PROXIMAL HAMSTRING AVULSION REPAIR
CLINICAL PRACTICE GUIDELINE

Progression is time and criterion-based, dependent on soft tissue healing, patient demographics and clinician evaluation. Contact Ohio State Sports Medicine at 614-293-2385 if questions arise.

Rehabilitation 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 position for 6 weeks
- No isolated isotonic hamstring strengthening for 8 weeks

| Phase I: Weeks 0-2 | 1. Home exercises only  
|                   | 2. Maintain non-weight bearing status  
|                   | 3. Compression, cryotherapy, ankle pumps |

**Goals to Progress to Next Phase**

1. Control pain and inflammation  
2. Wound healing

| Phase II: Weeks 2-4 | 1. Begin physical therapy  
|                    | 2. Toe-touch weight bearing using crutches or walker  
|                    | 3. Initiate gentle hip, knee and ankle PROM within patient tolerance → avoid lengthened hamstring positions  
|                    | 4. Initiate quad sets, straight leg raises in abduction only  
|                    | 5. Initiate gentle soft-tissue mobilization at proximal insertion/incision site, if wound is fully closed |

**Goals to Progress to Next Phase**

1. Full hip, knee, and ankle PROM in protected positions, avoiding lengthened hamstrings  
2. Good quad control in non-weight bearing position  
3. Continue pain and inflammation control
### Phase III: Weeks 4-6
- 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, 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

#### Goals to Progress to Next Phase
1. Normalization of gait at 6 weeks
2. Achieve 45° SLR PROM
3. SLR without quad lag

### Phase IV: Weeks 6-8
- 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")

#### Goals to Progress to Next Phase
1. Full range of motion at each lower extremity joint
2. SLR 0°-70° PROM
3. Improved closed chain proprioception/stability without symptom increase

### Phase V: Weeks 8-12
- 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

#### Goals to Progress to Next Phase
1. SLR range of motion within normal limits
2. 5/5 straight plane strength in MMT positions
3. Tolerate PWB plyometrics on shuttle without symptom increase
**Week 12**

- Progress to FWB hop-downs, light, per patient tolerance
- Begin with 1 to 2 inch height box/step. Progress slowly to higher step. Progress from bilateral to unilateral.
- Lunges: Forward and retro
- Slide Board

**Goal**

1. Perform hop-downs with appropriate mechanics, no evidence of dynamic instability, and without symptom increase in order to progress difficulty and/or intensity.

**Phase VI: Weeks 12-16**

- 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:
  1. Perform hop-downs with appropriate mechanics, no evidence of dynamic instability, and without symptom exacerbation.
  2. Perform 10 single-leg hops on involved side, with good mechanics, without symptom increase, and symmetrical with uninvolved side.

**Goals to Progress to Next Phase**

1. Jog on treadmill and even surfaces with symmetrical mechanics and no symptoms.

**Phase VII: Weeks 16-20**

- Continue multi-directional/advanced plyometric program
- Hops to/from BOSU, multi-directional
- Initiate sport-specific drills, per patient tolerance
  - Patient 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

**Weeks 16-28 Criteria to Return to Sports**

- 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 increase with sport-specific progression or testing as described above.
References


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