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BioUni™ OATS® OSTEOCHONDRAL AUTOGRAFT TRANSPLANTATION Femoral Condyle Rehabilitation Program

PHASE I - PROTECTION PHASE (WEEKS 0-6)

- Goals:
- Protection of healing tissue from load and shear forces
 - Decrease pain and effusion
 - Restoration of full passive extension
 - Improvement of knee flexion as tolerated.
 - Regaining quadriceps control
- Brace:
- Locked at 0° during weight-bearing activities
 - Sleep in locked brace for 2-4 weeks
- Weight-Bearing:
- Toe touch weight-bearing (approx. 20-30 lbs.) weeks 0-6
 - Partial WB (approx. 50% body weight) at week 6
- Range of Motion:
- Immediate motion exercise
 - Full passive knee extension immediately
 - Patellar and soft tissue mobilization (4-6x day)
 - Passive knee flexion ROM 2-3 times daily
 - Passive knee flexion ROM goal is 90° by 1-2 weeks
 - Passive knee flexion ROM goal is 105-115° by 4 weeks and 120-125° by week 6
 - Stretch hamstrings, calf, and quadriceps
- Strengthening Program:
- Ankle pump using rubber tubing
 - Quad setting
 - Multi-angle isometrics (co-contractions Q/H)
 - Straight leg raises (4 directions)
 - Stationary bicycle when ROM allows
 - Biofeedback and electrical muscle stimulation, as needed
 - May begin use of pool for gait training & exercises week 6
- Swelling Control:
- Ice, elevation, compression, and edema modalities as needed to decrease swelling

PHASE II - TRANSITION PHASE (WEEKS 6-12)

- Goals:
- Gradually increase ROM & WB to full
 - Gradually improve quadriceps strength/endurance
 - Gradual increase in functional activities
- Criteria to Progress To Phase II:
- Full passive knee extension
 - Knee flexion to 120°
 - Minimal pain and swelling
- Brace:
- Discontinue brace at 6-8 weeks
- Weight-Bearing:
- Progress weight-bearing as tolerated
 - Progress to full weight-bearing at 8 weeks
 - Discontinue crutches at 6-8 weeks
- Range of Motion:
- Gradual increase in ROM
 - Maintain full passive knee extension
 - Progress knee flexion to 125-135°
 - Continue patellar mobilization and soft tissue mobilization, as needed
 - Continue stretching program
- Strengthening Exercises:
- Initiate weight shifts week 6-8
 - Initiate mini-squats 0-45° week 6-8
 - Closed kinetic chain exercises (leg press) week 6-8
 - Toe-calf raises week 6
 - Stationary bicycle (gradually increase time)
 - Balance and proprioception drills
 - Initiate front and lateral step-ups
 - Continue use of pool for gait training and exercise
- Functional Activities:
- As pain and swelling (symptoms) diminish, the patient may gradually increase functional activities
 - Gradually increase standing and walking

PHASE III: MATURATION PHASE (WEEKS 12-26)

- Goals:
- Improve muscular strength and endurance
 - Increase functional activities
- Criteria to Progress To Phase III:
- Full range of motion
 - Acceptable strength level
 - Hamstrings within 10% of contralateral leg
 - Quadriceps within 10-20% of contralateral leg
 - Balance testing within 30% of contralateral leg
 - Able to bike for 30 minutes
- Range of Motion:
- Patient should exhibit 125-135° flexion – no restrictions
- Exercise Program:
- Leg press (0-90°)
 - Bilateral squats (0-90°)
 - Unilateral step-ups progressing from 4" to 8"
 - Forward lunges
 - Begin walking program on treadmill
 - Open kinetic chain knee extension (0-90°)
 - Bicycle
 - Stairmaster
 - Swimming
 - Nordic-Trak/elliptical
- Functional Activities:
- As patient improves, increase walking (distance, cadence, incline, etc.)
- Maintenance Program:
- Initiate at week 16-20
 - Bicycle – low resistance
 - Progressive walking program
 - Leg press
 - Wall squats
 - Hip abduction/adduction
 - Front lunges
 - Stretch quadriceps, hamstrings, gastroc