve 45° SLR PROM, and SLR without quad lag

- Begin weight bearing progression, per patient tolerance
- Aquatic activities (if available): forward and retro ambulation, gentle AROM (avoid terminal stretching), gentle partial weight bearing squats (small range)
- Initiate gentle PROM straight leg hamstring stretching per patient tolerance
- Continue soft tissue mobilization
- Initiate single leg stance and static proprioceptive activities
- Initiate sub-maximal hamstring isometrics. Avoid lengthened hamstring positions initially. Begin at 30°, 45°, 60°, 90° knee flexion with the patient supine.

- Initiate closed-chain terminal knee extensions (resisted quad sets)
- Straight leg raises in flexion (0° to 30° maximum ROM), abduction, adduction, per patient tolerance
- Initiate core strengthening program: pelvic tilts, transverse abdominus activation

#### POST-OP: WEEKS 6-8

**Goals:** full range of motion at each lower extremity joint, SLR 0°-70° PROM, and improved closed chain proprioception/stability without symptom increase

- Initiate terminal/end-range hamstring stretching, per patient tolerance
- Progress full lower extremity stretching program per patient tolerance
- Initiate gentle isotonic resistive hamstring exercises
  - Bilateral only, progress eccentric to concentric
  - Begin with mid-range strengthening initially. Avoid lengthened hamstring position initially.
- Progress core strengthening/dynamic lumbar stabilization program
- Progress proprioceptive activities: Include single leg stance on various surfaces, single leg stance with perturbations (“steamboats”)

#### POST-OP: WEEKS 8-12

**Goals:** SLR range of motion within normal limits, 515 straight plane strength in MMT positions, and tolerate PWB plyometrics on shuttle without symptom increase

- Full hamstring and quad strengthening program, per patient tolerance
  - Progress bilateral to unilateral, eccentric to concentric for hamstring strengthening
- Advanced core strength and stabilization program
  - Include single knee balance activities on BOSU
  - Bridging, Swiss ball bridging
- Advanced dynamic proprioceptive activities
- Initiate partial weight bearing plyometrics on shuttle or Total Gym
- Resisted ambulation, all directions, with cable-column or resistance bands. Use caution with resisted forward ambulation due to increased hamstring activation.

#### POST-OP: WEEK 12

**Goal:** perform hop-downs with appropriate mechanics, no evidence of dynamic instability, and without symptom increase to progress difficulty and/or intensity.

- Progress to FWB hop-downs, light, per patient tolerance
  - Begin with 1-to-2-inch height box/step. Progress slowly to a higher step. Progress from bilateral to unilateral.

- Lunges: Forward and backward
- Slide-board

#### POST-OP: WEEKS 12-16

**Goal:** jog on treadmill and even surfaces with symmetrical mechanics and no symptoms.

- Continue progression of full weight bearing plyometric activities
  - Double leg side/side and diagonals
  - Single leg multi-directional
- Continue core stabilization program
  - Swiss ball lower extremity curl-ups
- Initiate walk-jog progression
- Criteria to begin jogging:
  - Perform hop-downs with appropriate mechanics, no evidence of dynamic instability, and without symptom exacerbation.
  - Perform 10 single-leg hops on involved side, with good mechanics, without symptom increase, and symmetrical with uninvolved side.

#### POST-OP: WEEKS 16-20

- Continue multi-directional/advanced plyometric program
  - Hops to/from BOSU, multi-directional
- Initiate sport-specific drills, per patient tolerance
  - Patfont must tolerate all above activities without symptom increase prior to initiating sport-specific activities.
  - Include in sport-specific progression: running, cutting/diagonals, carriocas: progress 50% to 75% to full-speed
  - Resisted forward running

#### POST-OP: CRITERIA TO RETURN TO SPORTS - WEEKS 16-28

- Functional testing: Must demonstrate >85% performance of involved side when compared with uninvolved.
  - Include single-leg hop for distance test, 3-single-leg hop for distance
- Isokinetic testing:
  - Must demonstrate > 85% strength of involved side versus uninvolved side at 60°/sec, 180°/sec, and 300°/sec testing
  - Demonstrate hamstring to quadriceps strength ratio of 55-65% bilaterally
- No symptom increases with sport-specific progression or testing as described above



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#### REFERENCES

Colosimo AJ, Wyatt HM, Frank KA, Mangine RE: Hamstring Avulsion Injuries, Oper Tech Sports Med(2005); 13: 80-88

Brueker PU, Imhoff AB: Functional assessment after acute and chronic complete ruptures of the proximal hamstring tendons. Knee SurgSports Traumatol Arthrosc (2005); 13: 411-418

Clanton TO, Coupe KJ: Hamstring Strains in Athletes: Diagnosis and Treatment. J Am Acad Orthop Surg ( 1998); 6: 237-248

O Mohamed et al: Relationship between wire EMG activity, muscle length, and torque of the hamstrings. Clinical Biomechanics (2002); 17: 569-579