



Warren D. King, M.D.

Orthopedic Surgeon Specializing in Arthroscopy and Sports Medicine

MCL Injury

Affiliations

Oakland Raiders
Director of
Orthopedic Surgery

San Francisco Giants
Orthopedic Surgical
Consultant

San Jose Sharks
Asst. Director of
Orthopedic Surgery

US Soccer
National Teams Programs

US Rugby
Director of
Orthopedic Surgery

Palo Alto Medical
Foundation

Palo Alto Office
795 El Camino Real
Palo Alto, CA 94301
ph (650) 853.2943
fax (650) 853.6094

What is it? The medial collateral ligament (MCL) runs on the inside of the knee from the thigh bone (femur) to the shin bone (tibia) along the inside of the knee joint. The MCL prevents the knee from buckling inward.

How does it occur? Most MCL injuries occur during sports when the knee is forced inward.

What are the symptoms? With a MCL injury patients usually note pain and tenderness on the inside of the knee joint. Pain with full straightening of the knee may occur. Patients also may note feelings of instability and knee stiffness. The MCL runs on the outside of the knee joint so a large amount of swelling in the joint is not common.

MCL injury is classified with Grade I through Grade III injury. Grade I refers to a mild sprain, Grade II moderate sprain and Grade III severe sprain / tear of the MCL.

What is the treatment? After an acute episode, the patient will be initially treated with RICE (rest, ice, compression, and elevation). A hinged knee brace and crutches may be warranted based on severity of injury and/ or degree of instability. Ranges of motion exercises are important to restore flexibility, and strengthening the quadriceps stabilize the knee joint. Physical therapy can be very helpful. MRI may be useful to evaluate for any other knee injuries.

Most patients with a MCL injury will do very well with rehabilitation and will not require surgery. Patients who

may require surgery will continue with instability despite rehabilitation.

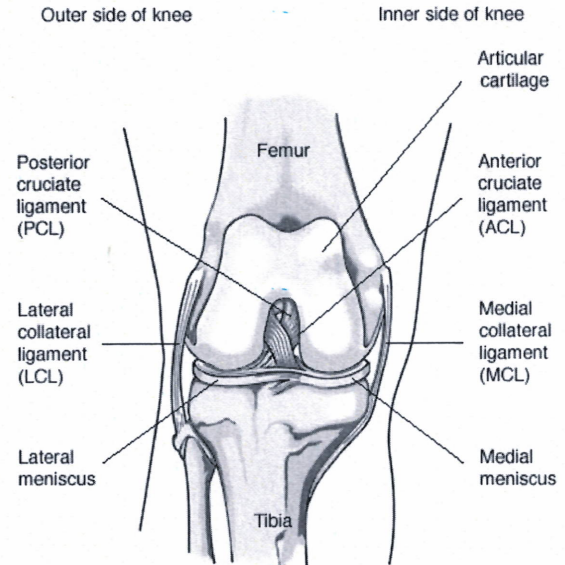


Fig 1: Knee diagram showing an intact MCL.

What the exercises? All exercises should not cause increased pain or swelling. Work up to at least 3 sets of 20 repetitions, at least 4 days a week. See Fig 2-7.

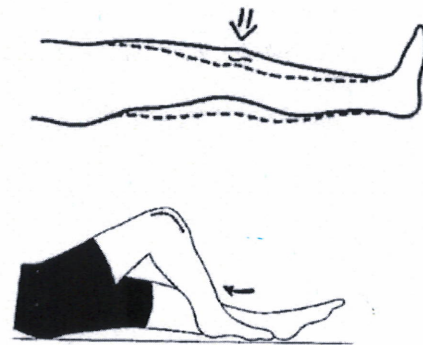


Fig 2: Range of Motion. Advancing motion but straightening and bending the knee joint.

