

## **Rehabilitation of Hamstring Strains**

### **PHASE I: ACUTE PHASE**

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

Immediately following injury:

- Cryotherapy, compression wrap
- High voltage stimulation to control swelling
- Light massage when tolerable (day 2-3)
- ROM exercises:
  - 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 exercises:
  - Quad sets
  - Straight leg raises (3 directions)
  - Active knee extensions
  - Toe calf raises
  - Isometric hamstring contractions (knee flexion 45°)
  - Bicycle when able
- Stretch and ROM exercises: perform post-exercises regimen
- Modalities for pain

### **PHASE II: SUBACUTE PHASE**

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

- Superficial heat to injured hamstring or contrast heat/cold
- Ultrasound over injured area
- Soft tissue mobilization and massage
- Active warm-up bicycle

- Stretch lower extremity musculature – manual & self-stretches (stretch hamstrings seated and supine)
- Initiate isotonic strengthening program
  - Leg press
  - Hip abd/add
  - Hip flex/ext
  - Knee extensions
  - Wall squats
  - Hamstring curls
  - Front lunges
  - Lateral lunges
  - Backward lunges
  - Lateral step-overs
  - Forward/backward step-overs
  - Toe-calf raises
- Initiate core stabilization drills (abdominal and back)
- Stairmaster
- Initiate proprioception drills
- May initiate pool exercises and running in pool
- Stretch
- Cryotherapy
- Use neoprene sleeve following workouts

### PHASE III: DYNAMIC PHASE

Goals:            Improve dynamic (ballistic) flexibility of hamstrings  
                       Normalize static flexibility  
                       Normalize muscular strength

- Active warm-up – bicycle or jog
  - Stretch all major muscle groups lower extremity (stretch hamstrings seated and supine)
  - Continue strengthening exercises listed above
  - Initiate ballistic stretching maneuvers
    - 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)
1. Stretch after workout
  2. Cryotherapy
  3. Consider neoprene sleeve during drills

### PHASE IV: SPORTS SPECIFIC AND AGILITY DRILL PHASE

Goals:            Normalize ballistic flexibility  
                      Normalize muscular strength and agility  
                      Gradual return to sport participation

- Active warm-up or jog
- Stretch all lower extremity muscles
- Continue strengthening program
- Continue selected ballistic stretching drills
- Initiate sport specific program

-Side shuttles  
-Carciacos  
-Backward running  
-Forward running  
-Interval running  
-Progress to sprints  
-Running and cutting drills  
-Gradually increase intensity of running  
    Jog    ➡ run    ➡ sprint

- Stretch following drills
- Consider neoprene sleeve during drills
  - Gradually return to sport participation