

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 Hz 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)