

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

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