



Autologous Chondrocyte Cartilage Repair  
of the Tibio-Femoral Joint

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	<b>WEIGHT BEARING</b>	<b>ROM</b>	<b>EXERCISES</b>
<b>Phase 1: 0-2 Weeks</b> <b>Max. Protection</b>	Heel-touch (20%) WB in TROM brace opened 0-30°	CPM/ AROM: 0°- 30°  Sleep in brace	Quad/Glute/HS sets, ankle pumps, 4-way ankle theraband; NMES for quad activation, SLR in brace once able to perform adequate quad set; Soft tissue mobilization; Patellar mobs; Pain and swelling control modalities/ Cryotherapy; HEP.
<b>Phase 2: 2-6 weeks</b> <b>2-3x/week</b> <b>“Implantation and Protection”</b>	Heel-touch. Increase WB +10% each week until 50% WB in week 5 (bilateral crutches) TROM: Week 3 - 45° Week 4 - 60° Week 5 - 90°	CPM/ AROM: Week 3: 0 - 90° Week 4: 0 - 110° Week 5: 0 - 125°  D/C brace at night after 3 weeks	<b>Continue phase 1 exercises and modalities.</b> May begin BFR at 2 weeks post-op based on MD recommendations and patient past medical history. May Initiate aquatic therapy when wounds are closed and 30% WB status (walking, active-resisted exs, deep water exs) SLRx4-way; Isometric core exercises; recumbent bike once patient has 110° of knee flexion (no resistance).
<b>Phase 3: 6-8 weeks</b> <b>2-3x/week</b> <b>“Proliferation”</b>	Increase WB +10% until 80% at week 8 (contralateral crutch)  TROM: Full ROM	0° - 135°	<b>Continue phase 1 and 2 exercises.</b> Continue aquatic therapy progressions into shallower water. Deep water squatting activities. Land: Initiate double leg proprioception/balance drills; Calf Raises; Progress to isotonic core exs.
<b>Phase 4: 8-12 weeks</b> <b>2x/week</b> <b>“Proliferation”</b>	Full weight bearing as tolerated. Wean crutch and TROM brace..	Full ROM	<b>Continue phase 1-3 Exercises</b> , progressing core. Initiate upright bicycle; Progress to Single leg Proprioception/balance drills. Stretch quads and HS.
<b>Phase 5: 12-24 weeks</b> <b>1-2x/week</b> <b>“Remodeling”</b>	Full weight bearing  D/C Pool	Full ROM	Introduce modified OKC and CKC loading ie. resisted knee extension, knee flexion, leg press/Shuttle (ranges depend on lesion location and <50% BW); Bridging exs.; May begin elliptical. Begin lateral walking drills. .
<b>Phase 6: 6-9 months</b>  <b>“Remodeling”</b>	.	Full ROM	Patient should be in Independent gross strengthening gym/ home program 2-3x/week. Progress CKC/OKC, single leg strength activities through full ROM as tolerated (step up/downs); Progress stability, and balance/proprioception
<b>Phase 7: 9 months and beyond</b>  <b>“Maturation”</b>			May begin Jogging progression if it was a pre-op activity. May begin Plyometrics and agility related to sport only based on MD clearance. Consider functional testing prior to return to sport (1 yr.)

Lesion size and location will affect weightbearing and ROM precautions. Please request the op-report.  
Healing requires controlled mechanical joint loading including cyclic-compressive loading and shear loading  
MD post op appts: 2 weeks, 6 weeks, 12 weeks, 5 months; Please send PT progress notes prior to each one  
This protocol is not a substitute for clinical decision making of the health care professional.  
Please see PT referral for any specific post op instructions.