MATRIX-INDUCED AUTOLOGOUS CHONDROCYTE IMPLANTATION (MACI) REHABILITATION GUIDELINES

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PHASE 1: 0-3 Months Following Surgery - ACHIEVE ROUTINE	
Protocol Selection	□ PF = patellofemoral; TF = tibiofemoral. Select the pathway based on defect location and number of defects. □ For PF multiple defects, the cited guidance applies to nonkissing lesions with neutral joint alignment.
Weight Bearing	**PF - single defect** □ Initiate weight bearing immediately with brace at 81-100% body weight; full weight bearing immediately. **PF - multiple defects** □ Initiate weight bearing immediately with brace. Uncontained lesion: begin at <20% body weight and increase 15-20% each week after week 1. Contained lesion: 81-100% body weight. Full weight bearing at 5-6 weeks. **TF - single or multiple defects** □ Initiate weight bearing immediately with brace at <20% body weight; increase 10-15% each week after week 1. Full weight bearing at 7-9 weeks.
Range of Motion	□ All pathways: passive ROM immediately; progress from 0-45 degrees by adding 15 degrees each week after week 1; full ROM at 7-9 weeks. **Early/full active ROM** □ PF single: early active ROM at 2 weeks; full active ROM at 6 weeks. □ PF multiple: early active ROM at 4 weeks; full active ROM at 8-10 weeks. □ TF single or multiple: early active ROM immediately; full active ROM as tolerated by 4 weeks.
Work & ADLs	□ Release to unrestricted activities of daily living as early as 3 months for all pathways. □ Sedentary work: as early as 2 weeks for PF or TF single defects; as early as 4 weeks for PF or TF multiple defects. □ Avoid high impact activity until four months post-op
Recreational Activity	□ Stationary cycling: 3-4 weeks for PF or TF single defects; 5-6 weeks for PF or TF multiple defects.
Phase Target	□ Progress toward full weight bearing, full ROM, unrestricted daily activities, and stationary cycling according to the applicable lesion pathway.

INLAND Orthopaedic Surgery & Sports Medicine Clinic

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PHASE 2: 3-6 Months Following Surgery - BUILD STRENGTH	
Goals	□ Rebuild muscle strength and increase endurance. □ Maintain full weight bearing and full ROM.
Work & ADLs	□ Release to unrestricted activities of daily living and sedentary work for all pathways. □ Heavy labor: release at 3-6 months for PF or TF single defects.
ROM & Flexibility	□ Maintain full ROM. □ Continue flexibility and stretching exercises.
Strengthening	□ Continue strengthening exercises. □ Introduce bridging exercises and standing single-leg calf raises. □ Introduce modified open kinetic chain (OKC) and closed kinetic chain (CKC) exercises. • OKC: terminal leg extension. • CKC: inner-range quadriceps and leg press activities.
Cardiovascular	□ Progress upright stationary cycling and outdoor road cycling. □ Begin rowing ergometry as tolerated. □ Outdoor cycling: 3-4 months for TF single defects; 5-6 months for PF single, PF multiple, and TF multiple defects.
Recreational Activity	□ Low-impact recreational activities: advance as directed for all pathways. □ Evaluation for running at 6 months for PF or TF single defects.
Progression Criteria	□ Full weight bearing and full ROM maintained while strength and endurance exercises are progressed. □ Advance cycling, rowing, low-impact recreation, and running evaluation only as directed.

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PHASE 3: 6-9 Months Following Surgery - BE ACTIVE	
Goals	□ Maintain the rehabilitation program to support continued progression. □ Be proficient in activities of daily living and progress toward running, low-impact sports, and recreational activities.
Weight Bearing & ROM	□ Full weight bearing and full ROM for all pathways. □ Continue flexibility and stretching exercises.
Work & ADLs (Activities of Daily Living)	□ Release to unrestricted ADLs and sedentary work for all pathways. □ Release to heavy labor for PF or TF single defects during this phase.
Exercises	□ Progress the difficulty of open kinetic chain exercises. □ Progress the difficulty of closed kinetic chain exercises, including step-ups/step-downs and modified squat activities. □ Introduce agility exercises. □ Develop the ability to navigate uneven ground, inclines, and obstacles.
Running & Sports	□ PF or TF single defect: release to running at 7-9 months; release to tennis at 9 months. □ PF or TF multiple defects: evaluation for running at 8 months, as directed. □ Tennis-level examples in the source include pickleball and golf. □ Return to low-impact sports and recreational activities as directed.
Progression Criteria	□ Progress through a return-to-running program and maintain the rehabilitation program for continued advancement. □ Return to all activities of daily living; sport progression remains pathway- and surgeon-directed.