Recurrent Unremitting Patellar Tendinitis
Rehabilitation Program

Phase I

Goals:
- Diminish pain and inflammation
- Promote tendon healing
- Improve quadriceps strength
- Enhance flexibility
- Control functional stresses

Treatment Regimen:
- Hot packs applied to knee
- Phonophoresis to patellar tendon
- Transverse friction massage
- Warm-up bicycle (10-12 min.)
- Stretch (hamstrings quadriceps, gastroc)
- Application of pain stimulation to PT x 10 minutes
  - Electrical stimulation parameters
    - Waveform: Russian
    - Frequency: 2500 H₂ pulse; width: 200 MS; Rate: 50/sec
    - 60 pulses per second (pps)
    - duty cycle 10 on/10 off; ramp of 1 second
  - pad placement- 1”x1” electrodes placed on each side of inflamed/painful tendon (After 3 minutes, palpate tendon, should be less painful and becoming numb, if not, move electrodes)
- Quadriceps strengthening program (Level I)
  - E-stim to quadriceps*
  - Quad sets*
  - SLR flexion*
  - Hip adduction/abduction*
  - Vertical squats (tilt board)
  - Hip flexion/extension
  - Toe-calf raises
  - Bicycle (15-20 min.)
*Monitor subjective pain level response (goal level 5-7)
- Pool program
- Stretch (aggressive stretching)
- Cryotherapy
Phase II

Goals:  
- Gradual increase stress to patellar tendon  
- Enhance quadriceps strength  
- Improve flexibility  
- Gradual increase functional activities

Treatment Regimen:  
- Hot packs or warm whirlpool  
- Phonophoresis to patellar tendon  
- Transverse message to patellar tendon  
- Active warm-up bicycle (10-12 min.)  
- Stretch (hamstrings, quadriceps, gastroc)  
- Application of pain stimulation  
  - (use for 3-4 times in this phase)  
  - (discontinue as soon as possible)  
- Strengthening program (Level II)  
  - Leg press (90-0°) and (45-100°)  
  - Hip add/abduction  
  - Hip flex/extension  
  - Wall squats (0-70°)  
  - Lateral step-up (foam)  
  - Front lunges  
  - Knee extension (progress from concentric to eccentric)  
  - Leg press (progress from concentric to eccentric)  
  - Hamstring curls  
  - Toe-calf raises  
  - Bicycle/stairmaster  
  - Control forces to knee  
    - Enhance hip & ankle strength & stability  
    - Core stability  

*Monitor subjective pain level response (goal 5-7)  
- Aggressive stretching  
- Cryotherapy
Phase III

Goals: Gradually increase applied loads
        Functional training
        Enhance lower extremity strength
        Improve flexibility

Treatment Regimen:
• Hot packs to knee
• Phonophoresis to patellar tendon
• Transverse message
• Active warm-up
• Stretch
• Strengthening program (Level III)
  • Continue previous exercises
  • Continue eccentric progression
  • Leg press
  • Hip machine
  • Wall squats
  • Tilt board squats
  • Lateral step-ups
  • Front step-downs
  • Agility drills
    • Lunges onto unstable surface
    • Step-ups on unstable surface
    • Single leg balance on unstable surface
  • Plyometric program
    • Initiate two-legged jumps
    • Progress to one-legged jumps
*Monitor pain level (goal level 5-7)
• Progress to running program
  • Backward running
  • Lateral movements
  • Forward running
• Stretching
Phase IV

**Goals:**
- Sports specific training
- Continue stretching/flexibility program
- Continue strengthening program

**Treatment Regimen:**
- Heat and ultrasound (if needed)
- Active warm-up
- Stretching
- Continue strengthening program
- Initiate sport specific drills and training
- Progress to practice situation
- Stretch
- Ice (if needed)