ZAHAB S. AHSAN MD
ORTHOPAEDIC SURGERY & SPORTS MEDICINE

Healthy Driven
Edward-Elmhurst HEALTH

Tibial Tubercle Osteotomy and MPFL Reconstruction

Physical Therapy Protocol

Brace duration: Week 0-6 from surgery the brace is **locked** in full extension for standing and walking; remove brace for sit/lay range of motion AND at rest.

Weight Status: Week 0-4: Toe Touch / Week 4-6: Transition to Full Weight / Week 6-24+: Full Weight

Post – Operative Phase I (Week 0-4)

Goals:

- Control post-operative pain/swelling
- Range of motion advancement independently:
  0-60° (Week 0-2) □ 0-90° (Week 4) □0-90° (Week 4-6)
- Prevent Quadriceps inhibition
- Normalize proximal musculature muscle strength
- Independent home therapeutic exercise program

Precautions:

- Toe Touch Weight Bearing
- Avoid neglect of range of motion exercises.

Treatment:

- Emphasize patient compliance to Home Exercise Program (HEP) and weight bearing precautions/progression
- TTWB with brace locked in extension with crutches on level surfaces and stairs
- Cryotherapy: home cold therapy unit
- Stimulation for quadriceps re-education: towel roll under knee
- Sitting knee ROM exercise: Active/active-assisted knee flexion, passive Knee Extension
- Quad set with towel roll under knee
- Patella mobilization
- Hip progressive resisted exercises: pain-free SLR with brace until no lag
- Flexibility exercises (hamstrings, gastrocnemius)

POST OP WEEK 4

- Begin Progressive Weight bearing as tolerated with crutches and brace (UNLESS notified otherwise)

MINIMUM CRITERIA FOR ADVANCEMENT TO NEXT PHASE:

Radiographic evidence of adequate healing, and clearance from surgeon
Fair quadriceps contraction
Good patellar mobility
Minimal to no pain at rest
Able to SLR pain-free without quadriceps lag

(630) 646–7000 @ZahabAhsanMD ZahabAhsanMD.com

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Post – Operative Phase II (Week 6-12)

GOALS:

- Independence in HEP, as instructed
- Control pain, inflammation, effusion
- Promote healing
- ROM 0°-130° (12 wks.) to full ROM
- Good patella mobility
- Good quadriceps contraction
- Normalize gait without an assistive device
- 0/10 pain with ADLs, therapeutic exercise: Establish pain-free arc of motion
- Weight bearing as tolerated

PRECAUTIONS:

- Sign and symptom provocation: pain, inflammation, quadriceps shut down, joint effusion
- Progression of weight bearing as per surgeon's prescription
- Pathological gait pattern (quadriceps avoidance; bent knee)
- Pain-free arc of motion during exercise

TREATMENT RECOMMENDATIONS:

- HEP: advance as tolerated. Continue phase I exercises, as appropriate
- Patient education: Activity modification, progression of gait training, cryotherapy
- Patellar mobilization, as per surgeon's guidelines
- ROM exercises
- Quadriceps strengthening progression in pain-free arc of motion (esp. w/ known cartilage injury/ procedure)
- Continue with Estim, biofeedback, submaximal multi angle isometrics
- Leg press: monitor arc of motion (bilateral, eccentric in latter phase)
- Bicycle: progressing from short to standard crank as ROM allows (115° KF in sitting), 80 RPMs
- Flexibility exercises
- Advance proximal strengthening and core: (i.e. hip extension with knee flexion, side planks, bridge)
- Hydrotherapy for gait, single limb alignment and stability, strengthening
- Initiate balance and proprioceptive training: double limb support on progressively challenging surfaces to single limb support on level surface only with demonstration of good alignment, stability and n-m control

MINIMUM CRITERIA FOR ADVANCEMENT:

ROM 0°- 130°
Normal gait pattern without assistive device
Good patella mobility
Postural stability, alignment and neuromuscular control in single limb stance
0/10 pain with ADLs and therapeutic exercise
Independent HEP

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Post – Operative Phase III (Week 13-24+)

GOALS:

- Independent HEP
- Patient education
- Control pain, effusion and inflammation
- 0/10 pain with ADLs, therapeutic exercise
- ROM: WNLs
- Normalize gait on level surfaces and stairs
- Good single limb dynamic balance
- Good eccentric quadriceps control
- Pelvic control during step down

PRECAUTIONS:

- Sign and symptom provocation: pain, and active inflammation/ effusion, quadriceps shutdown
- Gait deviations
- Overloading the joint
- Disregarding quality of movement

TREATMENT RECOMMENDATIONS:

- HEP, as instructed
- Educate patient: Activity modification, individualized, and cryotherapy
- Quadriceps strengthening: progress as tol, monitor arc of motion, closed chain preferred
- Forward Step Up (FSU) progression: pain-free, 6” step progressing to 8” step (patient height dependent)
- Eccentric leg press progressing to:
- Forward step down (FSD) progression: 6” step progressing to 8” step (dependent on patient height)
- Squat progression: chair squats, [ball squats if necessary (with buttocks moving under ball)], to free squats
- ROM exercises
- Treadmill: utilize small grade elevation (%) to encourage loading response
- Retro-walking for neuromuscular control during loading response
- Advance proximal strength through functional activities:
- Balance progression with postural alignment
- Address muscle imbalances – evaluation-based: (i.e. 2 joint hip flexor length)

CRITERIA FOR ADVANCEMENT:

ROM WNLs
No pain or swelling
Normalize gait
Ability to demonstrate alignment, control, stability in single limb stance during dynamic activities
Able to ascend 6”/ 8” step with good control, and alignment
Able to descend 6”/ 8” step with good control, and alignment
Symmetry, quality, alignment during movement