



High Tibial Osteotomy (HTO) Rehabilitation Protocol

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Procedure: Isolated High Tibial Osteotomy

PT Frequency: 2-4 times per week

ROM Restrictions: 0-90 x 2 weeks, then advance as tolerated

Brace: Locked in full extension x 2 weeks, then unlocked 0-90 until 6-8 weeks

Weightbearing: TDWB x 6 weeks, then PWB (25% with progression to full WBAT at 8 weeks)

PHASE I (Weeks 0 – 2):

- **Weightbearing:** Touch Down Weightbearing (TDWB) x 6 weeks with crutches and brace
- **Brace:** Worn at all times locked in full extension. Ok to remove for hygiene and exercises.
- **Range of Motion:** 0-90° with emphasis on full extension
- **Home Exercises:** Quad sets with brace locked at 0°, patellar mobilization, straight leg raise in brace locked at 0°, calf/ankle pumps, passive leg hangs to 90°

Phase II (Weeks 2 – 6)

- **Weightbearing:** TDWB with crutches and brace by 8 weeks
 - Discontinue crutches when gait normalized and non-antalgic
 - Discontinue brace once fully WBAT without crutches
- **Brace:** Unlocked during day 0-90°, off at night, for hygiene and exercises
 - Discontinue after 6-8 weeks when WB comfortably
- **Range of Motion:** Full unlimited active/passive ROM as tolerated
- **Exercises:**
 - PROM/AAROM to tolerance, patella and tibiofibular joint mobs
 - Begin floor based core and glute/quad/hamstring exercises

Phase III (Weeks 6 – 8)

- **Weightbearing:** Advance 25% weekly until full ROM
- **Hinged Knee Brace:** Discontinue when WB comfortably
- **Range of Motion:** Full
- **Exercises:**
 - Advance closed chain exercises, gait normalization, eccentric quads, eccentric hamstrings; advance core, glutes and pelvic stability
 - Begin stationary bike as tolerated after 6 weeks

Phase IV (Weeks 8 – 16)

- **Weightbearing:** Full WBAT
- **Brace:** None
- **Range of Motion:** Full
- **Exercises:**



- Progress Phase III exercises and functional activities: walking lunges, planks, bridges, swiss ball, half-bosu exercises
- Advance hamstring work, proprioception/balance exercises; hip/core/glutes, balance, flexibility
- May advance to elliptical, pool as tolerated after 12 weeks

Phase V (Weeks 16+)

- **Weightbearing:** Full WBAT
- **Brace:** None
- **Range of Motion:** Full
- **Exercises:**
 - Slowly advance all activity as tolerated
 - Progress to functional training, including running, jumping, pivoting, and sports activity after 16 weeks
 - Return to play as tolerated when cleared by MD



Exercise	Week																					
	1	2	3	4	5	6	7	8	9	10	12	16	20	24								
Initial Exercises:																						
ROM Goals	0-30°		0-60°		0-90°		Progress to full															
Flexion/extension, heel slides/seated																						
Patella/Tendon mobilization																						
Quad Series	0° ISOs, SLR				60° ISO				70-30° arc-resisted				Full arc resisted									
Hamstring series																						
Sit and reach for hamstrings																						
Ankle Pumps																						
Crutch weaning	NWB						Begin WBAT progress to full by 8 weeks															
Heel prop knee extension stretch																						
SLR (w/ brace until quad control restored)																						
Toe and heel raises																						
Balance series																						
Weight-bearing Strength Exercises:																						
	1	2	3	4	5	6	7	8	9	10	12	16	20	24								
Double knee bends	NWB																					
Leg Bridges (2 □ 1 leg)																						
Begin cord exercises																						
Leg press (ISO □ reps, 2 □ 1 leg)																						
Reverse lunge- static hold																						
Dead Lift (2 □ 1 leg)																						
Sports Test exercises																						
Cardiovascular Exercises:																						
	1	2	3	4	5	6	7	8	9	10	12	16	20	24								
Bike with both legs-no resistance	NWB																					
Bike with both legs- resistance																						
Aqua jogging																						
Treadmill-walking (no limp)																						
Swimming with fins-light flutter kick																						
Elliptical Trainer																						
Stair stepper																						
*Cardio Exercises							Must tolerate daily walking with no limp & no significant increase in pain/swelling prior to initiating WB cardio (walk, elliptical, stepper)															
Agility Exercises:																						
	1	2	3	4	5	6	7	8	9	10	12	16	20	24								
Running Progression	NWB																					
Initial-Single Plane																						
Advance-Multi Directional																						
Functional Sports Test																						
High Level Activities:																						
	1	2	3	4	5	6	7	8	9	10	12	16	20	24								
Golf Progression	NWB																					
Outdoor biking, hiking, running																						
Return to Full Sport at 6-8 months post-op																						

Adapted from post-operative protocol by Dr. Jorge Chahla created by Howard Head Physical Therapy, Jill Monson, PT, OCS and Jon Schoenecker, PT, OCS, CSCS