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Osteochondral Allograft or Autograft Transplantation Femoral Condyle Physical Therapy Protocol

Phase I: Protection (Weeks 0 to 6) Goals

- Protection of healing tissue from load and shear forces • Decrease pain and effusion
- Restoration of full passive knee extension
- Gradual improvement of knee flexion • Regaining quadriceps control

Weight Bearing

- NWB for 2 weeks
- TTWB advance to 25% WB by week 5
- Progress to full weight bearing at week six (wean from crutches as gait normalizes)

Brace

- Brace locked at 0 degrees for functional and weight bearing activities
- Discontinue brace at 2 weeks

Range of Motion

- No immediate limitation on passive range of motion (below are minimum recommendations)
- 0 to 90 degrees at week two
- 0 to 105 degrees at week four
- 0 to 120 degrees at week six

CPM:

- Start on POD 2
- Start 0-40 degrees ADAT goal is 90 degrees by end of week 2
- Discontinue when 90 degrees achieved

Exercises

- Full passive knee extension Patellar mobilizations Range of motion exercises Ankle pumps
- Quad sets (neuromuscular electrical stimulation as needed) Multi-angle isometrics
Four-way straight leg raises
Stationary bike
- Hamstring, quad, calf and hip flexor stretching
Core exercises
Isometric leg press (multi-angle) at week four

Pool therapy for gait training and exercise at week six
Cryotherapy with elevation for pain and inflammation every hour for 20 minutes

Phase II: Transition (Weeks 6 to 12) Criteria to Progress to Phase II

- Full passive knee extension
- Knee flexion to 120 degrees
- Minimal pain and swelling
- Voluntary quadriceps activity

Goals

- Gradually increase range of motion and weight bearing to full
- Gradually improve quadriceps strength and endurance
- Gradual increase in functional activities

Weightbearing:

- Full

Range of Motion

- Progress to full range of motion at week 8

Exercises

- Continue exercises as listed above
- Open kinetic chain exercises (increase one pound per week) • Terminal knee extensions
- Balance and proprioception drills
- Lateral walks with resistance
- Core progression
- Weight shifts at week eight
- Step ups at week eight
- Lateral step downs at week eight
- Leg press (0 to 90 degrees) at weeks eight to ten
- Mini squats (0 to 45 degrees) at weeks eight to ten
- Toe/calf raises at week ten
- Continue cryotherapy for pain management

Phase III: Maturation (Weeks 13 to 26) Criteria to Progress to Phase III

- Full range of motion
- Hamstring strength to within 10 to 20 percent of contralateral limb • Quadriceps strength to within 20 to 30 percent of contralateral limb • Balance testing to within 30 percent of contralateral limb
- Able to bike for 30 minutes
- Minimal pain and edema
- Improved functional strength and endurance

Goals

- Improve functional activity
- Improve muscular strength, flexibility and endurance

Exercises

- Continue exercises as listed above
 - Wall squats
 - Lunges
 - Swimming
 - Elliptical/StairMaster/NordicTrac

Phase IV: Functional Activities (Weeks 26 to 52) Criteria to Progress to Phase IV

- Full, non-painful range of motion
- Strength within 90 percent of contralateral side
- No pain, inflammation or swelling • Good proprioception

Goals

- Gradual return to unrestricted functional activities

Functional Activities

- Patient may return to various sport activities as progressing in rehabilitation and osteotomy healing allows
 - **4 to 6 Months:** Low impact sports such as golf, swimming, skating, roller-blading and cycling
 - **6 to 8 Months:** Higher impact sports such as running, jogging and aerobics
 - **8 to 12 Months:** High impact sports such as tennis, basketball, football and baseball

Exercises

- Continue maintenance program three to four times a week
- Progress resistance as tolerated
- Progress agility and balance drills
- Impact loading program should be specialized to the patient's demands
- Progress sport programs depending on patient variables