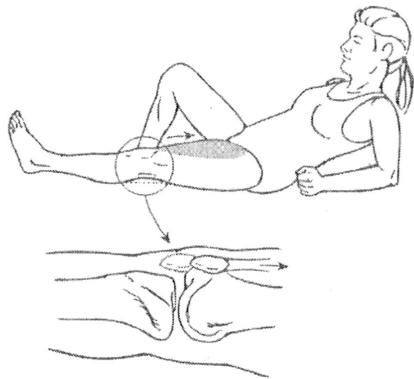


Fig 3: Quadriceps Isometrics. Lie with leg straight, tighten quad as you push the back of the knee flat on the ground. Hold and repeat.

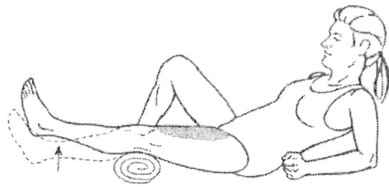


Fig 4: Short Arc Quadriceps. Place a roll or bolster under the knee, and tighten the front of the thigh while lifting the heel off the floor. Hold and repeat.



Fig 5: Isometric Quadriceps Strengthening. Sit with knee bent 75-90 degrees. Palpate the muscle just above the kneecap on the inside of the thigh (VMO). Push foot into the floor, tightening the thigh, concentrate on the VMO. Hold and repeat.

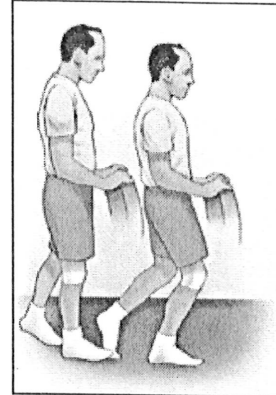


Fig 6: Standing Quarter Squats. Start standing with weight on both legs, then progress to weight on the affected leg. Do not bend more than 45 degrees.

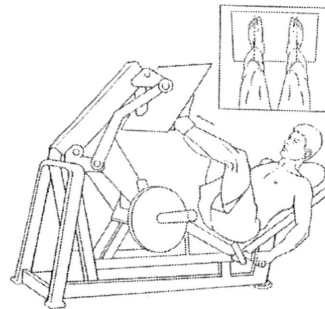


Fig 7: Leg Press. These are best done with one leg at a time always with a low weight and high repetitions. Do not bend the knees further than 45 degrees.

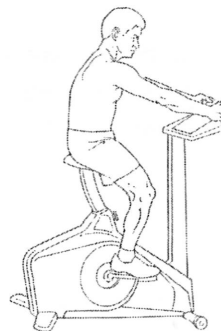


Fig 8: Stationary Bike and Elliptical machine are lower impact cardiovascular exercise that promotes strengthening.

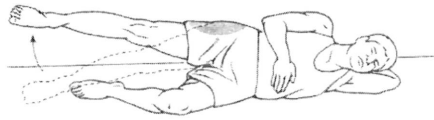


Fig 9: Hip Abduction. Lie on the side with weak side on top. With upper leg straight, lift up leading with the heel. Hold, lower and repeat.

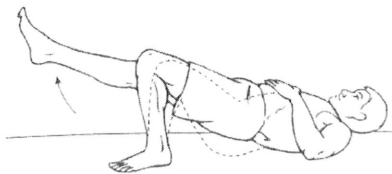
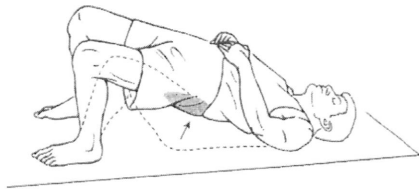


Fig 10: Hip Extension. Lie on your back with knees bent. Raise hips/buttocks off the floor, keeping the pelvis straight. Start with two feet on the floor progress to one on the floor.

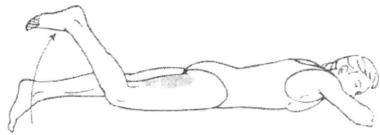


Fig 10: Hamstring Curls. Lie on the stomach, bend knee to 90 degrees. Hold, slowly return to start and repeat.