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REHABILITATION GUIDELINES FOR AUTOLOGOUS CULTURED CHONDROCYTES ON PORCINE COLLAGEN MEMBRANE (MACI IMPLANT) TIBIOFEMORAL LESIONS

PHASE I (0-6 WEEKS POST-OP)

DATES:

Appointments	MD appointment at (10-14 days post-op) Begin physical therapy (3-5 days post-op)
Rehabilitation Goals	<ul style="list-style-type: none"> Early ROM of knee Pain and Edema control Protect and promote cell adherence and proliferate growth to graft
Precautions	<ul style="list-style-type: none"> TTWB x 0-4 weeks, 25% WB progression each week to 50%PWB by 6 weeks (WB may change if bipolar lesions exist) Brace locked in extension with gait, unlocked for ROM non-weight bearing, on at all times unless in CPM or in therapy. ROM slow progression to full by 6 weeks (0-2 weeks 0-30°, 2-3 weeks 30-90°, 4-6 weeks 90-130°) No open kinetic chain quad strength x 6 weeks
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> CPM day 1 post-op set 0-30 with slow progression of ROM as tolerated Ankle ROM Quad sets, Hamstring sets, Glut sets Passive/active heels slides 4-way hip (once quad activation allows) Clam-shells 4-6 weeks bilateral calf raises Gait training
Cardiovascular Exercises	<ul style="list-style-type: none"> Stationary Bike (no resistance)
Progression Criteria	<ul style="list-style-type: none"> Pain free ROM to 130 Able to do SLR without extension lag

PHASE II (6-12 WEEKS POST-OP)

DATES:

Appointments	Continue physical therapy (2x week)
Rehabilitation Goals	<ul style="list-style-type: none"> • Full pain free AROM • Normal gait pattern pain free
Precautions	<ul style="list-style-type: none"> • Progress to FWB weaning from crutches and brace • No impact (running or jumping) x 12 weeks • No cutting, pivot motions, or heavy impact x 6 months
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • Progress closed kinetic chain exercises from double leg to single leg • Balance progressing from double leg to single leg • Proprioception work • Squats, lunges, slowly initiate lateral motions (weight supported progressing to full body weight) • Step up/down • Normalize gait training without assistive devices
Cardiovascular Exercises	<ul style="list-style-type: none"> • Stationary Bike with progressive resistance • Walking on level ground
Progression Criteria	<ul style="list-style-type: none"> • Pain free normal gait pattern • Pain free ROM with weight bearing positions

PHASE III (3-6 MONTHS POST-OP)

DATES:

Appointments	Continue physical therapy (1-2x week progressing to prn)
Rehabilitation Goals	<ul style="list-style-type: none"> • Return to pain free strenuous daily activity • Pain free stairs • Return to work
Precautions	<ul style="list-style-type: none"> • No cutting, pivot motions, or heavy impact x 6 months • No return to sport unless pass a return to sport test at 9 months • No running outside on uneven surfaces x 9 months
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • Continue with Phase II strength progression • Agility drills • Single leg balance and strength progression • Balance and proprioception progression on uneven surfaces
Cardiovascular Exercises	<ul style="list-style-type: none"> • Bike outside • Walking



	<ul style="list-style-type: none">• Running progression on controlled surfaces
Progression Criteria	<ul style="list-style-type: none">• Pass a return to sport test prior to sport specific recreational activities at 9 months post-op• Able to walk pain free > 3 miles on all terrain

References: MACI Rehabilitation Manual, Jay Ebert, PHD, AEP ESSAM, Hollywood Functional Rehabilitation Clinic, School of Sport Science (Exercise and Health), University of Western Australia



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