



# Femoral Condyle Rehabilitation Guidelines

## PHASE I - PROTECTION PHASE (WEEKS 0-6)

### Goals:

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Protect healing tissue from load and shear forces	
Decrease pain and effusion	Restore full passive knee extension
Regain quadriceps control	Gradually improve knee flexion

### Brace:

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Locked at 0° during weight-bearing activities  
Sleep in locked brace for 2-4 weeks

### Weight-Bearing

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Non-weight-bearing for 1-2 weeks, may begin toe-touch weight bearing immediately per physician instructions  
Toe touch weight-bearing (approx. 20-30 lbs) weeks 2-3  
Partial weight-bearing (approx. 1/4 body weight) at weeks 4-5

### Range of Motion:

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Motion exercise 6-8 hours post-operative  
Full passive knee extension immediately  
Initiate Continuous Passive Motion (CPM) day 1 for total of 8-12 hours/day (0°-40°) for 2-3 weeks  
Progress CPM Range of Motion (ROM) as tolerated 5°-10° per day  
May continue CPM for total of 6-8 hours per day for up to 6 weeks  
Patellar mobilization (4-6 times per day)  
Motion exercises throughout the day  
Passive knee flexion ROM 2-3 times daily  
Knee flexion ROM goal is 90° by 1-2 weeks  
Knee flexion ROM goal is 105° by 3-4 weeks and 120° by week 5-6  
Stretch hamstrings and calf

## **Strengthening Program**

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Ankle pump using rubber tubing  
Quad setting  
Multi-angle isometrics (co-contractions Q/H)  
Active knee extension 90°-40° (no resistance)  
Stationary bicycle when ROM allows  
Biofeedback and electrical muscle stimulation, as needed  
Isometric leg press by week 4 (multi-angle)  
May begin use of pool for gait training and exercises by week 4

## **Functional Activities:**

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Gradual return to daily activities  
Extended standing should be avoided  
If symptoms occur, reduce activities to reduce pain and inflammation

## **Swelling Control:**

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Ice, elevation, compression, and edema modalities as needed to decrease swelling

## **Criteria to Progress to Phase II:**

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

## PHASE II - TRANSITION PHASE (WEEKS 6-12)

### Goals:

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Gradually increase ROM  
Gradually improve quadriceps strength/endurance  
Gradual increase in functional activities

### Brace:

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Discontinue post-operative brace by week 6  
Consider unloading knee brace

### Weight-Bearing:

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Progress weight-bearing as tolerated  
Progress to full weight-bearing by 8-9 weeks  
Discontinue crutches by 8-9 weeks

### Range of Motion:

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Gradual increase in ROM  
Maintain full passive knee extension  
Progress knee flexion to 125°-135° by week 8  
Continue patellar mobilization and soft tissue mobilization, as needed  
Continue stretching program

### Strengthening Exercises:

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Initiate weight shifts week 6  
Initiate mini-squats 0°-45° by week 8  
Closed kinetic chain exercises (leg press)  
Toe-calf raises by week 8  
Open kinetic chain knee extension progress 1 lb/week  
Station bicycle, low resistance (gradually increase time)  
Treadmill walking program by weeks 10-12  
Balance and proprioception drills  
Initiate front and lateral step-ups and wall squats by weeks 8-10  
Continue use of biofeedback and electrical muscle stimulation, as needed  
Continue use of pool for gait training and exercise

### Functional Activities:

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As pain and swelling (symptoms) diminish, the patient may gradually increase functional activities  
Gradually increase standing and walking

### Criteria to Progress to Phase III:

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Full range of motion  
Acceptable strength level

- Hamstrings within 20% of contralateral leg
- Quadriceps within 30% of contralateral leg

Balance testing within 30% of contralateral leg  
Able to walk 1-2 miles or bike for 30 minutes

## **PHASE III - MATURATING PHASE (WEEKS 12-26)**

### **Goals:**

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Improve muscular strength and endurance  
Increase functional activities

### **Range of Motion:**

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Patient should exhibit 125°-135° flexion

### **Exercise Program:**

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Leg press (0°-90°)  
Bilateral squats (0°-60°)  
Unilateral step-ups progressing from 2" to 8"  
Forward lunges  
Walking program  
Open kinetic chain knee extension (0°-90°)  
Bicycle  
Stair machine  
Swimming  
Ski machine/Elliptical trainer

### **Functional Activities:**

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As patient improves, increase walking (distance, cadence, incline, etc.)

### **Maintenance Program:**

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Initiate by weeks 16-20  
Bicycle - low resistance, increase time  
Progressive walking program  
Pool exercises for entire lower extremity  
Leg press  
Wall squats  
Hip abduction / adduction  
Front lunges  
Step-ups  
Stretch quadriceps, hamstrings, calf

### **Criteria to Progress to Phase III:**

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Full non-painful ROM  
Strength within 80%-90% of contralateral extremity  
Balance and/or stability within 75%-80% of contralateral extremity  
Rehabilitation of functional activities causes no or minimal pain, inflammation or swelling.

## **PHASE IV - FUNCTIONAL ACTIVITIES PHASE (WEEKS 26-52)**

### **Goals:**

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Gradual return to full unrestricted functional activities

### **Exercises:**

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Continue maintenance program progression 3-4 times/week

Progress resistance as tolerated

Emphasis on entire lower extremity strength and flexibility

Impact loading program should be specialized to the patient's demands

Progress sport programs depending on patient variables

### **Functional Activities:**

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Patient may return to various sport activities as progression in rehabilitation and cartilage healing allows. Generally, low-impact sports such as swimming, skating, in-line skating, and cycling are permitted at about 6 months. Higher impact sports such as jogging, running, and aerobics may be performed at 8-9 months for small lesions of 9-12 months for larger lesions. High impact sports such as tennis, basketball, football, and baseball may be allowed at 12-18 months.