Tibial Tubercle Transfer Rehabilitation Protocol

A tibial tubercle transfer is a surgical procedure to realign the patellar tendon and relieve pain or instability caused by conditions such as patellar instability or maltracking. The surgery involves repositioning the tibial tubercle (the bony prominence on the shinbone where the patellar tendon attaches) and fixing it in a new position with screws. This guide outlines the post-operative rehabilitation protocol to help patients recover safely and effectively.

Rehabilitation Goals

- Promote healing of bone and soft tissues
- Restore knee range of motion (ROM) progressively
- Gradually regain muscle strength
- Return to daily activities, work, and sport in a safe and staged manner
- Prevent complications such as stiffness or re-injury

Expected Recovery Time

Milestone	Timeframe Range
Weight bearing with crutches	0–6 weeks (partial to full)
Full range of motion	6–12 weeks
Return to low-impact activities	3–4 months
Return to high-impact activities	6–9 months
Return to sport	6–12 months

Phase 1: Early Post-op (0–2 weeks)

Goals

- Protect surgical site
- Control pain and swelling
- Begin gentle muscle activation
- Prevent complications (e.g. DVT, infection)

Instructions

- Wear knee brace locked in extension at all times unless instructed otherwise
- Use crutches for ambulation (partial weight bearing as instructed)
- Elevate leg and apply ice packs (15–20 minutes, several times a day)
- Take prescribed medications as directed

Exercises

- Ankle pumps (30–60 per day)
- Isometric quadriceps contractions (3 sets of 10 repetitions, 3x/day)
- Straight leg raises (if no lag and permitted by surgeon)
- Gentle patellar mobilisations (as instructed by physiotherapist)

Phase 2: Protection and ROM (2–6 weeks)

Goals

- Continue protection of surgical site
- Gradually improve ROM (goal: 0–90° by week 6)
- Increase quadriceps strength
- Maintain hip and ankle mobility

Instructions

- Continue using knee brace (may unlock gradually for ROM exercises)
- Progress weight bearing as tolerated under guidance
- Continue icing and elevation as needed

Exercises

- Passive and active-assisted knee flexion exercises
- Heel slides
- Stationary bike (no resistance, short range only)
- Straight leg raises in brace
- Hip abduction, adduction, and extension exercises

Phase 3: Strength and Mobility (6–12 weeks)

Goals

- Achieve full ROM
- Begin strengthening and closed chain exercises
- Normalize gait
- Wean off crutches and brace

Instructions

- Discontinue brace and crutches when cleared by healthcare team
- Continue with structured physiotherapy program
- Monitor for any swelling or instability

Exercises

- Wall sits and mini squats (within comfort range)
- Step-ups and step-downs
- Resistance band exercises for hamstrings and quadriceps
- Stationary bike (increase time and resistance gradually)
- Core strengthening and balance training

Phase 4: Advanced Strengthening and Control (3–6 months)

Goals

- Restore neuromuscular control and endurance
- Improve single-leg strength and balance
- Begin functional and low-impact sport-specific training

Instructions

- Follow physiotherapist's guidance for progressions
- Continue strength training 3–4 times per week
- Avoid jumping, running, or twisting movements until cleared

Exercises

- Single-leg squats and bridges
- Leg press and hamstring curls
- Elliptical machine and swimming
- Proprioception drills (e.g. BOSU ball, single-leg stance)
- Light agility work (shuffles, lateral movements)

Phase 5: Return to Sport (6–12 months)

Goals

- Return to full activity without pain or instability
- Demonstrate strength symmetry and dynamic control
- Safely reintroduce sport-specific skills

Instructions

- Clearance from surgeon and physiotherapist required
- Continue sport-specific rehab under guidance
- Avoid high-impact activities unless strength and biomechanics are adequate

Exercises

- Plyometrics (e.g. hopping, jump squats)
- Agility drills (e.g. ladder, cone drills)
- Sprint progression
- Sport simulation exercises
- Ongoing strength and conditioning maintenance

When to Contact Your Surgeon

Contact your surgeon immediately if you experience any of the following:

- Signs of infection (increased redness, warmth, swelling, or drainage at the incision site, fever over 38°C)
- Severe or increasing pain not relieved by medication
- Calf pain or swelling (possible blood clot)
- Numbness or tingling in the foot or leg
- Locking or giving way of the knee
- Delayed wound healing or opening of incision

Note: This is a general guideline. Your physiotherapist or surgeon may adjust the protocol based on your specific condition and progress.