

## Grade I MCL Protocol

Week one	Week Two
Initial Evaluation	Evaluate
<ul style="list-style-type: none"> <li>➤ Range of motion/Joint instability</li> <li>➤ Ability to contract quad/vmo</li> <li>➤ Gait</li> <li>➤ Patella mobility</li> <li>➤ Pain/Joint effusion</li> <li>➤ Assess RTW and functional expectations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pain/Joint effusion</li> <li>➤ Standing balance</li> <li>➤ Range of motion</li> </ul>
Patient Education	
<ul style="list-style-type: none"> <li>➤ Support Physician prescribed meds</li> <li>➤ May need to use short brace due to pain, per physicians discretion</li> <li>➤ Discuss frequency and duration of treatment 1-2 times per week for 3-4 weeks</li> </ul>	
Therapeutic Exercise	Therapeutic Exercise
<ul style="list-style-type: none"> <li>➤ Initiate bicycle (do not force flexion)</li> <li>➤ Initiate isotonic exercise including multi hip, leg press, heel raises, and hamstring curl</li> <li>➤ Single leg static balance activity</li> </ul>	<ul style="list-style-type: none"> <li>➤ Initiate isotonic exercise including multi hip, leg press, heel raises, and hamstring curl</li> <li>➤ Add single leg static balance activity</li> <li>➤ Progress to closed chain exercises on unstable surfaces</li> <li>➤ Cardiovascular training (bike, swim and elliptical)</li> </ul>
Manual Techniques	
<ul style="list-style-type: none"> <li>➤ Any manual techniques as needed</li> </ul>	
Modalities	
<ul style="list-style-type: none"> <li>➤ Any modalities as needed for pain</li> </ul>	
Aquatics	Aquatics
<ul style="list-style-type: none"> <li>➤ Shallow Water: <ul style="list-style-type: none"> <li>○ Walking forward/backward/sideways with a focus on proper gait mechanics</li> <li>○ Closed chain LE exercises: Mini squats, toe raises, partial/modified lunges, step-ups</li> <li>○ Open chain exercises for the knee/hip/ankle avoiding valgus stress on knee.</li> <li>○ Balance/Proprioception: Resisted upper extremity push/pull in single plane</li> </ul> </li> <li>➤ Deep Water: <ul style="list-style-type: none"> <li>○ Open chain exercises: Bicycling, running, splits, knees to chest, etc.</li> <li>○ Closed chain exercise: Two legged kickboard squat, standing barbell propulsion, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Shallow Water: Considered adding hydrocuff for assistance <ul style="list-style-type: none"> <li>○ Progress week 1 exercises with resistance (fins/cuffs/tethers)</li> <li>○ Balance exercises progressed to push/pull with kickboard/UE resistance in diagonal plane. Progression to single leg stance / eyes closed</li> </ul> </li> <li>➤ Deep Water: <ul style="list-style-type: none"> <li>○ Continue Week 1 exercises</li> <li>○ Squats on kickboard progressing to one leg, or addition of 180's/360's</li> </ul> </li> </ul>
Goals	Goals
<ul style="list-style-type: none"> <li>➤ Control pain</li> <li>➤ Reduce effusion/inflammation</li> <li>➤ Normal gait pattern</li> <li>➤ Gain full knee extension</li> </ul>	<ul style="list-style-type: none"> <li>➤ No pain with ADL's</li> <li>➤ 4+/5 strength with manual testing</li> <li>➤ Normal ROM</li> </ul>

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<b>Weeks Three to discharge</b>
<b>Evaluate</b>
<ul style="list-style-type: none"> <li>➤ Any excessive joint laxity</li> <li>➤ Any functional testing - Functional hop test for time/distance</li> <li>➤ Address any deficits that may limit return to work or sport goals</li> <li>➤ Assess foot and ankle for biomechanical optimization</li> <li>➤ HEP compliance</li> </ul>
<b>Therapeutic Exercise</b>
<ul style="list-style-type: none"> <li>➤ Single leg dynamic balance activity (OTIS/IT IS airex activities)</li> <li>➤ Single leg isotonic exercises</li> <li>➤ Begin agility and sport specific activity</li> <li>➤ Continue strength and conditioning</li> <li>➤ Progress to plyometrics, running, and cutting activity when normal manual muscle test, passing functional hop test, and full agility without pain</li> <li>➤ Encourage participation in the CFA</li> </ul>
<b>Aquatics</b>
<ul style="list-style-type: none"> <li>➤ Shallow and Deep Water Exercises: <ul style="list-style-type: none"> <li>○ Progress week 1 and 2 exercise (fins/cuffs/tethers)</li> <li>○ Sport/work specific simulated activities</li> </ul> </li> </ul>
<b>Goals</b>
<ul style="list-style-type: none"> <li>➤ Good stability across tibiofemoral joint</li> <li>➤ Full strength with manual and functional testing</li> <li>➤ Discharge with full return to work or sport activity orders</li> </ul>



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#### References:

- Kim, Eunkuk & Kim, Taegyung & Kang, Hyunyong & Lee, Jongha & Childers, Martin. (2010). Aquatic Versus Land-based Exercises as Early Functional Rehabilitation for Elite Athletes with Acute Lower Extremity Ligament Injury: A Pilot Study. *PM & R : The journal of injury, function, and rehabilitation*. 2. 703-12. 10.1016/j.pmrj.2010.03.012. 2009
- Reider, B., Sathy, M. R., Talkington, J., Blyznak, N., & Kollias, S. (1994). Treatment of Isolated Medial Collateral Ligament Injuries in Athletes with Early Functional Rehabilitation: A Five-year Follow-up Study. *The American Journal of Sports Medicine*, 22(4), 470–477.