

# MCL Injuries in Skiing

## **Signs & Symptoms:**

The most common symptom described is an audible “pop” followed by immediate swelling in the knee. The individual may also state that the knee feels “unstable” and painful to the touch on the inside of the knee. When examined, the knee is swollen and painful. Swelling inside the joint suggests a more severe, or complete tear.

## **Anatomy:**

The medial collateral ligament is a tight band of tissue on the inner side of the knee. It helps prevent abnormal bending of the knee medially (or inwardly). When stressed or twisted or with force applied to the outside of the knee pushing inward, the ligament is sprained. A sprain is a tear in the ligament and it can be partial or complete.

## **Cause:**

Beginning skiers “snowplowing” sustain MCL injuries when they fall, usually after their stance suddenly widens or their skis cross. Experienced skiers tear their MCL by “catching an edge” causing the knee to suddenly twist.

## **Prevention:**

The two main preventable reasons for a knee injury are deconditioned bodies, meaning they have not been physically active prior to ski season and skiing when you are fatigued. The majority of knee injuries have been shown to occur later in the day when the muscles and body are tired. It is better to quit early so you can enjoy another day skiing.

There are a number of things the skier can do before they hit the slopes. They need to be aerobically fit and they need to have proper leg and core strength. Skiing is predominately a quadriceps based activity. This means the hamstrings need to be strong enough to compensate for the strength of the quads. Core stabilization will play a major key in preventing injuries because you can control your body more efficiently if your core (your abdomen & low back) are strong. Plyometric training is also very beneficial to skiers because it conditions the muscles to respond to quick stimuli & movement, thereby strengthening them at the same time.

## **Rehabilitation:**

Luckily most MCL injuries can be managed without surgery & will heal just with physical therapy, bracing and some time off from skiing.

- R.I.C.E; rest, ice, compression, and elevation will help decrease the amount of swelling inside the joint and help them heal faster.

## **MCL Injuries Rehabilitation Exercises**

### **Strengthening: Hip Abduction – Isometric**

Using ball or folded pillow, push outside of the affected knee into wall. Hold 5-10 seconds. Repeat 10 times per set. Do 1 set per session. Do 1-2 sessions per day.

### **Strengthening: Hip Adduction – Isometric**

With ball or folded pillow between knees, squeeze knees together. Hold 10 seconds. Repeat 10 times per set. Do 1 set per session. Do 1-2 sessions per day.

### **Strengthening: Straight Leg Raise (Phase 1)**

Tighten muscles on front of the thigh, then lift leg keeping knee locked. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

### **Strengthening: Hip Extension (Prone)**

Tighten muscles on front of the thigh, then lift leg keeping knee locked. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

### **Strengthening: Hip Abduction (Side-Lying)**

Tighten muscles on front of the thigh, then lift leg keeping knee locked. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

### **Strengthening: Hip Adduction (Side-Lying)**

Tighten muscles on front of the thigh, then lift leg keeping knee locked. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

### **Strengthening: Terminal Knee Extension (Supine)**

With knee over bolster, straighten knee by tightening muscles on top of thigh. Keep bottom of knee on bolster. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**Strengthening: Knee Flexion (Standing)**

With support, bend knee as far as possible. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**Strengthening: Wall Slide**

Leaning on wall, slowly lower buttocks until thighs are parallel to floor. Hold 5-10 seconds. Tighten thigh muscles and return. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**Strengthening: Hip Adduction – Resisted**

With tubing around affected leg, bring leg across body. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**Strengthening: Hip Abduction – Resisted**

With tubing around affected leg, other side toward anchor, extend leg out from side. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**Strengthening: Hip Extension – Resisted**

With tubing around affected ankle, face anchor and pull leg straight back. Repeat 10-20 times per set. Do 1-2 sets per session. Do 1-2 sessions per day.

**LOWER EXTREMITY – Squat**

Stand with feet hip width apart (or slightly wider) and squat down, like you are sitting in a chair, keeping weight in the heels. Do not let your knees go over your toes. Keep your knee caps in line with your 2-3rd toe (do not let them "buckle" in). Return to standing. Repeat 10-20 times per set. Do 1-2 sets per session.

**LUNGE – Lateral**

Stand with equal weight on both feet. Lunge with affected leg along L direction, keeping foot forward, and return to center. 10 reps, 1-2 times per day.

**HIP / KNEE - Step-Down / Step-Up**

Stand on stair step or inch stool. Slowly bend affected leg, lowering other foot to floor. Return by straightening front leg. Repeat 10-15 times per set. Do 1-2 sets per session.  
Do 1-2 sessions per day.