

Rehabilitation Protocol:

Tibial Tubercle Osteotomy +/- MPFL Reconstruction

	Weight Bearing	Brace Use	Range of Motion	Therapeutic Elements
PHASE I 0 - 2 weeks	Non-weight bearing (NWB) with crutches.	Lock in extension. Unlock for exercises	Advance as tolerated. Goal: at least 90° by 4wks, 120° by 6wks.	Quad sets, hamstring isometrics, co-contractions, ankle pumps. Regain full extension. Modalities: heat before, ice after. Quad stim. Start BFR.
2 - 6 weeks	Touch-down (TDWB) with crutches.	*TTWB and with brace LOCKED in extension for walking & sleeping* Can unlock for exercise	PROM: 90° flexion at each therapy session.	*NO SLR Until after 6wk appt*
6 - 8 weeks **Crutches until week 8-10**	50% WB x 2 week, then advance to FWB as tolerated, then wean crutches.	Discontinue brace if patient has controlled SLR without extension lag.	Progress to full ROM.	SLR. Begin progressive closed chain exercise. Bicycle. BFR.
8 - 10 weeks	Full weight (FWB) with normal gait.	None.	Full A/PROM.	Advance closed chain exercise. Balance exercises. BFR.
PHASE II 10 -16 weeks	FWB.	None.	Full A/PROM.	Begin open chain strengthening. Swimming and Treadmill walking for exercise. Progress to Elliptical (EFX).
PHASE III 4 - 5 months	FWB.	None.	Full.	Can begin running progression when meets criteria - outlined below Can begin Agility when meets criteria below
PHASE IV 5 - 6 months	FWB.	None.	Full.	Continue strength training. Continue Agility phase Return to sport progression Can return when passes LEAP test

Criteria to begin Running Phase in Phase III:

- PAIN LESS THAN 3 / 10 (WORST)
- WITHIN 2° NORMAL KNEE EXTENSION & 120° KNEE FLEXION
- QUADRICEPS & HAMSTRING STRENGTH > 60% NORMAL
- LESS THAN 4cm DEFICIT ON SINGLE-LEG SQUAT (ANTERIOR REACH)
- AT LEAST 1 MINUTE OF SINGLE LEG SQUATS

Running Progression:

Running prep exercises: focus on the deceleration phase such as DL speed squats, DL drop squats, DL “bounce bounce squat”, then progress to alternating SL drop squats.

Initiate jogging and progress to in-line running: Begin on treadmill with 2- 3 days per week. Begin with 1:1 or 2:1 walk to jog ratios, (ie. 1 min walk to 1 min jog or 2 min walk to 1 min jog). Then progress each week by 1 min jog until 10-15 min of jogging is achieved.

Criteria to begin Agility Phase in Phase III or IV:

- Completed Running progression and running 10 mins on track or treadmill with minimal pain and swelling
- Quad & HS strength > 85% normal
- > 50% H/Q ratio for females
- can perform at least 3 minutes of single leg squats