Sutter Health

Jonathan D. Hughes, MD PhD
Orthopedics and Sports Medicine
Phone: (916) 262-9440
Fax: (916) 262-9445

Tibial Tubercle Osteotomy:

The intent of this protocol is to provide the therapist with guidelines of the post-operative rehabilitation course after Tibial Tubercle Osteotomy. It should not be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam findings, individual progress, and/or the presence of post-operative complications. The therapist should consult the referring physician with any questions or concerns.

INDIVIDUAL CONSIDERATIONS:

_____

_____

Phase I (Weeks 0-6)

Goals
- Control inflammation and pain
- Protect soft tissue and tubercle fixation
- Full active extension and 120 degrees of flexion
- Achieve quadriceps control

Brace
- Locked in extension for 6 weeks during ambulation
- Sleep with brace locked for 4 weeks, then discontinue for sleep

Weight-Bearing Status
- Weight-bearing as tolerated with crutches and brace locked in extension

Therapeutic Exercises
- Straight leg raises in all planes (use brace locked in extension for SLRs)
- Heel slides to 120 degrees, calf pumps, quadriceps sets
- Electrical stimulation and biofeedback to regain quad function
- Patellar mobilization

- Ankle ROM and resistive exercises with sports tubing (Theraband)

Phase II (Weeks 6-8)

Criteria

- Good quad set, straight leg raise without extension lag
- 120 degrees of knee flexion
- Full extension

Goals

- Increase ROM
- Establish normal gait with unlocked brace

Brace/Weight-bearing status

- Continue with full weight bearing
- Use crutches and unlock brace for ambulation
- May discontinue crutches and brace when normal gait pattern and quad control is achieved

Therapeutic Exercises

- Increase ROM
- Progress to SLRs without brace
- Mini-squats (0-45 degrees)
- Stationary Bike (high seat, low tension)
- Closed chain extension (leg press:0-45 degrees)
- Pool walking/jogging
- Toe raises
- Hamstring and gastroc/soleus stretches
- Proprioception
    - Mini-tramp standing
    - Stable and unstable platform (BAPS) with eyes open and closed
    - Standing ball throwing and catching

Phase III (Weeks 8-12)

Criteria

- Normal gait
- Full range of motion
- Sufficient strength and proprioception to initiate functional activities

Goals

- Improve confidence in the knee
- Protect the patellofemoral joint
- Progress with strength, power, and proprioception

Brace/Weight-Bearing Status

- Discontinue brace and crutches

Therapeutic Exercise

- Continue with flexibility exercises
- Hamstring curls
- Mini-squats and leg press to 60 degrees
- StairMaster, elliptical trainer, cross-country ski machine, lap swimming
- Stationary bike, increase resistance
- Step-up, start 2 inches and increase to 8 inches
- Continue to work on proprioception and balance (lateral slide board, ball throwing and catching on unstable surface)
- Treadmill walking

Phase IV (Months 3+)

Criteria

- Full, pain-free range of motion
- No patellofemoral irritation
- Sufficient strength and proprioception to progress to recreational activities

Goals

- Return to unrestricted activity by 4-5 months

Therapeutic Exercises

- Progress with flexibility and strengthening program
- Advance with closed chain exercises
- Begin pool jogging and progress to running on land
- Begin to incorporate cutting drills into agility training
- Advance heights with plyometric conditioning
- Sports specific drills (start a 25% on speed and advance as tolerated)

Criteria for Return to Sports

- Full range of motion
- No effusion
- Quad and hamstring strength 90% of contralateral side
- No patellofemoral symptoms