



**Lahey Hospital
& Medical Center**

**Rehabilitation Protocol:
Tibial Tubercle Transfer and Lateral Release**

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◀ Overview

Patellar realignment alters the medial-lateral position of the quadriceps muscle to the patella through appropriate manipulation of the tissues at or above the level of the patella. This surgical option is typically offered after failure of conservative management.¹ An incision is made over the knee and specific procedures include: lateral retinacular release (lengthening the structures on the outside of the patella), VMO (Vastus Medialis Oblique) advancement and MPFL (Medial Patello-Femoral Ligament) repair and reconstruction (shortening the muscle or ligaments on the inside of the patella). This procedure is sometimes done in combination with a distal realignment procedure. Distal realignment is often done to reduce the “Q angle”. This is performed through an incision over the knee in which an instrument to cut the tibial tubercle (the bony prominence on the top of the tibia where the patellar tendon attaches) is used. The patellar tendon is then moved medially which alters the position of the patella. Medial patellar glides must be done in order to avoid scarring of the lateral structures.¹ Patients will often have an immobilizer until they achieve negative quadriceps lag with straight leg raising, and demonstrate control of knee position.¹

When normal anatomic positioning of the tibial tubercle and proper patellar tracking is restored postoperative outcomes are favorable.¹ A quality post-operative rehabilitation program is essential to having a successful outcome from a patellar stabilization procedure. The goals of rehabilitation will initially focus on protection for healing, mobility and range of motion. After this early phase there will be a strong emphasis on strengthening throughout the entire leg and core. In the final stages rehabilitation the focus will be on control of sport specific movements, such as change of direction and rotational movements. Patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehabilitation compliance and injury severity. Modifications in the specific time frames, restrictions and precautions may also be made to protect healing tissues based on the specific surgical repair/reconstruction procedure performed.

¹ Current Concepts in Orthopaedic Physical Therapy, 3rd Edition. The Knee: Physical Therapy Patient Management Utilizing Current Evidence—*Tara Jo Manal, PT, DPT, OCS, SCS; Steve A. Hoffman, PT, ATC, SCS; and Lynne Sturgill, PT, MHS, OCS (Subject Matter Expert: Lisa T. Hoglund, PT, PhD, OCS, Cert MDT)*

◀ Phase I Protective Phase 1–2 Weeks

Goals

- Control pain and swelling
- Initiate knee motion
- Activate Quad

Precautions

- WBAT with crutches and knee immobilizer in full extension
- Restrict WB on flexed knee
- No stairs

- Exercises:
 - Quad set
 - Heel slides
 - Ankle pump

◀ Phase II – Intermediate Phase Weeks 2 – 6

Goals

- Protect patellar realignment
- Maintain full knee ext
- Initiate passive flex
- Decrease swelling
- Activate Quad

Precautions

- FWB with brace in full extension
- Ice
- No stairs
- No SLRs
- No active knee extension exercises

Therapeutic Exercise

- Quad set
- Heel slides
- Ankle pumps
- Sitting knee flex
- Hip ABD
- Heel raises

◀ Phase III
Weeks 6 – 12

Goals

- Walk normally
- Regain full motion
- Regain full muscle strength

Precautions

- D/C immobilizer when safe per MD
- FWB-avoid limp
- Avoid patellofemoral overload
- Limit OC and CC knee extension arc to 0°- 30°

Therapeutic Exercise

- Stationary bike
- Quad set
- Heel slide
- SLR
- SAQ
- Standing HS curl
- Heel Raise
- Hip ABD
- Wall Slides

Interval sports programs can begin per MD

Phase IV

Weeks 12 and on

Goals

- Avoid pain at tendon repair site
- Increase strength

Precautions

- Walking/stairs without AD or brace
- Brace for sport PRN

- Exercises:
 - Stationary bike
 - Swimming
 - Wall slides
 - Squat to chair
 - Step up/down
 - Single leg heel raise
 - HS stretch
 - Quad stretch
 - Seated Leg Press
 - HS curl

AVOID these exercises (cause overload at the patella and tendon repair):

- Knee extension using a weight lifting machine
- Lunges
- Stairmaster
- Step exercises with impact
- Running
- Jumping
- Pivoting or cutting
- Progressive walk/jog 12-16 weeks
- Progressive run/agility 16-20 weeks
- Return to sport 20-24 weeks

AAROM = active-assisted range of motion, ADL = activity of daily living, AROM = active range of motion, PROM = passive range of motion, ER = external rotation, IR = internal rotation, ROM = Range of Motion G/H = glenohumeral

Rehabilitation Protocol for TibTub Transfer Lateral Release

Rehabilitation Guidelines: Summary Table

Post –op Phase/Goals	Therapeutic Exercise	Precautions
<p>Phase I 1 - 2 weeks after surgery</p> <p>Goals:</p> <ul style="list-style-type: none"> • Control pain and swelling • Initiate knee motion • Activate Quad 	<p>Quad set Heel slides Ankle pump</p>	<ul style="list-style-type: none"> • WBAT with crutches and knee immobilizer in full extension • Restrict WB on flexed knee • No stairs
<p>Phase II 2 – 6 Weeks</p> <p>Goals:</p> <ul style="list-style-type: none"> • Protect patellar realignment • Maintain full knee ext • Initiate passive flex • Decrease swelling • Activate Quad 	<p><u>Therapeutic Exercise</u></p> <ul style="list-style-type: none"> • Quad set • Heel slides • Ankle pumps • Sitting knee flex • Hip ABD • Heel raises 	<ul style="list-style-type: none"> • FWB with brace in full extension • Ice • No stairs • No SLRs • No active knee extension exercises
<p>Phase III 6 – 12 Weeks</p> <p>Goals:</p> <ul style="list-style-type: none"> • Walk normally • Regain full motion • Regain full muscle strength 	<p>Therapeutic Exercise</p> <ul style="list-style-type: none"> • Stationary bike • Quad set • Heel slide • SLR • SAQ • Standing HS curl • Heel Raise • Hip ABD • Wall SlidesI <p>Interval sports programs can begin per MD</p>	<ul style="list-style-type: none"> • D/C immobilizer when safe per MD • FWB-avoid limp • Avoid patellofemoral overload • Limit OC and CC knee extension arc to 0°-30°

<p>Phase IV 12 Weeks and on</p> <p>Goals:</p> <ul style="list-style-type: none"> • Avoid pain at tendon repair site • Increase strength 	<p>Exercises:</p> <ul style="list-style-type: none"> Stationary bike Swimming Wall slides Squat to chair Step up/down Single leg heel raise HS stretch Quad stretch Seated Leg Press HS curl <p>AVOID these exercises (cause overload at the patella and tendon repair):</p> <ul style="list-style-type: none"> • Knee extension using a weight lifting machine • Lunges • Stairmaster • Step exercises with impact • Running • Jumping • Pivoting or cutting • Progressive walk/jog 12-16 weeks • Progressive run/agility 16-20 weeks • Return to sport 20-24 weeks 	<p>Walking/stairs without AD or brace</p> <p>Brace for sport PRN</p>
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