

# ***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)

- Stretch after workout
- Cryotherapy
- 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