# MACI, AUTOCART, MICROFRACTURE, or BIOCARTILAGE** TO PATELLA/TROCHLEA and TIBIAL TUBERCLE OSTEOTOMY (TTO) REHABILITATION PROTOCOL

| | WEIGHT BEARING | BRACE | ROM | EXERCISES |
|---|---|---|---|---|
| **PHASE I** 0-8 weeks | **0-6 weeks:** Heel touch only<br><br>**6-8 weeks:** Advance 25% weekly until full | **0-2 week:** Locked in full extension at all times*<br><br>Off for CPM, hygiene, and exercises only<br><br>**2-4 weeks:** Unlocked 0-45°; worn daytime only<br><br>**4-6 weeks:** Unlocked 0-90°; worn daytime only<br><br>Discontinue after 6 weeks when WB comfortably | **0-2 wks:** Gentle passive 0-45 as tolerated<br><br>**2 wks+:** advance as tolerated<br><br>**0-6 wks:** use CPM 6 hours/day, advance 5-10 degrees/day as tolerated, d/c at 6wks***<br><br>Goals:<br>0-2 wks: 0-30<br>2-4 wks: 0-60<br>4-6 wks: 0-90 | **0-2 weeks:** Quad sets, SLR, calf pumps, passive leg hangs to 45° at home<br><br>**2-6 weeks:** PROM/AAROM to tolerance, patella and tibiofibular joint mobs, quad, hamstring, and glute sets/stretching, side-lying hip and core<br><br>**6-8 weeks:** Addition of heel raises, closed chain exercises, gait normalization, eccentric quads, eccentric hamstrings; advance core, glutes and pelvic stability |
| **PHASE II** 8-12 weeks | Full | None | Full | Progress closed chain activities and gait training<br><br>Begin unilateral stance activities, balance training, hamstring work, hip/core/glutes<br><br>Begin stationary bike at 10 wks with low resistance as tolerated |
| **PHASE III** 12-24 weeks | Full | None | Full | Advance Phase II exercises; maximize core/glutes, pelvic stability work, eccentric hamstrings, balance<br><br>Swimming as tolerated after 12 weeks<br><br>Elliptical as tolerated after 16 weeks**** |
| **PHASE IV** 6-12 months | Full | None | Full | Advance functional activity without impact<br><br>Return to sport-specific activity and impact when cleared by MD after 6-8 months |

*Brace may be removed at night after first post-operative visit (day 7-14) if directed

**Please follow PT script if different than this protocol. Alignment correction procedures (HTO, DFO) do not change protocol

***If CPM is not prescribed, goal is 600-800 reps of gentle ROM each day

****Microfracture patients can advance back to sport as tolerated after 16 weeks

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