

Platelet-Rich Plasma (PRP) Patellar & Quadriceps Tendon Rehabilitation Guideline

Northside Hospital Orthopedic Institute

PRP, an orthobiologic treatment, is the concentrated product of an individual's own platelets, which come from the plasma portion of whole blood. Platelets are well known for their role in helping blood clot, however they are also rich in growth factors and other enzymes, which are involved in the healing process. When injected into an injured tendon, PRP seems to work by providing the tendon with growth factors, which stimulate healing. This guideline is intended to be used in conjunction with the therapist and physician's collaborative input. Northside Hospital Orthopedic Institute uses a criterion-based rehabilitation guideline to ensure the optimal level of success with return to sport. Each individual will be treated uniquely based upon the observations of the sports medicine team. It is vital that a multi-factorial approach is used during rehabilitation to decrease risk of re-injury. Safety of the patient is the number one priority.

Phase I: 0-4 Days After Procedure

- No formal appointment required during this time
- **GOALS:**
 - Max protection of affected tendon
 - Pain control with Tylenol only, **NO NSAIDs** (e.g. ibuprofen, Aleve, Advil, Goody's powder, etc.)
 - Immobilization of the affected joint
 - Partial weight bearing with crutches for patellar / quadriceps tendons
 - Perform normal activities of daily living, but no weight lifting or cardiovascular exercise
- **RANGE OF MOTION:**
 - Gentle active range of motion (AROM) exercises out of immobilization device 2-3 times a day

Phase II: 4-14 Days After Procedure

- Begin formal physical therapy around 10-14 days after procedure
- **GOALS:**
 - Increase tolerance to daily activities

- No overstressing of the tendon through exercise, lifting, or impact activity
 - More is not better at this point in your recovery
- If placed in immobilization device discontinue immobilization device 10-14 days after tendon procedure or per physician instructions

RANGE OF MOTION:

- Continue with AROM out of immobilization device 3 times daily for 5 minutes per session
- GENTLE prolonged stretching is allowed
- **STRENGTHENING:**
 - It is allowed to perform upper body exercises during this time
 - May incorporate core strengthening
- **CRITERIA TO PROGRESS TO PHASE 3**
 - Must be 14 days after procedure

Phase III: 14 Days to 6 Weeks After Procedure

- Formal physical therapy visits at least once every 1-2 weeks
- Physician follow up visit at 3-4 weeks after procedure
- **GOALS:**
 - Attain full active range of motion
 - Restore normal joint mechanics
 - Improve strength and endurance
 - Improve balance and proprioception
 - Improve cardiovascular endurance
- **PRECAUTIONS**
 - Avoid high velocity / amplitude/ intensity exercise such as running, jumping, plyometrics, or heavy weight-lifting
 - Avoid eccentric strengthening
 - Avoid pain completely during weeks 2-4
 - Avoid pain during and after activity greater than 2/10 for weeks 4-6
 - Avoid NSAIDs or ice
- **RANGE OF MOTION:**
 - Stretching exercises for the affected muscle-tendon unit
 - Moderate intensity
 - 3-4 reps, holding for 30-45 seconds
 - Joint mobilization as needed to restore normal joint mechanics
 - Grades 3-4
- **STRENGTHENING:**
 - 3-4 sets starting at 15 repetitions and progressing to 6 repetitions with higher weight/resistance, performed every other day
 - Initially, complete in modified ROM to avoid pain, then progress to full ROM as strength and pain levels allow

- Complete isometrics in shortened/non-compressed/mid-range position to avoid pain
 - 5 repetitions of 45-60 seconds, 2-3 times per day, progressing from 40% to 70% maximal voluntary contraction. 1-2 minute rest periods between contractions. Daily

- **Patellar / Quadriceps Tendons**
 - TKE – Prone, Standing vs TB/cable
 - LAQ
 - Stepups
 - Heel taps
 - Single leg balance
 - W/o UE assist, unstable surfaces, head turns, eyes closed, perturbations, rebounder toss
 - Knee extension isometrics
 - Knee extension concentrics
 - Double / Single leg leg press
 - Double / Single leg wall sits
 - Double / Single leg squats to parallel

- CARDIOVASCULAR
 - Non-impact activities with progressive resistance, duration, and intensity: upper body ergometer, elliptical, stationary bike

- CRITERIA TO PROGRESS TO PHASE 4
 - Full range of motion
 - No pain with activities of daily living
 - Strengthening activities listed completed with minimal to no pain

Phase IV: 6 to 8 Weeks After Procedure

- Formal physical therapy visits at least once every 1-2 weeks
- Physician follow up visit at 6-8 weeks after procedure
- GOALS:
 - Introduce eccentric and velocity training
 - Good eccentric and concentric multi-plane strength and dynamic neuromotor control to allow for return to work/sport activities
- PRECAUTIONS:
 - Post-activity soreness should resolve within 24 hours
- STRENGTHENING:
 - PWB plyometrics on shuttle
 - Double leg, Alternating LE, Single leg
 - FWB plyometrics progression
 - Contralateral step and hold (L→R, R→L)
 - Contralateral hop and hold (L→R, R→L)

- Bounding
- Progress to triple hop (L→R→L→R)
- Box jumps
 - Forward (height, speed, power)
 - With 90° rotation
 - Drop downs
- Initiate walk/jog progression
- Agility
 - Start at 50% effort and increase as able
 - Ladder Drills
 - Two feet in, One foot in, Lateral two feet in, Icky shuffle, 1 foot in down the outside, Hopscotch, Single leg hop through (fwd/lateral)
 - Carioca, Side Shuffle, Backpedaling
 - Skipping
 - Regular, speed, height, distance
- Resisted Jogging
- Sled push
- CRITERIA TO PROGRESS TO PHASE 5
 - Good neuromotor control with no increased pain/effusion with plyometrics and agility
 - Completion of walk:jog progression, if applicable, with no compensatory movement patterns

Phase V: 8 Weeks to Return to Work / Sport

- Return to work / sport with approval of physician and PT
- STRENGTHENING:
 - Complete a gradual return to sport progression with team ATC or coaching staff to ensure a safe return to full activity level
 - If not fully confident on specifics of how to gradually return athlete to full sport activity, contact physician
- CRITERIA TO RETURN TO SPORT
 - Good stability and confidence during sport specific activities
 - Good neuro-muscular control during dynamic activities
 - Full functional ROM
 - 5/5 manual muscle testing of affected muscle-tendon unit with no pain
 - Physician clearance