

## **AUTOLOGOUS CULTURED CHONDROCYTES FOR IMPLANTATION CARTICEL®**

Full Carticel® Rehab Guideline available at [www.carticel.com](http://www.carticel.com)

### **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

### **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** – ROM 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

**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 trainer

**Goal** – Normal gait

**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

**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

**Goals**

Resume all activities

Pass APFT at 6 months post-op

***No contact sports until 18 months post-op***