NON-OPERATIVE REHABILITATION PROTOCOL

Non-Operative Hamstring Avulsion

William McLaughlin, MD | Sports Medicine Surgery | Advanced Bone & Joint

Phase 1 | Acute Phase

GOALS FOR THIS PHASE

- Diminish pain and inflammation.
- Gradually improve flexibility and ROM.
- Retard muscular atrophy and strength loss.
- Enhance healing of muscular strain.

Immediate Management

- Cryotherapy, compression wrap.
- High-voltage stimulation to control swelling.
- Light massage when tolerable (day 2-3).

Range of Motion

- Seated active and passive knee extension.
- Gradually decrease hip flexion angle.
- Initiate hamstring stretch (gentle and gradual as tolerated).
- Stretch hip flexors, quadriceps, calf, and hip adductors.

Strengthening

- Quad sets.
- Straight-leg raises (3 directions).
- Active knee extensions.
- Toe calf raises.
- Isometric hamstring contractions (knee flexion 45°).
- Bicycle when able.

Modalities

- Modalities for pain.
- Stretch and ROM exercises performed post-exercise.

Phase 2 | Subacute Phase

GOALS FOR THIS PHASE

- Improve flexibility and ROM.
- Enhance muscular strength and endurance.
- Promote healing of injured structures.
- Control any inflammation and pain.

Modalities

- Superficial heat to injured hamstring or contrast heat/cold.
- Ultrasound over injured area.
- Soft-tissue mobilization and massage.

Warm-up & Flexibility

- Active warm-up — bicycle.
- Stretch lower-extremity musculature — manual and self-stretches (hamstrings seated and supine).

Strengthening

- Leg press.
- Hip abduction / adduction.
- Hip flexion / extension.
- Knee extensions.
- Wall squats.
- Hamstring curls.
- Front lunges.
- Lateral lunges.
- Backward lunges.
- Lateral step-overs.
- Forward / backward step-overs.
- Toe calf raises.

Stability & Conditioning

- Initiate core stabilization drills (abdominal and back).
- StairMaster.
- Initiate proprioception drills.
- May initiate pool exercises and running in pool.

Recovery

- Stretch.
- Cryotherapy.
- Use neoprene sleeve following workouts.

Phase 3 | Dynamic Phase

GOALS FOR THIS PHASE

- Improve dynamic (ballistic) flexibility of hamstrings.
- Normalize static flexibility.
- Normalize muscular strength.

Warm-up & Flexibility

- Active warm-up — bicycle or jog.
- Stretch all major lower-extremity muscle groups (hamstrings seated and supine).
- Initiate ballistic stretching maneuvers.

Strengthening & Plyometrics

- Continue strengthening exercises listed above.
- Plyometric leg press.
- Fast-speed hamstring work with sport cord.
- Plyo front lunges.
- Scissor jumps.
- Scissor jumps onto box.
- Side-to-side box jumps (plyos).
- Skip lunges.
- Fast-speed lateral step-overs.
- Knee-high running, forward (ropes).

Recovery

- Stretch after workout.
- Cryotherapy.
- Consider neoprene sleeve during drills.

Phase 4 | Sport-Specific & Agility Drills

GOALS FOR THIS PHASE

- Normalize ballistic flexibility.
- Normalize muscular strength and agility.
- Gradual return to sport participation.

Warm-up & Flexibility

- Active warm-up or jog.

- Stretch all lower-extremity muscles.

Strengthening & Sport-Specific

- Continue strengthening program.
- Continue selected ballistic stretching drills.
- Initiate sport-specific program.
- Side shuttles.
- Carioca.
- Backward running.
- Forward running.
- Interval running.
- Progress to sprints.
- Running and cutting drills.
- Gradually increase intensity of running: jog → run → sprint.

Recovery

- Stretch following drills.
- Consider neoprene sleeve during drills.

Return to Sport

- Gradually return to sport participation.

This protocol is a general guideline. Progression is patient-specific and at the discretion of William McLaughlin, MD.