

Tibial Tubercle Rehabilitation Protocol

Phase 1 (0-6 weeks post-op)

Rehabilitation Goals

- Protect surgical repair
- ROM: full knee extension, 90° knee flexion

PRECAUTIONS

- Wear brace at all times (even while sleeping)

Crutches/Brace

Crutch and brace use as follows:

- Weeks 1-2: touch down wt bearing @ 0-10% body wgt with brace locked at 0° ext
- Weeks 3-4: partial wgt bearing @ 10-25% body wgt with brace locked at 0° extension
- Weeks 5-6: partial wgt bearing @ 25-50% body wgt with brace set at 0-60°

Rehabilitation

- Frequent use of cryocuff and/or ice with lower extremity elevated
- Begin patellar mobilizations (10 reps each direction TID) after suture/staple removal
- Begin scar massage after incision site sloughs/scar is formed

Weeks 1-2

- Calf pumping w/ tubing
- Heel slides - assisted as needed from 0-30°
- Static quad sets (with estim)
- Supine passive extension with towel under heel
- Gentle hamstring stretching

Weeks 3-4

- Heel slides - assisted as needed from 0-60°
- Stationary bike for ROM - (within limitations of ROM)
- UBE and upper body weight training

Weeks 5-6

- Heel slides - assisted as needed from 0-90°
- Heel raise progression: begin bilateral heel raises - progress to unilateral
- SLRs: All directions - may add light weight when pain free
- Lower extremity stretching: (HS, hip flexor, calf)
- SAQs with light weight as tolerated
- Beginning level pool exercises (i.e., walking in chest deep water, pool jogging)

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Tibial Tubercle Rehabilitation Protocol

Phase 1 (0-6 weeks post-op)

Follow-Up

- Physical Therapy: Weekly
- Ortho: ~6 weeks post-op;
- Supervised rehab: 2-3 x per week

Documentation

- Precautions, pain level, medications and modalities
- Observation: (incision sites) - Signs/symptoms of infection? Site healing well? Effusion?
- Neurovascular status: Distal pulses, motor and sensation intact? Presence of calf pain?
- Knee ROM, quadriceps function, & gait

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Tibial Tubercle Rehabilitation Protocol

Phase 2 (7-12 weeks post-op)

Rehabilitation Goals

- Full knee ROM and minimal or no effusion
- $\geq 80\%$ quadriceps and hamstring strength compared to the uninvolved side

PRECAUTIONS

- **NO** running until 3 months post-op

Crutches/Brace

D/C brace when gait is normal and 120° knee flexion is achieved. WBAT

Rehabilitation

- Continue phase I exercises as needed
- Progress to the following exercises and increase intensity gradually when patient is ready (i.e., no increase in knee pain or effusion since the previous exercise session)
- *Note: all strengthening should be done with the brace on, starting with low weights, high repetitions, and in a painless ROM*

Weeks 7-8

- Stationary biking for conditioning
- General LE stretching (calf, HS, HF, IT band, hip adductors)
- Double leg mini-squats with ball squeeze (0-45°) - progress to single leg
- Gait training (cone walking, marching, retrowalking, cariocas, shuffles, etc.)
- Forward, lateral, and retro step-ups (start with 2", progress as tolerated)
- Leg press & hamstring curls 0-45° (bilaterally with light weights)
- Progressive standing balance exercises (body blade, plyo-ball, platform training, etc.) (progress in duration, intensity, double leg to single leg, etc.)
- Beginning level pool exercises - primarily sagittal plane exercises (No "whip" kicking)

Weeks 9-10

- Elliptical - add gradually with stationary bike for conditioning
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 30 repetitions, then 1 additional set at the same weight to muscle failure)
- Progressive pool program as tolerated

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Tibial Tubercle Rehabilitation Protocol

Phase 2 (7-12 weeks post-op)

Weeks 11-12

- Stairmaster – add gradually with bike/elliptical for conditioning
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 20 repetitions, then 2 additional sets at the same weight to muscle failure)
- Progressive functional training (2 legged plyometrics, jump roping, etc.)

Follow-Up

- PT: Bimonthly
- Ortho: ~12 weeks post-op
- Supervised rehabilitation: 2-3 x per week as needed

Documentation

- Precautions, pain level, medications, modalities
- Effusion
- Knee ROM & quadriceps function
- Gait

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Tibial Tubercle Rehabilitation Protocol

Phase 3 (4-6 months post-op)

Rehabilitation Goals

- Jog at own pace and distance without pain
- Strength return of ~90% for quadriceps and hamstring compared to uninvolved side

PRECAUTIONS

- **NO** participation in contact/collision sports for 6-9 months post-op

Brace

None

Rehabilitation

- Continue other phase II exercises as needed
- Progress in duration and intensity of exercise only if there is no increase in knee pain or effusion since the previous exercise session.
- Warm-up: 5-10 minutes (bike, elliptical, stairmaster)
- General LE stretching: 5-10 minutes (calf, HS, quads, HF, hip adductors)
- Progressive jogging program (increase time and/or distance no more than 10-20% per wk)
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 10 repetitions, then 2 additional sets at the same weight to muscle failure)
- Progressive balance training as needed
- Progressive functional training: Begin at 25-50% intensity and progress gradually (jumping, hopping, directional jogging, cariocas, shuffles, etc.)

Follow-up

- PT: Monthly
- Ortho: ~6 months post-op
- Supervised rehab: 1-2 x per week as needed

Documentation

- Pain level & medications
- Effusion
- Knee ROM & quadriceps function
- Hop for distance

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Tibial Tubercle Rehabilitation Protocol

Phase 3 (4-6 months post-op)

Miscellaneous

- After 6 months post-op: Exercises in phase III are continued, gradually increasing intensity & duration as tolerated.
- The recommendation is to wait until 6-9 months post-op to return to contact/collision sports. This time period may be adjusted slightly by the surgeon and therapist according to patient progress.



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