



High Tibial Osteotomy (HTO) With OATS Allograft Femoral Condyles and Meniscal Allograft Transplant

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- **Phase I – Immediate Post-Surgical Phase (Week 0-2)**
 - Goals:
 - Protection of post-surgical knee
 - Gradually increase ROM
 - Decrease pain and inflammation
 - Prevent muscular inhibition
 - Restore leg control
 - Cryotherapy for pain/inflammation
 - Ice 15-20 minutes every hour
 - Sleeping
 - Sleep in brace
 - Weight Bearing (may be modified in certain situations)
 - Femoral condyle lesions
 - TTWB (rest foot on ground)
 - Brace
 - Hinged brace locked in extension at all times
 - Remove for CPM and exercises only (and hygiene)
 - ROM
 - Prone hangs
 - Knee extension on a bolster
 - Supine wall slides
 - PROM 0-90 degrees
 - CPM machine 6 hrs/day, beginning at 0-40 degrees, progressing 5-10 degrees per day as tolerated
 - Muscle Retraining
 - Quadriceps isometrics, SLR
 - Patellar mobilizations
 - Note: ROM exercises should be carried out frequently throughout the day with several repetitions in order to remodel the developing/healing knee cartilage. The goal for the first 6 weeks is 4-8 hours of ROM exercises per day

- Phase II – Protection Phase (Week 2-6)

- Goals
 - Allow healing of soft tissue/bone
 - Do not overstress healing tissue
 - Gradually increase ROM
 - Progression based on swelling/inflammation and guidelines below
 - Decrease pain and inflammation
- Brace
 - Typically discontinue brace after 6 week visit
- Weight bearing
 - Femoral condyle lesions
 - TTWB until 6 weeks
- ROM guidelines
 - Exercises as above
 - CPM continue to advance as above
 - 6 hrs/day, 0-90 degrees
 - PROM/AAROM to tolerance
 - Caution with flexion >90 degrees to protect posterior horn of meniscus transplant
- E-stim to quads
- Quad isometrics
- SLR

- Phase III – Intermediate Phase (Week 6-12)

- Goals
 - Gradual improvement in ROM
 - Eliminate swelling
 - Normalize gait
- Criteria to progress to Phase III
 - 6 weeks post-op
 - No effusion
 - Full extension
- Precautions
 - Avoid post-activity swelling
 - Avoid loading knee at deep flexion angles
 - No impact activities until 12 weeks post-op
- Weight bearing
 - Advance 25% weekly until FWB
- ROM
 - Full motion as tolerated
 - CPM
 - Continue through week 8
- Continue quadriceps strengthening

- Continue above exercises
- Gait drills
- Stationary bicycle at 8 weeks
- Hip/core strengthening
- Closed chain quad exercises at <60 degrees flexion

- Phase IV –Strengthening Phase (Week 12-20+)
 - Goals
 - Maintain full ROM
 - Improve limb strength and endurance
 - Gradual return to functional activities
 - Criteria to progress to Phase IV
 - Full, non-painful ROM
 - Absence of swelling/inflammation
 - Good control of affected limb
 - Normal gait on all surfaces
 - Single-leg balance >15 seconds
 - Precautions
 - Post-activity soreness should resolve in <24 hours
 - Avoid knee pain with impact
 - Continue above exercises
 - Movement control exercises
 - Begin with single plane activities and progress
 - Sport specific activities when cleared by Dr. Hess
 - Typically 6-9 months