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Postoperative Rehabilitation Guidelines **Fixation/Drilling of Osteochondral Defect (OCD)**

The following protocol is intended as a general guideline for physical therapist, athletic trainer, and patient after osteoarticular allograft transplantation. These guidelines are designed to facilitate the expedited and safe return to athletic or professional activity and is based on a review of the current scientific principles of knee rehabilitation. For the treating health care provider this protocol should not serve as a substitute for individualized clinical decision making during the patient's post-operative course following osteoarticular allograft transplantation. It should rather take into consideration the individual's physical findings, progression, and possible post-operative limitations. If the therapist or patient requires assistance or encounters any postoperative complication they should consult with Dr. Mithoefer.

Phase I (Weeks 0-6)

- TDWB with crutches for femoral/tibial lesions, WBAT with brace locked in extension for patellar/trochlear defects
- CPM: start at 0-45 and advance as tolerated (use 6-8 hours/day for 4 weeks)
- ROM as tolerated, focus on extension
- Start supervised physical therapy within 3 days after surgery
- Patellar mobilization (gentle mobilization for patellar/trochlear defects)
- Edema reduction, aggressive cryotherapy after therapy
- Restore quadriceps control
- Electrical Stimulation, Biofeedback
- Isometric quadriceps sets, SLR, ankle pumps
- Closed kinetic chain exercises without resistance
- Avoid terminal knee extension for patellar/trochlear lesions for 4 weeks
- Avoid arc of motion during which defect articulates in femoral/tibial lesions for 4 weeks
- Hamstring curls, hip abductor/gastrocnemius strengthening
- Well leg exercises, general cardiovascular conditioning

Phase II (Week 7-12)(Return to Loading)

- Assure adequate quad control before initiation of weightbearing
- Start PWB and advance to WBAT over 2 weeks (femoral/tibial lesions)
- Gradually open brace over 2 weeks (trochlear/patellar lesions)
- Initiate gait training
- Active knee extension with progressive resistance (start at 5 lbs and progress 2-3 lbs/week)
- Open kinetic chain exercises (limited arc)
- Ergometry/Elliptical for strength and endurance (progressive resistance and duration)
- Progressive hip abduction/adduction/flexion/extension, hamstring, gastrocnemius strengthening
- Initiate proprioceptive/neuromuscular exercises
- Cryotherapy after every exercise
- Reduce activities for pain and effusion

Phase III (Weeks 13-16)(Return to Function)

- Continue all exercises from Phase II
- Enhance strength, flexibility, endurance, and neuromuscular control
- Progressive hip abduction/adduction/flexion/extension strengthening
- Progressive squatting/leg press program
- Avoid squatting/leg press if with patellofemoral pain → resume isometric exercises
- Cardiovascular endurance training with ergometer, stairmaster, elliptical
- Balance board squats
- Progressive Stepdown Program
- Start plyometric drills
- Initiate running program when 8" stepdown satisfactory (after 14-16 weeks)

Phase IV (Weeks 17-26)(Return to Impact Activities)

- Normalize strength, flexibility, endurance, and neuromuscular control
 - Initiate impact activities (running and agility program)
 - Initiate cutting, jumping, general agility drills not before 22 weeks
 - Start sport-specific agility exercises
 - Continue sport-specific skill program and functional progression
 - Gradual return to sport (MD directed) after 6 months
- Before Return to Sport:
- Isokinetic testing (concentric) of hamstrings (goal 100%) and quadriceps (goal >90%)
 - Single leg hop test (goal >90%)
 - Complete functional knee scores (subjective scoring, IKDC, Tegner, Lysholm, KOOS)