

Dr. Ryan Nelson
861 Health Park Blvd.
Grand Blanc, MI 48439
(810) 953-0500
www.DrRNelson.com
ryan.Nelson@DrRNelson.com

ACTIVITIES AND EXERCISES AFTER INJURY TO THE MEDIAL COLLATERAL LIGAMENT (MCL) OF THE KNEE

PHASE 1: THE FIRST SIX WEEKS AFTER INJURY (grade 2 and 3) THREE WEEKS AFTER INJURY (grade 1)

The knee should be to be protected with a hinged brace for 3 to 6 weeks, depending upon the severity of the injury. Crutches and restricted weight bearing may be needed, as instructed by Dr. Nelson. Apply ice and elevate the leg to control swelling. As the pain lessens and the swelling decreases, try to gradually regain knee motion. Avoid pivoting or twisting the knee because it might be unstable and give out. Be careful getting out of cars, or catching your toe on a rug. When walking, bear weight according to Dr. Gill's instructions. Progress to no crutch(es) or brace when you can walk without a limp and there is no pain (per doctor instructions). Ice the knee if there is pain and swelling. Place a towel or cloth between the skin and the ice to prevent skin injury. Ice for 20 minutes, three times a day. At about two or three weeks following injury, the pain is usually subsiding and the swelling is lessened. You can now try to stretch the knee to regain motion. Stationary cycle, swimming (flutter kick only) and the following exercise program are recommended.

STATIONARY BICYCLE

Times per week:5-7 Duration: 30 minutes 1-2 times a day

Utilize a stationary bicycle to move the knee joint and increase knee flexion. If you cannot pedal all the way around, then keep the foot of your operated leg on the pedal, and pedal back and forth until your knee will bend far enough to allow a full cycle. Most people are able to achieve a full cycle revolution backwards first, followed by forward. You may ride the cycle with no resistance for 20 to 30 minutes a day. Set the seat height so that when you are sitting on the bicycle seat, your knee is fully extended with the heel resting on the pedal in the fully bottom position. You should then ride the bicycle with your forefoot resting on the pedal.

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Range of Motion and Strengthening Exercises (brace off)

Days per Week: 5-7

Times per Day: 1-2

Quadriceps sets	1-2 sets of 15-20 reps
Heel prop	5 minutes
Heel slides with towel assist	1 set of -15 reps
Straight leg raises	3 sets of 10 reps
Short arc lift	3 sets of 10 reps
Standing Hamstring Curl	3 sets of 10 reps
Standing toe raises	3 sets of 10 reps
Hip Abduction	3 sets of 10 reps
1/4 Squats	3 sets of 15 reps
Wall slides	3 sets of 15 reps

Quad Sets- Isometric exercise. This can be done where ever the knee is straight. (laying in bed, standing, or reclined in the lax-y-boy) Tighten up your thigh muscle as tight as you can make it. Hold for a count of 10. Relax and repeat 3 sets of 15 repetitions.



Heel Prop-Lie on your back with a rolled up towel under your heel or sit in a chair with the heel on a stool as shown in the figure. Let the knee relax into extension (straight). If the knee will not straighten fully, you can place a weight (2 to 5 pounds) on the thigh, just above the kneecap. Try to hold this position for **5 minutes, three times a day. While maintaining this extended position, practice quadriceps setting.**

Heel slides- While lying on your back, actively slide your heel backward to bend the knee. Keep bending the knee until you feel a stretch in the front of the knee. Hold this bent position for five seconds and then slowly relieve the stretch and straighten the knee. While the knee is straight, you may repeat the quadriceps setting exercise. Continue this exercise until you can fully bend your knee equal to the uninjured side. Also, as you start to gain flexion, you can assist your efforts to gain flexion by assisting the heel slide with a towel. Repeat 20 times, three times a day.

Straight Leg Raise- Lay flat on back, unaffected knee bent to 90 degrees. Keep involved leg straight and raise it so that your thighs are equal. Hold for count of 6. Perform 3 sets of 15 reps. Add 1-2 pounds to your ankle until you can reach your goal weight of 10-15 pounds.



Short Arc Knee Extension- Place 2-3 towels rolled up under the knee to the affected knee. This will have the knee bent to 30 degrees. Bring the leg up into full extension. Add weight just like #1 until the goal weight is reached of 10-30 pounds.



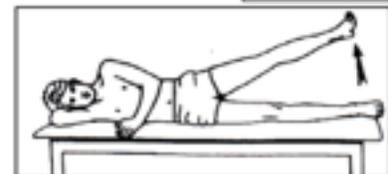
Standing Hamstring Curl- Stand facing a table, using the table for balance and support. While standing on the unaffected limb bend the knee of the operated side and raise the heel toward the buttock. Hold this flexed position for one second. Slowly lower the foot back to the floor. Keep the thighs aligned as illustrated.



