



Post-operative Rehabilitation Protocol
High Tibial Osteotomy/Distal Femoral Osteotomy

Phase 1 (0-4 weeks post op):

Goals	<ul style="list-style-type: none"> Minimize pain Reduce edema Restore ROM
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> Weight bearing: <ul style="list-style-type: none"> 0-4 weeks: toe-touch to 25% weight-bearing Brace: 0-2 weeks: 0-90 degrees; 2-4 weeks: open to available range <ul style="list-style-type: none"> Leave brace unlocked at all times following resolve of nerve block Brace may be removed for hygiene and therapy Avoid active hamstring activity for first 2 weeks
Range of Motion	<ul style="list-style-type: none"> Weeks 0-2: 0-90 degrees Weeks 2+: progress to full ROM Patellofemoral joint mobilizations
Strengthening	<ul style="list-style-type: none"> Restore quadriceps recruitment through strengthening exercises Quadriceps, hamstring, and gluteal strengthening exercises Exercises to reduce swelling/ effusion (modalities as needed) Quadriceps NMES Avoid active hamstring exercises for first 2 weeks
Home Instructions	<ul style="list-style-type: none"> Keep surgical dressings clean and dry Change surgical bandages on the 2nd day after surgery (keep covered until first clinic visit) Avoid getting sutures wet until at least 5 days after surgery (do not scrub, soak, or submerge the incisions) Note DVT (blood clot) prophylaxis medications provided by your surgeon to take following surgery – follow those instructions carefully.
Suggested Exercises	<ul style="list-style-type: none"> Ankle pumps Quad isometrics SAQ and LAQ (through protected ROM- 90-45 degrees) SLR 4-ways Flexion and extension ROM exercises Cycling for ROM only (week 2) Clamshells

Phase 2 (4-8 weeks post op):

Goals	<ul style="list-style-type: none"> Improve muscular strength and endurance Full, pain-free ROM
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> Medial Opening Wedge HTO: <ul style="list-style-type: none"> Weeks 0-4: TTWB to 25% WB Weeks 4-6: 50% WB Weeks 6-8: WBAT with crutches Brace: Discontinue after 6 weeks if capable of SLR without extensor lag

Range of Motion	<ul style="list-style-type: none"> Restore full, pain-free active ROM
Strengthening	<ul style="list-style-type: none"> Continue strengthening exercises from Phase I Advance to multi-angle knee isometrics Advance gluteal strengthening exercises to closed chain (bridges) Closed chain quadriceps exercises (mini-squats, wall sits, TKE) Open chain knee extension (week 7+) Open chain hamstring exercises (week 6+)
Home Instructions	<ul style="list-style-type: none"> Restore normal activities of daily living (within weight-bearing restrictions)

Phase 3 (8-16 weeks post-op):

Goals	<ul style="list-style-type: none"> Normalize gait Progress balance and NM control Progress lower extremity and gluteal strengthening Maintain full ROM
Brace/Precautions/ Crutch Use	<ul style="list-style-type: none"> Caution should be exercised when engaging in CKC knee flexion of approximately 90 degrees and stepping downstairs in early postoperative period Full weight-bearing without crutches
Range of Motion	<ul style="list-style-type: none"> Maintain full ROM
Strengthening	<ul style="list-style-type: none"> Continue strengthening exercises from Phase 2 Progress balance and proprioception exercises (integrate balance with strengthening exercises- BOSU squats & lunges) Advance lower extremity strengthening exercises (open and closed chain) Advance gluteal strengthening exercises Include cardiovascular conditioning with elliptical, swimming, and cycle (12+ weeks) <p>Precautions:</p> <ul style="list-style-type: none"> Weeks 8-10 <ul style="list-style-type: none"> Limit mini-squats 0-45 degrees Weeks 10-12 <ul style="list-style-type: none"> Heel taps 2-4" Step ups 6-8" Weeks 12-14 <ul style="list-style-type: none"> Resisted OKC quadriceps strengthening through full ROM
Home Instructions	<ul style="list-style-type: none"> Maintain normal activities of daily living

Phase 4 (3+ month):

Goals	<ul style="list-style-type: none"> Progress to sport specific activities
Precautions/ Crutch Use	<ul style="list-style-type: none"> None
Range of Motion	<ul style="list-style-type: none"> Maintain full ROM
Strengthening	<ul style="list-style-type: none"> Continue previous exercises with progressive resistance Begin running progression program Month 4+: agility drills and plyometrics can begin along with any other sport-specific exercises
Home Instructions	<ul style="list-style-type: none"> Maintain normal activities of daily living Transition to home/gym program

For any questions about operative details or rehabilitation guidelines, please contact the respective surgeon's Athletic Trainer at the contact information found at this link: <https://med.virginia.edu/orthopaedic-surgery/orthopaedic-divisions/sports-medicine/protocols/>