

DR. BUTKOVICH MICROFRACTURE OF FEMORAL CONDYLE REHABILITATION PROTOCOL

STAGE I: IMMEDIATE POST SURGICAL / PROTECTION PHASE

GOALS:

- PROTECT HEALING TISSUE FROM LOAD AND SHEAR FORCE
- DECREASE PAIN AND EFFUSION
- GRADUALLY IMPROVE KNEE FLEXION
- RESTORE FULL PASSIVE KNEE EXTENSION
- REGAIN QUADRICEPS CONTROL

WEEKS 0-8:

PATIENT INSTRUCTIONS:

1. KEEP INCISIONS CLEAN & DRY
2. CRYOTHERAPY AT HOME FOR PAIN & INFLAMMATION
3. TOE TOUCH WEIGHT-BEARING (5-10%) FOR 6-8 WEEKS
4. EXTENDED STANDING SHOULD BE AVOIDED
5. IF SYMPTOMS OCCUR, REDUCE ACTIVITIES TO REDUCE PAIN AND INFLAMMATION

TREATMENT:

RANGE OF MOTION

1. MOIST HEAT AND OTHER MODALITIES PRIOR TO THERAPY
(CONTINUE THROUGHOUT THERAPY PROGRAM AS NECESSARY)
2. FULL PASSIVE KNEE EXTENSION IMMEDIATELY
3. BEGIN PATELLA MOBILIZATION
4. BEGIN PASSIVE KNEE FLEXION RANGE OF MOTION (TO BE PERFORMED 2-3 TIMES DAILY)
5. ADVANCE TO FULL RANGE OF MOTION AS TOLERATED
6. STRETCH HAMSTRINGS AND CALF

STRENGTHENING

1. ANKLE PUMP USING TUBING
2. QUAD SETTING
3. MULTI-ANGLE ISOMETRICS (CO-CONTRACTIONS Q/H)
4. ACTIVE KNEE EXTENSION 90-40 DEGREES WITH NO RESISTANCE
5. 4-WAY STRAIGHT LEG RAISES
6. STATIONARY BIKE AS RANGE OF MOTION ALLOWS
7. BIOFEEDBACK AND ELECTRICAL MUSCLE STIMULATION AS NEEDED
8. ISOMETRIC LEG PRESS BY WEEK 4 (MULTI-ANGLE)
9. MAY BEGIN USE OF POOL FOR GAIT TRAINING AND EXERCISES BY WEEK 4

CRITERIA TO PROGRESS TO PHASE II

1. FULL PASSIVE KNEE EXTENSION
2. MINIMAL PAIN AND SWELLING
3. KNEE FLEXION TO 120 DEGREES
4. VOLUNTARY QUADRICEPS ACTIVITY

STAGE II: MATURATION PHASE**GOALS:**

- FULL PAIN FREE RANGE OF MOTION
- GRADUALLY IMPROVE QUADRICEPS STRENGTH/ENDURANCE
- GRADUALLY INCREASE FUNCTIONAL ACTIVITIES

WEEKS 8-12:**PATIENT INSTRUCTIONS:**

1. CONSIDER UNLOADING KNEE BRACE
2. PROGRESS TO WEIGHT-BEARING AS TOLERATED
3. GRADUAL INCREASE TO FUNCTIONAL ACTIVITIES AS PAIN AND SWELLING DIMINISH
4. GRADUAL INCREASE OF STANDING AND WALKING

TREATMENT:**RANGE OF MOTION**

1. INCREASE RANGE OF MOTION TO FULL FLEXION & EXTENSION
2. CONTINUE PATELLAR MOBILIZATION AND SOFT TISSUE MOBILIZATION AS NEEDED
3. CONTINUE WITH STRETCHING PROGRAM

STRENGTHENING

1. INITIATE MINI-SQUATS 0-45 DEGREES
2. CLOSED KINETIC CHAIN EXERCISES (LEG PRESS)
3. TOE-CALF RAISES
4. OPEN KINETIC CHAIN KNEE EXTENSION PROGRAM (1-LB/WEEK)
5. STATIONARY BICYCLE, LOW RESISTANCE (GRADUALLY INCREASE TIME)
6. TREADMILL WALKING PROGRAM
7. BALANCE AND PROPRIOCEPTION DRILLS
8. INITIATE FRONT AND LATERAL STEP UPS
9. CONTINUE USE OF BIOFEEDBACK AND ELECTRICAL MUSCLE STIMULATION, AS NEEDED
10. CONTINUE USE OF POOL FOR GAIT TRAINING AND EXERCISE

CRITERIA TO PROGRESS TO PHASE III

1. FULL RANGE OF MOTION
2. ACCEPTABLE STRENGTH LEVEL
 - a. HAMSTRING WITHIN 10-20% OF CONTRALATERAL LEG
 - b. QUADRICEPS WITHIN 20-30% OF CONTRALATERAL LEG
3. BALANCE TESTING WITHIN 30% OF CONTRALATERAL LEG
4. ABLE TO WALK 1-2 MILES OR BIKE FOR 30 MINUTES

STAGE III: FUNCTIONAL ACTIVITIES PHASE**GOALS:**

- GRADUAL RETURN TO FULL UNRESTRICTED FUNCTIONAL ACTIVITIES

WEEKS 12+:**PATIENT INSTRUCTIONS:**

1. CONTINUE MAINTENANCE PROGRAM PROGRESSION 3-4 TIMES/WEEK
2. PROGRESS RESISTANCE AS TOLERATED
3. EMPHASIS ON ENTIRE LOWER EXTREMITY STRENGTH AND FLEXIBILITY
4. PROGRESS AGILITY AND BALANCE DRILLS
5. IMPACT LOADING PROGRAM SHOULD BE SPECIALIZED TO THE PATIENTS DEMANDS
6. PROGRESS SPORT PROGRAMS DEPENDING ON PATIENT VARIABLES

FUNCTIONAL ACTIVITIES:

1. PATIENT MAY RETURN TO VARIOUS SPORT ACTIVITIES AS PROGRESSION IN REHABILITATION AND CARTILAGE HEALING ALLOWS