



ORTHOPEDECS & SPORTS MEDICINE BAYCARE CLINIC

Dr Schock High Tibial Osteotomy

Phase 1- Early Protective Phase Weeks 0-2

Goals for phase 1

- Control pain
- Control edema
- Initiate ROM and quad strengthening
- Maintain WB restrictions
- Appropriate brace wear

Criteria for progression to Phase 2

- Edema controlled
- Pain controlled
- Fair quad contraction

Considerations:

Most likely will start PT after first post op appointment

Brace

- Brace locked in extension at all times including sleep -8 weeks

Weight bearing

- Non weight bearing for 6-8 weeks in brace: progress per physician after follow up and Xray to confirm healing

PROM

- Begin passive range of motion working into full range of motion
- Patella mobility all directions

AAROM

- Begin active assisted range of motion with/ without brace
- eg
 - Heel slides with strap
 - Prone knee hangs
 - Leg prop knee extension

AROM

- Initiate active range of motion with/ without brace
 - Heel slides in supine and sitting with foot on floor

Manual Therapy

- Edema management

Strengthening

- Initiate quad based exercises
 - Quad set focus on VMO
 - no active SLR or SAQ

Gait Training

- Maintain non weight bearing with crutches and brace locked in extension

Modalities

- Elevate knee above heart
- Ice front and back of the knee for 20 minutes of every waking hour
- Compression



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Phase 2 – Early ROM and strengthening Weeks 2-6

Goals for phase 2

- Full knee PROM flexion and extension
- Full knee AROM flexion and extension
- Good quad set and SLR
- Limited edema
- Pain control

Criteria for progression to Phase 3

- Full AROM knee flexion and extension
- Good quad set and SLR

Other considerations

- Must demonstrate good quad control, controlled edema, pain and healing of fracture and on Xray progression to weight bearing

Maintain program outlined in phase 1

Brace

- Maintain brace locked at all times including sleep except for sitting: can be unlocked:
 - 2-4 weeks 30 degrees
 - 4-6 weeks 70 degrees
 - 6 weeks 90 degrees

Weight bearing

- Non weight bearing with crutches until at least 6 weeks or until physician performs Xray to confirm healing

PROM/AAROM

- Continue to progress to full knee flexion and extension

AROM

- Can start stationary bike for range of motion once incisions are healed
- Can initiate global lower extremity stretch program
 - Hamstring supine/seated
 - Quad in prone or off table
 - Hip flexors, glutes, piriformis gastroc

Manual Therapy

- Edema management
- Scar mobility once healed
- Continue with patella mobility
- Joint mobilizations
 - grade 1 for pain
 - grade 2-3 for stiffness
 - (hold on grade 4 until confirmation of bony healing via Xray)

Strengthening

- Closed kinetic chain uninvolved side
- Ankle multiplane strength
- Open chain hip strengthening involved side (SAQ/LAQ/SLR limit until 4 weeks: if there is a lower cortex Fx start at 6 weeks)
- lower extremity proprioceptive neuromuscular facilitation patterns
- Manual resisted hip and knee flexion, extension

Proprioception

- Proprioception drill emphasizing neuromuscular control
 - Maintaining NWB status on involved side

Core Strengthening

- Initiate core strengthening eg's
- TKE prone over bolster
- Sit ups/V sits
- Knee extension bridge (no weight bearing through surgical leg)



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Aquatics

- Initiate once incisions are healed (control weight bearing no more than 50%)

Modalities

- Ice/game ready for edema
- Neuromuscular electrostimulation for quad function



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Phase 3 – Intermediate Phase- Weeks 6-12

Goals for phase 3

- Full passive flexion/extension
- Full active knee flexion/extension
- Full weight bearing with normal gait pattern
- Weaned from brace

Criteria for progression to Phase 4

- Normal gait mechanics good single leg knee control in basic single leg stance

Maintain program outlined in phase 2

Brace

- Wean from brace once weaned from crutches (progress brace open from 90 to full open while increasing WB status)

Weight bearing/gait

- As instructed by physician: begin partial weight bearing 25% progress 25% every 3 days (unless otherwise indicated from physician)

PROM

- Full range of motion

AAROM

- Full range of motion

AROM

- Full AROM

Manual Therapy

- Scar tissue mobility
- Patella mobility
- Joint mobilizations as in phase 2
 - Can use grade 4 as needed

Strengthening

- Advance bike with increased resistance and interval work
- Begin treadmill walking, elliptical trainer
- Closed kinetic chain exercises bilateral progress to unilateral

Proprioception

- Start double leg, tandem and progress to single leg once full weight bearing
 - Add UE/ trunk perturbation's

Core Strengthening

- Continue and advance to front planks
- Ball sit ups, bridging knees bent

Aquatics

- Continue to progress weight bearing (no impact)
- Straight knee flutter kick only if need to work on cardio

Modalities

- As needed

Cardiovascular

- Upper Body Ergometer
- Bike
- Elliptical



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Phase 4 – Intermediate Phase Weeks 12-24

Goals for phase 4

- Normal ROM
- 3PQ isometric deficit under 20%
- Normal gait pattern

Criteria for progression to Phase 5

- Progress to single leg dynamic
- Only if return to sports needed or high level occupation requirements

Weight bearing

- Full weight bearing normal gait

AROM

- Full knee flexion/ extension

Manual Therapy

- Scar tissue mobility
- Address muscular trigger points

Strengthening

- Initiate gym based- begin bilateral to unilateral
- Leg press, heel raise, hamstring curl, squat, lunge, knee extensions (30° to 0° as tolerated.)

Proprioception

- Progress to single leg dynamic (non impact)

Core Strengthening

- advanced plank, side plank, bridge, table top

Gait Training Advanced

- Remain non impact until at least 16 weeks: permission from physician needed to start impact: prefer to wait until 20-24 months use pool or AlterG for progression– progress lateral and retro walking

Modalities

- As needed

Cardiovascular

- Bike
- Treadmill
- Elliptical
- Upper Body Ergometer



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Phase 5 – Return to Function 24 weeks- Follow up with Physician

Goals for phase 5

- Full return to physical activity and work if heavy labor

Strengthening

- Continue with gym based strengthening program

Proprioception

- Progress UE challenges

Core Strengthening

- Continue

Gait Training Advanced

- progress impact progression weaning from pool or AlterG and progress as tolerate with pain/edema as limitation

Agility

- Start cutting and pivoting drills
- Add acceleration and deceleration drills as becomes able to tolerate impact

Modalities

- Ice as needed

Cardiovascular

- Elliptical and Bike using interval training

Work related activities

- Push, pull, carrying, lifting, squatting, kneeling

Sport related activities

- Undergo Return to Function Testing with 10% non-dominant and 5% dominant injured leg deficit limit

Criteria for return to work, function, sport

- Full painfree ROM
- Strength within 5% dominant, 10 % of non- injured leg
- Pass return to function test within 5% dominant, 10% of dominant of non -injured leg