

## TJ Ridley, MD

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### Knee Cartilage Preservation (Femur/Tibia) Rehabilitation Protocol

Phase / Goals	Immobilization	ROM	Therapeutic Exercises
<b>Phase 1 (0-2 weeks)</b> Goals: <ul style="list-style-type: none"> <li>Control joint pain &amp; hemarthrosis</li> <li>Regain 0 deg extension</li> </ul>	<ul style="list-style-type: none"> <li>Hinged brace</li> <li>TTWB x 6 weeks</li> <li>CPM               <ul style="list-style-type: none"> <li>0-30, progress as tolerated</li> <li>4-6h/day</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>PROM 0-90 deg</li> <li>Patellar mobilization</li> <li>Modalities PRN</li> </ul>	<ul style="list-style-type: none"> <li>Ankle Pumps</li> <li>Hamstring/gastroc stretching</li> <li>SLR</li> <li>Wall slides, heel slides</li> <li>Quad series</li> <li>Extension mobilization</li> </ul>
<b>Phase 2 (3-6 weeks)</b> Goals: <ul style="list-style-type: none"> <li>Muscle control</li> <li>Edema control</li> </ul>	<ul style="list-style-type: none"> <li>Hinged brace</li> <li>TTWB x 6 weeks</li> <li>CPM               <ul style="list-style-type: none"> <li>progress as tolerated</li> <li>4-6h/day</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Full PROM/AAROM</li> <li>Patellar mobilization</li> <li>Modalities PRN</li> </ul>	<ul style="list-style-type: none"> <li>Include all from phase 1</li> <li>Isometric training 0-60 deg</li> <li>S/L clam shells</li> <li>Can begin upper body weight training/conditioning</li> <li>Stationary bike for ROM w/ no resistance starting wk. 5</li> <li>BFR – may initiate 15 days post op</li> </ul>
<b>Phase 3 (7-12 weeks)</b> Goals: <ul style="list-style-type: none"> <li>FWB by 8 weeks, full ROM</li> </ul>	<ul style="list-style-type: none"> <li>Advance full WB as tolerated with normalized gait</li> <li>D/C hinged brace at 8 weeks</li> </ul>	<ul style="list-style-type: none"> <li>Full ROM</li> <li>Continue hamstring and gastroc stretching</li> <li>Patellar mobilization</li> </ul>	<ul style="list-style-type: none"> <li>Closed kinetic chain- wall sits, mini-squats, light leg press (10-70 deg)</li> <li>Upper body conditioning, stationary bike w/ resistance at 10 wks, water walking.</li> <li>Aqua jogging at 10 week mark</li> <li>Toe raises &amp; balance series at 10 week mark</li> </ul>
<b>Phase 4 (13-16 weeks)</b> Goals: <ul style="list-style-type: none"> <li>Maintain Full A/PROM</li> <li>Normalize gait</li> </ul>	<ul style="list-style-type: none"> <li>FWB</li> <li>No brace</li> </ul>	<ul style="list-style-type: none"> <li>Full A/PROM</li> <li>Patellar mobilizations</li> </ul>	<ul style="list-style-type: none"> <li>SLR's (with rubber tubing, CKC (closed chain))</li> <li>Mini-squats, Wall sits (0-30)</li> <li>Hamstring curls (active, 0-90)</li> <li>Leg press (70-10)</li> <li>Upper body conditioning</li> <li>Stationary bike with light resistance</li> <li>Elliptical, stairmaster</li> </ul>

<p><b>Phase 5 (17-20 weeks)</b> Goals:</p> <ul style="list-style-type: none"> <li>• Increase strength &amp; endurance</li> </ul>	<ul style="list-style-type: none"> <li>• FWB</li> <li>• No brace</li> </ul>	<ul style="list-style-type: none"> <li>• Full A/PROM</li> </ul>	<ul style="list-style-type: none"> <li>• Continue Phase 4 exercises</li> <li>• Closed chain M70-10 deg in squats (0-40)</li> <li>• Lateral step-ups (2-4) uni-squats (0-40)</li> <li>• Hamstring curls (active 0-90)</li> <li>• Leg press (70-10 deg)</li> <li>• Start balance training, 2-legged balance board, single leg stance</li> <li>• Aerobic conditioning: bike, water walk, swimming (straight kick), walking, elliptical, stairmaster</li> </ul>
<p><b>Phase 6 (21-24 weeks)</b> Goals:</p> <ul style="list-style-type: none"> <li>• Regain normal muscle strength – quads, hamstring, etc.</li> <li>• Regain normal proprioception, balance, and sports coordination</li> </ul>	<ul style="list-style-type: none"> <li>• FWB</li> <li>• No brace</li> </ul>	<ul style="list-style-type: none"> <li>• Full A/PROM</li> </ul>	<ul style="list-style-type: none"> <li>• Continue and advance all Phase 5 strengthening activities</li> <li>• Balance training: continue from Phase 5</li> <li>• Aerobic conditioning: increase resistance as necessary below threshold of knee pain</li> <li>• Return to low impact activities (golf, hiking, biking)</li> </ul>
<p><b>Phase 7 (25+ weeks)</b> Goals</p> <ul style="list-style-type: none"> <li>• Slow advance of impact activities</li> <li>• Return to sport progression</li> <li>• No effusions</li> </ul>	<ul style="list-style-type: none"> <li>• FWB</li> <li>• No brace</li> </ul>	<ul style="list-style-type: none"> <li>• Full A/ROM</li> </ul>	<ul style="list-style-type: none"> <li>• Advance strengthening, proprioception, balance and sports coordination</li> <li>• Begin impact activities and walk to jog program</li> <li>• Clearance from Dr. Ridley prior to return to sport</li> </ul>

**RETURN-TO-SPORT CRITERIA:**

- No functional complaints
- No joint effusion after impact activity
- Confidence when running, cutting, jumping at full speed
- 90% isometric quadriceps strength
- 90% contralateral values on hop tests
  - Clearance to return to sport dependent upon progress with PT and discussion with Dr. Ridley