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TIBIAL TUBERCLE OSTEOTOMY WITH CARTILAGE REPAIR
PHYSICAL THERAPY PROTOCOL

The intent of this protocol is to provide guidelines for progression of rehabilitation and is not intended to serve as a substitution for clinical decision-making. Progression through each phase of rehabilitation should take into account tissue-healing time frames, clinical objective findings, and MD approval to ensure structural stability. There will be variability between patients in terms of time frames and it is crucial not to progress through phases until the individual meets the appropriate requirements.

INITIAL PRECAUTIONS

Weight Bearing:

- 0-4 weeks → 30% PWB
- 4-8 weeks → Progress to WBAT with 2 crutches
- Crutch weaning and D/C is dependent walking without a limp

Initial ROM Related Restrictions:

- Weeks 0-2: 0-30 degrees in hinged knee brace
- Weeks 3-4: 0-60 degrees in hinged knee brace
- Weeks 5-6: 0-90 degrees in hinged knee brace
- Continuous Passive Motion machine per ROM restrictions 6 hours per day for 6 weeks
- Progress to ROM as tolerated after 6 weeks
- Work on regaining terminal extension
- Hinged knee brace locked in extension, except when doing ROM exercises for first 2 weeks
- Weeks 3-6 brace locked per restrictions above during the day but in extension at night

PHASE 1 – PROTECTION PHASE (1-6 weeks)

Goals:

- Optimize bone and tissue healing and limit scar formation
- Protect surgical/cartilage repair
- Reduce effusion, swelling and pain
- Restore knee ROM 0-90
- Promote normal proprioceptive and neuromuscular control

Tissue Healing

- PRICE – Protection, Rest, Ice, Compression, Elevation
- Scar massage after incision is healed

Gait

- 2 crutches at all times

POW 1-6

- Patella, patella tendon and quadriceps tendon mobilization
- Quad activation working on terminal extension
- Quad/Hamstring/Glute sets
- Straight leg raises (if no lag, in brace)
- Hamstring and Calf stretching without weight bearing
- Hip and Core strengthening as tolerated
- Heel slides within ROM restrictions

PHASE 2 – EARLY STRENGTHENING (7-12 weeks)

Criteria for advancement to Phase 2:

- No extensor lag
- Normal joint temperature
- Minimal to no joint effusion

Goals:

- Restore near symmetric ROM
- Normalize gait pattern on flat ground
- Maintain trace to no joint effusion
- Tolerate standing and walking activity

Precautions

- Progression of weight bearing and normal gait
- Closed kinetic chain activity preferred
- No cutting/pivoting/plyometrics
- Brace discontinued

Strength, Proprioception and Neuromuscular Re-education

- Progressive balance training
- Calf raises
- Mini squats
- Step-ups
- Leg presses
- Double leg squats
- Core, hip and upper body strengthening as appropriate

Cardio

- Stationary Bike no resistance weeks 6-8
- Stationary Bike with resistance weeks 8+

PHASE 3 – PROGRESSIVE STRENGTHENING (12-24 weeks)

Criteria for Advancement to Phase 3:

- Full weight bearing
- Normalize gait pattern on flat ground
- Maintain trace to no joint effusion
- Tolerate standing and walking activity

Goals:

- Build lower extremity strength, endurance, and balance.
- Quad strength 90% of contralateral side
- Normal gait/form with straight line running

Precautions

- No cutting/pivoting activities

Strengthening, Proprioception and Neuromuscular Re-education

- Double leg squats
- Leg press
- Static lunges
- Dynamic lunges
- Balance training
- Core, hip and upper body strengthening as appropriate

Cardio

- Stationary bike
- Elliptical use and treadmill walking
- Swimming
- Progression from treadmill walking to straight line running

PHASE 4 – RETURN TO SPORT (WEEKS 24+)

Criteria for advancement to Phase 4

- Good form on Phase 3 exercises
- Progressive strength/endurance development
- No joint effusion after phase 3 activities

Goals:

- Build lower extremity muscular strength
- Train balance and power
- Progress to sport specific activities as tolerated

Precautions

- None

Strengthening, Proprioception and Neuromuscular Re-education

- Same as above:
 - Single leg squats
 - Single leg dead-lifts
 - Step ups/downs
 - Multidirectional lunges
- Plyometric and cutting and pivoting exercises
 - Progression as tolerated with good form/control

Return to Sport Criteria

- Full active range range of motion
- No effusion
- Vertical jump, single leg hop distance, and timed single leg hop over 20 feet >85% contralateral side
- Quadriceps strength: Single leg press >90% contralateral side

General Rule

- Return to sport around 8 months as cleared by MD