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ORTHOPAEDIC SPECIALISTS OF NC

GALLAND/KIRBY AUTOLOGOUS CULTURED CHONDROCYTES FOR IMPLANTATION (CARTICEL[®]) POST- SURGICAL REHABILITATION PROTOCOL

POST-OP DAYS 1 – 14

- Dressing:
 - POD 1: Debulk dressing, TED Hose in place
 - POD 2: Change dressing, keep wound covered, continue TED Hose
 - POD 7-10: Sutures out, D/C TED Hose when effusion resolved

- Brace – Locked in extension
- Crutches – non weight bearing (NWB)
- CPM – 0-30 degrees (2-hour increments for 8-10 hours/day)
- AAROM 0-30 degrees within pain limits
- Patellar mobilization (teach patient)

- Calf pumping
- Passive extension with heel on bolster or prone hangs
- Electrical stimulation in full extension with quad sets and SLR
- Quad sets, Co-contractions quads / HS in extension
- Straight leg raise (SLR) x 4 on mat (in brace) – parallel bars if poor quad control
- Gentle Hamstring, ITB stretching

Ice pack with knee in full extension after exercise

GOALS

- Pain / effusion control
- Good quad control

Weeks 2 - 4

- Brace – Locked in extension
- Crutches – Flat foot weight bearing (FFWB)
- **Avoid twisting/pivoting on involved leg**
- Continue appropriate previous exercises
- Scar massage when incision healed
- CPM – 0-40 degrees

- AAROM, AROM 0-40 degrees
- SLR x 4 on mat (no brace) – Add light weight above knee if good quad control
- Pool therapy – Chest deep walking with aqua-jogger floatation device

GOALS

- ROM 0-40 degrees
 - No extensor lag
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WEEKS 4 - 6

- Brace – 0-30 degrees, continue to open to available range
- Crutches – Partial weight bearing (PWB)
- Continue appropriate previous exercises
- CPM – Add 5 degrees per day up to 90 degrees
- AAROM, AROM 0-90 degrees
- Pool therapy – Kickboard with gentle flutter kick from hip, knee in extension

GOAL

- AROM 0-90 degrees

WEEKS 6 - 8

- Brace – 0-90 degrees, continue to open to available range
- Crutches – PWB
- Continue appropriate previous exercises
- CPM – D/C
- AAROM, AROM 0-120 degrees
- Isometric co-contractions at 0, 30, 60, 90 degrees
- Stationary bike for ROM
- Pool therapy – Chest deep running

GOALS

- ROM 0-120 degrees
- No effusion

WEEKS 8 - 10

- Brace – D/C when good quad control
- Crutches:
 - Weight bearing as tolerated (WBAT) (D/C when gait is normal)
 - **Avoid twisting/pivoting on involved leg**

- Continue appropriate previous exercises
- PROM, AAROM, AROM to regain full motion
- SLR x 4 with weight below the knee if quad control adequate
- Weight shifts in full extension
- Stationary bike for progressive resistance and endurance
- Pool therapy – Unrestricted

GOAL

- Full ROM
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WEEKS 10 - 12

- Continue appropriate previous exercises
- Avoid twisting/pivoting on involved leg
- Isometric open chain co-contractions at varying angle
- Total Gym – Mini squats (level 3-5) – No flexion > 45 degrees
 - Passive flexion to 90 degrees (push up with opposite leg)
- Leg press with light resistance 0-30 degrees
- Hamstring curls – Carpet drags or rolling stool (closed chain)
- Heel raises – Double leg, progress to single leg

- Proprioceptive training – Double leg BAPS for weight shift
 - Progress to single leg BAPS, ball toss and body blade
- Elliptical training

GOAL

- Normal gait
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MONTHS 3 - 6

- Continue appropriate previous exercises
- Standing SLR x 4 with Theraband bilaterally
- Partial wall squats – No knee flexion past 45 degrees
- Forward, lateral, and retro step downs in parallel bars
 - No knee flexion past 45 degrees (small step)
- Leg press with progressive resistance – No knee flexion past 45 degrees
- HS curl weight machine
- Fitter
- Slide board
- Treadmill – Forwards and backwards walking
- Swimming

- Quad stretches

GOAL

- Thigh girth equal bilaterally
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MONTHS 6 - 9

- Continue appropriate previous exercises with increased resistance
 - Progress to 90 degrees of knee flexion
 - Increase resistance as tolerated
- Hip weight machine x 4 bilaterally
- Step downs with medium to large steps
- Sit-up progression
- Treadmill – Walking progression program

GOAL

- Walk 2 miles at 15 min/mile pace

MONTHS 9 - 12

- Continue appropriate previous exercises with progressive resistance
- Agility drills Plyometrics
- Progressive weight training
- Treadmill – Running progression program
- Low impact activities such as skating, roller blading, cross country skiing, cycling

GOAL

- Run 2 miles on treadmill at comfortable pace

MONTHS 12 - 18

- Continue appropriate previous exercises
- Knee extension weight machine
- Agility drills – Slow “S”, figure 8, zigzags, progress to sharper cutting motions
- Plyometrics – Advanced
- Running progression to track
- Repetitive impact activities such as aerobic classes

- Transition to home / gym program

GOAL

- Resume all activities

****NO CONTACT OR CUTTING
SPORTS UNTIL 18 MONTHS POST-OP****

DEVELOPED BY:

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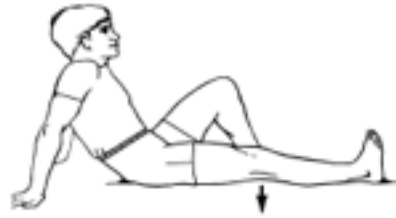
ADAPTED FROM:

Physical Therapy Section
William Beaumont Army Medical Center

KNEE POST-OP PHASE I

Perform exercises below frequently: 30 reps, 3 – 5x a day

Quad Isometrics



Heel Slides



Active Assisted Motion



Ice Position 15 minutes 2-3 x per day