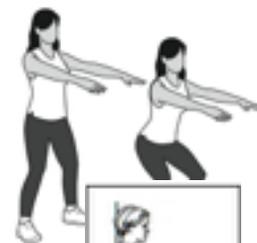
Standing Toe Raise- Stand facing a table, hands on the table for support and balance. Keep the knees extended fully. Tighten the quadriceps to hold the knee fully straight. Raise up on 'tip-toes' while maintaining the knees in full extension. Hold for one second, then lower slowly to the starting position.



Hip Abduction- Lie on your uninjured side. Keep the knees fully extended. Raise the operated limb upward to a 45-degree angle as illustrated. Hold one second, and then lower slowly.



1/4 Squats- Stand with your feet shoulder width apart. Toes pointing straight ahead. Look down at your feet, Lean with your butt first and squat down slowly until your knees pass over your toes then stand back up to start position. You may hold dumbbells to add resistance.



Wall Slides - Stand upright with your back and buttocks touching a wall. Place the feet about 12 inches apart and about 6 inches from the wall. Slowly lower your hips by bending the knees and slide down the wall until the knees are flexed about 45 degrees (illustration). Pause five seconds and then slowly slide back up to the upright starting position.



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**ACTIVITIES AND EXERCISES AFTER INJURY TO THE MEDIAL
COLLATERAL LIGAMENT (MCL) OF THE KNEE
PHASE 2: SIX WEEKS AFTER INJURY ONWARD (grade 2 and 3) THREE
WEEKS AFTER INJURY ONWARD (grade 1)**

This handout is to help you rebuild the strength of the knee muscles after injury to the MCL of the knee. It is intended as a guideline to help you organize a structured approach to strengthen the knee.

Precautions When Exercising:

- Avoid pain at the patellar tendon
- Avoid pain and/or crepitus (grinding) at the patella (kneecap)
- Build up resistance and repetitions gradually
- Perform exercises slowly avoiding quick direction change and impact loading • Exercise frequency should be 2 to 3 times a week for strength building
- Be consistent and regular with the exercise schedule

Before Starting Your Workout

- Warm-up prior to exercising by stationary cycling, elliptical machine or treadmill walking uphill
- You are “warmed –up” when you have started sweating
- Gently stretch all muscle groups next (see attachment for recommended stretches)
- Do exercises involving multiple muscle groups first and individual muscle groups last
- Do aerobic workouts *after* strength workouts
- Cool-down by stretching after finishing exercise

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EXERCISE PROGRAM

ROM and Strengthening

Days per week: 3 Times per Day: 1

Quadriceps sets	1-2 sets of 15-20 reps
Heel prop	5 minutes
Prone Hang	5 minutes
Heel slides	1 set of 15 reps
Straight leg raises	3 sets of 10 reps
Short arc lift	3 sets of 10 reps
Standing Hamstring Curl	3 sets of 10 reps
Standing toe raises	3 sets of 10 reps
Hip Abduction	3 sets of 10 reps
Squat to Chair	3 sets of 15 reps
Wall slides	3 sets of 15 reps

Stretching

Days per week: 5-7 Times per day 1-2

Hamstring stretch	3-5 reps holding 15-30 seconds
Quadriceps stretch	3-5 reps holding 15-30 seconds
Calf Stretch	3-5 reps holding 15-30 seconds

Optional weight training

- It is ok to start slow weight training at this time using low weights and high reps, it is also advised if you have pain refrain from doing lower body weight training.

Cardiovascular

- Start to perform cardiovascular training 2 times per week for 30 minutes. Include stationary bicycle, walking, rowing, elliptical or water workout. Refrain from impact exercises.

Return to play

- Full Range of Motion
- Strength at least 80 % of uninjured limb
- Thigh girth within 1/2 inch of unaffected limb
- Symmetrical quadriceps and hamstring flexibility Perform and pass functional tests

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Functional test

Before starting the **running sequence** you must be able to:

1. Hop forward on both legs at least 2 feet
2. Hop to either side at least 1 foot
3. Hop up and down on both feet 10 times
4. Jog with no limp for 100 feet

Before starting **unrestricted direction change and impact training** you must be able to:

1. Hop forward on the affected limb for at least 80% of the distance of the unaffected side.
2. Hop to either side for 80% of the distance of the unaffected limb
3. Hop up and down on the operated limb 10 times with no pain

Once these have been completed you may return to sport.

Warm-up and Stretch and Ice

Be careful to be sure that you warm-up well and stretch lightly before workouts, and stretch well again after workouts. Generally, you should do some walking, cycling or jogging so that you break a sweat before starting the running program. You should then stretch before beginning the running drills. Ice your knee for 20 minutes following workouts after stretching again as you are cooling down.

Any questions call or email Dr. Nelson