



Osteochondral Allograft Rehabilitation Protocol

Phase 1 (0-6 weeks post-op) (Proliferation)

Rehabilitation Goals

- Protection of healing tissue from load and shear forces
- Restoration of full passive knee extension
- Gradual improvement of knee flexion
- Regain adequate quadriceps control

PRECAUTIONS

- WB dependent upon location, size, and condition of recipient site

Crutches

Two-crutch ambulation, WB wearing brace per the schedule below Medium anterior lesion (2-4 cm)

- Weeks 1-3: Non-weightbearing
- Weeks 4-5: Foot flat WB @ 0-10% body weight
- Weeks 6-7: Partial weight-bearing @ 25-50% body weight
- Weeks 8-9: Partial weight-bearing @ 50-75% body weight

Brace

ROM brace locked into extension during WB activity

CPM

- Start 6-24 hours post-surgery at 0-45 deg
- Increase 5-10 deg per day as tolerated
- Goal: 6 weeks, 6-8 hours per day in 2 hour sessions

Wound

- Post-op dressing remains intact until post-op day #3 (~72 hours after surgery)
- **Do NOT** submerge knee in tub or pool for 4 weeks
- Suture/staple removal @ 10-14 days per Ortho/PT



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Rehabilitation

- Frequent use of cryocuff and/or ice with lower extremity elevated
- Begin patellar mobilizations (10 reps each direction TID) after suture/staple removal
- Begin scar massage after incision site sloughs/scar is formed

Weeks 1-2

- **ROM 0°-90°**
- Calf pumping with tubing
- Static quad sets (with e-stim until patient able to do 10 SLRs without extension lag)
- Heel slides - assisted as needed
- Supine passive extension to 0° extension
- Gentle hamstring stretching
- SLRs: All directions - may add light weight when pain free
- Electrical muscle stimulation during quadriceps exercises

Weeks 3-4

- **ROM 0°-110°**
- Short arc quads 90°-40° may add light weight when pain free
- Stationary bike for ROM. NO RESISTANCE
- General LE stretching (calf, HS, quads, HF, hip adductors)

Weeks 3-4

- **ROM 0°-120°**
- UBE and/or well leg cycle
- Beginning level pool exercises - deep water jogging
- Seated bilateral calf raises
- Seated ankle disk training



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Follow-Up

- Physical Therapy: Weekly
- Ortho: ~6 weeks post-op
- Supervised rehabilitation: 2-3 x per week as needed

Documentation

- Precautions
- Pain level, medications, modalities
- Observation: (incision sites) - Signs/symptoms of infection? Site healing well? Effusion?
- Neurovascular status: Distal pulses, motor and sensation intact? Presence of calf pain?
- Knee ROM & quadriceps function



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Osteochondral Allograft Rehabilitation Protocol

Phase 2 (7-16 weeks post-op) (Remodeling)

Rehabilitation Goals

- Gradually increase to full ROM and WB
- > 80% quadriceps and hamstring strength return

PRECAUTIONS

- **NO** walk to run until 5 months post-op

Crutches

Discontinue crutches at 8-9 weeks

- Weeks 6-7: Partial weight-bearing @ 25-50% body weight
- Weeks 8-9: Partial weight-bearing @ 50-75% body weight

Brace

- Discontinue ROM brace at 8 weeks if able to perform 30 ASLR without lag
- Consider unloading brace for femoral condyle lesions

Rehabilitation

- Progress to the following exercises and increase intensity gradually when patient is ready (i.e., no increase in knee pain or effusion since the previous exercise session)
- Note: all strengthening should be done using low weights, high reps, and in painless ROM



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Osteochondral Allograft Rehabilitation Protocol

Phase 2 (7-16 weeks post-op) (Remodeling)

Weeks 7-8

- Stationary bike for conditioning with light weight.
- General LE stretching (calf, HS - add quads, HF, hip adductors)
- Gait training (cone walking, marching, retrowalking, carioca, shuffles, etc.)
- Progressive pool program: deep water jogging, gait training chest height

Weeks 9-10

- Weight shifts pending WB precaution
- Bike for conditioning: moderate resistance medium lesion, light resistance large lesion
- Gravity reduced strengthening with light resistance (Shuttle squats (0-45°), HS curls, hip abd/add) (first set: 30 repetitions, then 1 additional sets at the same weight to muscle failure)

Weeks 11-16

- Progressive pool program as tolerated: gait training waist height
- Double leg mini-squats (0-45°)
- Bilateral calf raises – progress to unilateral as tolerated
- Step-ups; begin with 2"-4" box
- Progressive standing balance exercises (body blade, plyoball, platform training, etc.) (progress in duration, intensity, double leg to single leg, etc.)
- May gradually add elliptical and stairmaster for conditioning
- Progressive strengthening (calf press, leg press, squats (0-45°), HS curls, hip abd/add) (first set: 20 repetitions, then 2 additional sets at the same weight to muscle failure)



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Osteochondral Allograft Rehabilitation Protocol

Phase 2 (7-16 weeks post-op) (Remodeling)

Follow-Up

- PT: Bimonthly
- Ortho: ~12 weeks post-op
- Supervised rehabilitation: 2-3 x per week as needed

Documentation

- Precautions, pain level, medications, modalities
- Effusion
- Knee ROM & quadriceps function
- Gait

Testing

- Hop tests: month 4, then as needed until > 90% symmetry
- Y-balance test: months 3 & 4, then as needed until > 90% symmetry
- Dynamic movement quality (video analysis, LESS & single leg hop): month 4, then as needed



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