

Osteochondral Autograft Transplantation Surgery Protocol

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PHASE I (Surgery to 6 weeks after surgery)

Appointments: Rehabilitation appointments begin within 3-5 days after surgery for 1-2x per week

Rehabilitation Goals: Protection of the post-surgical knee

- Restore normal knee range of motion and patellar mobility
- Eliminate effusion
- Restore leg control

Weight Bearing: Weeks 0-6 NWB to TTWB with knee brace locked in full extension

Range of Motion Exercises: Full knee extension

- Knee extension on a bolster
- Prone hangs
- Passive Knee Flexion
- Supine wall slides
- Assisted heel slides
- Continuous passive motion machine
- Week 1-2 = 0-90 degrees

Biking (week 4): use contra-lateral leg to create ipsilateral passive range of motion

NOTE: range of motion exercises should be carried out frequently throughout the day with high repetitions to help remodel and contour the healing cartilage.

The optimal goal during the first 6 weeks is to do 4-6 hours of range of motion exercises per day.

Therapeutic Exercise

- Quadriceps sets
- Straight leg raises
- Four way leg lifts in standing with brace on for balance and hip strength
- Patellar mobilizations
- Soft tissue mobilization

Cardiovascular Exercise Upper body circuit training or upper body ergometer

Progression Criteria: Patients may progress to Phase II if they are 6 weeks post-operative, have met the above stated goals, have trace to no effusion and full knee extension

PHASE II (begin after meeting Phase I criteria, usually 7 to 12 weeks after surgery)

Appointments: Rehabilitation appointments are 1-2x a week

Rehabilitation Goals: Single leg stand control

- Normalize gait
- Good control and no pain with functional movements, including step up/down, squat, partial lunge (staying less than 60 degrees of knee flexion and **avoiding excessive weight bearing at position of the lesion**)



Precautions: Avoid post-activity swelling

- Avoid loading knee at deep flexion angles
- No impact activities until 12 weeks after surgery

Weight Bearing: Begin progressive weight bearing as tolerated with axillary crutches and no brace

Therapeutic Exercise

- Weight shifting
- Begin pool program - gait drills and initiation of protected weight bearing strengthening exercises
- Double leg balance and proprioceptive drills
- Stationary bike
- Gait drills (start with pool)
- Protected weight bearing hip and core strengthening
- Stretching for patient specific muscle imbalances
- Quadriceps strengthening: closed chain exercises short of 60 degrees flexion

Cardiovascular Exercise: Non-impact endurance training, swimming (stiff knee flutter kick), deep water running, upper body circuits

Progression Criteria: Patient may progress to Phase III if they have

- Normal gait on level surfaces
- Full range of motion
- No effusion
- Ability to carry out functional movements without unloading affected leg or pain, while demonstrating good control
- Single leg balance greater than 15 seconds

PHASE III (begin after meeting Phase II criteria, usually about 4 months)

Appointments: Rehabilitation appointments 1 time every 1-2 weeks

Rehabilitation Goals: Good control and no pain with sport and work specific movements, including impact

Precautions: Post-activity soreness should resolve within 24 hours

- Avoid post-activity swelling
- Avoid knee pain with strengthening

Therapeutic Exercise, Functional leg strengthening

- Squats
- Lunges - all three planes
- Step backs
- Retro step ups
- Single leg press
- Single leg balance and proprioception progression
- Hip and core strengthening
- Mini band drills
- Physioball
- Stretching for patient specific muscle imbalances

Cardiovascular Exercise: Non-impact activities; stationary bike, elliptical, Nordic track, swimming

Return to Sport/Work Criteria: Dynamic neuromuscular control with multi-plane activities, without pain or swelling

PHASE IV (begin after meeting Phase III criteria, usually about 6 months after surgery)

Appointments: Rehabilitation appointments 1 time every 1-2 weeks

Rehabilitation Goals: Good control and no pain with sport and work specific movements, including impact

Precautions: Post-activity soreness should resolve within 24 hours

- Avoid post-activity swelling
- Avoid knee pain with impact

Therapeutic Exercise

- Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to other and then 1 foot to same foot
- Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
- Sport/work specific balance and proprioceptive drills
- Hip and core strengthening
- Stretching for patient specific muscle imbalances

Cardiovascular Exercise: Replicate sport or work specific energy demands

Return To Moderate Impact

Sport Criteria (Jogging, Aerobics) 8 months post surgery; and Good dynamic neuromuscular control with multi-plane activities, without pain or swelling

Return To High Impact Sport Criteria (Basketball, Soccer) 10 months post surgery; and Good dynamic neuromuscular control with multi-plane activities, without pain or swelling