



HIGH TIBIAL OSTEOTOMY REHABILITATION PROTOCOL

REHABILITATION PROGRESSION

The following is a general guideline. Please consult Dr. Syal/Dr. Soswa if there is any uncertainty concerning advancement of a patient to the next phase of rehabilitation. Rehabilitation should be individualized according to patient status.

PRECAUTIONS

- supervised physiotherapy is expected for approximately 2-6 months
- compression knee sleeve may be worn immediately post-op or once able to fit, and continued for duration of rehab
- initially ambulate with axillary crutches for first 8-12 weeks
- surgeon will base weight bearing status upon x-ray confirmation of bone incorporation

PHASE I (WEEK 0-2)

- gait: NWB with crutches, walker
- modalities: prn for pain and inflammation (ice, IFC), cryotherapy
- knee rehab brace: locked in extension & on at all times, off for hygiene and rehab only
- ROM: 0° – 90°, encourage full extension
- passive positional stretches for extension and flexion of knee
- foot & ankle AROM
- heel slides (+/- slider board) in supine and in seated position, seated active assisted knee flexion (towel slides with heel on floor), quads setting, knee cap mobility, seated calf stretch with towel, SLR with locked brace

PHASE 2 (WEEKS 2-6)

- gait: NWB with crutches, walker
- ROM: 0° – 120°, encourage full extension
- modalities:
 - NMES to quads if unable to perform quad sets and extensor lag with SLR
 - IFC and ice for pain and edema prn
 - sEMG neuromuscular re-education for quad sets
- conditioning
 - NWB strengthening exercises: hip, hamstrings, quadriceps, calves



PHASE 3 (WEEKS 6-12)

- gait: 50% WB x 3 weeks, progress to FWB second 3 weeks if tolerated
 - gait retraining focusing on correct heel strike/toe off and VMO activation during stance
 - brace: wean from post-op brace starting at week 6 and D/C at 10 weeks
- ROM goals: full ROM with brace off
 - emphasize full extension and increase to full flexion
- encourage VMO activation with co-contraction and biofeedback techniques
- hamstring strengthening with static weight bearing co-contractions progressing to active free hamstring contractions
- stationary bike (encourage daily), stepper, leg press, mini trampoline, CKC shuttle, mini squats, calf raises, mini step up/down; lateral movements; progress as tolerated, cross trainer with minimal resistance
- pool work starting with deep water running – swimming with pool buoy progressing to free kicking
- avoid open chain exercises – use closed chain exercises performed with co-contraction of hamstrings and quadriceps
- treat beyond the knee joint for any deficits, e.g. gluteal control, tight hamstrings, ITB, gastrocs and soleus

PHASE 4 (WEEKS 12-24)

- gait: Full WB & ROM: full ROM by week 12
- strengthening: conditioning and strengthening activities that do not increase symptoms & walking program
- modalities: continue prn
- testing: functional tests less than 25% deficit (must be able to meet this before moving to week 12 activities)
- at weeks 12 to 16: strengthening and proprioceptive activities advanced per patient abilities
- treadmill activities can be increased to light jogging within this time frame if pain & swelling do not increase with the increased speed
- other machines include elliptical, steppers, and stationary bicycles
- proprioceptive activities should also be emphasized
- at week 16: patient allowed to increase activities for gradual return of function or return to sport
- patient will be able to advance to a gym program, work conditioning program, or sport specific training upon release by physician
- if a patient plays contact or high impact sports, he / she may not return for 6 – 8 months

SOURCES:

- Pinczewski L, Roe J, Salmon L, & Waller A, NSOSMC. Postoperative Rehabilitation Protocol Following High Tibial Osteotomy. <http://www.leopinczewski.com.au>
- Aalderink KJ, Shaffer M, Amendola A. Rehabilitation Following High Tibial Osteotomy. Clin Sports Med. 2010; 29: 291-301
- Fowler Kennedy Sports Medicine Clinic. High Tibial Osteotomy (HTO) Protocol. http://fowlerkennedy.com/wp-content/uploads/2013/04/Standard_High_Tibial_Osteotomy_HTO_Protocol.pdf