

Tibial Tubercle Osteotomy (TTO) with MPFL Repair/Reconstruction

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PHASE I – IMMEDIATE POST-SURGICAL PHASE (WEEK 0-2)

- **Goals**
 - Maintain integrity of repair (No lateral patellar mobilization for 6 weeks)
 - Gradually increase PROM
 - Decrease pain and inflammation
 - Prevent muscular inhibition
- **Cryotherapy for pain/inflammation**
 - Ice 15-20 minutes every hour
- **Brace**
 - Hinged knee brace/knee immobilizer
 - Locked in extension for ambulation
 - May remove for hygiene and exercises
- **Sleeping**
 - Sleep in brace/knee immobilizer
- **Weight Bearing**
 - Toe-touch weight-bearing (TTWB)
- **ROM**
 - Flexion to 90 degrees, gentle AAROM only
- **Muscle Retraining**
 - Quadriceps isometrics, SLR
- **No lateral patellar mobilization for 6 weeks**
- **No active knee extension until osteotomy is healed (as demonstrated on xray at follow up appointment)**
 - Usually about 6-8 weeks

PHASE II – PROTECTION PHASE (WEEK 2-6)

- **Goals**
 - Allow healing of soft tissue/bone
 - Do not overstress healing tissue
 - Gradually increase ROM
 - Progression based on swelling/inflammation
 - Decrease pain and inflammation
- **Brace**
 - Continue hinged brace/knee immobilizer
 - Keep locked in extension for ambulation

- May open 0-90 degrees when not ambulating
- Weight bearing
 - Continue TTWB
 - Can sleep without hinged brace/knee immobilizer after 2 weeks
- ROM guidelines (PROM, AAROM)
 - 0-90, progress to full as tolerated
- E-stim to quads
- Quad isometrics
- SLR
- Gentle, submaximal isometric knee extension
- Floor-based core, hip, glutes work

PHASE III – INTERMEDIATE PHASE (WEEK 6-9)

- DO NOT begin intermediate phase until cleared by Dr. Heikes (usually with radiographic healing of osteotomy)
- Goals
 - Gradual improvement in ROM
 - Eliminate swelling
 - Control forces on extensor mechanism
- Weight bearing
 - When cleared by Dr. Heikes based on xray, may discontinue knee immobilizer and wean crutches
 - Advance weight-bearing by 25% weekly and progress to full weight-bearing with normalized gait pattern
 - Begin lateral stabilizer brace
- ROM
 - Goal full ROM at 6-8 weeks
- Continue quadriceps strengthening
- Continue above exercises
- Light knee extension (90-60 degrees)
- Stationary bicycle
- Hip/core strengthening

PHASE IV –STRENGTHENING PHASE (WEEK 9-16)

- Goals
 - Maintain full ROM
 - Improve limb strength and endurance
 - Gradual return to functional activities
- Criteria to progress to Phase IV
 - Full, non-painful ROM
 - Absence of swelling/inflammation

- Voluntary control of quads
- Continue above exercises
- Wall squats (0-60 degrees)
- Knee extension (60-0 degrees)
- Cycling, elliptical, swimming after 12 weeks
- Progress to functional drills as tolerated
- Begin sport specific drills as appropriate

PHASE V –RETURN TO ACTIVITY PHASE (WEEK 18-24)

- Goals
 - Gradual return to strenuous work activities
 - Gradual return to recreational sports activities
- Criteria to progress to Phase V
 - Appropriate strength level/Clinical exam