

LATERAL CORONARY LIGAMENT SPRAIN

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What is it?

No, a coronary ligament has nothing to do with a heart attack! It is a thin, flexible wormlike ligament (*Fig. 1*) at the lateral knee. It holds the spongy, shock absorbing, half-moon shaped meniscus, or cartilage, in place, allowing it to slide forward and back while it serves as a cushion between the femur and tibia. This important ligament, which many therapists have never heard of, is on the top of the tibia anchoring the meniscus to the tibia. When some of the ligament fibers are sprained and torn, pain can be sharp with sudden movement; however, the pain is usually of the dull-achy variety, either on the very outer side of the knee or slightly toward the front.

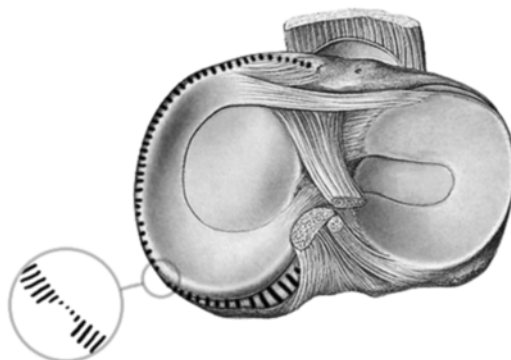


Fig. 1

How and Why

Individuals who play sports which require a good deal of running or side to side quick movements like tennis and football are very frequently afflicted with this injury. It's often an elusive, puzzling injury with many symptoms. In one instance, severe pain will commence after three or four miles of running or forty-five minutes of a vigorous sport, disappearing a few hours later. In another case, pain will be constant and will be intensified by just walking a few blocks. A sudden outward twist with the foot planted firmly and the leg turning laterally may cause a momentary buckling and feeling of weakness. This is followed by pain and/or swelling for several days or weeks. All of these symptoms point to the same common but often-missed injury: a lateral coronary ligament tear.

The danger of this injury is that it is often only one component of a more serious injury; a tear of the lateral meniscus commonly referred to as a torn cartilage. When the cartilage is torn the knee periodically gives way, locks and swells. While the ligament can be torn without the cartilage being damaged, an uncared-for injury to the ligament can lead to instability and a meniscus tear, which usually requires surgery.

This injury is often confused with an ilio-tibial band (ITB) sprain at the lateral attachment to the knee. Both injuries certainly occur but the I T Band assessment is invoked often because many practitioners are not familiar with the lateral coronary ligament, how it functions and how to evaluate it. Hopefully this article will clear up that confusion.

How does it happen? It can occur slowly through the constant pounding of running or jumping on hard surfaces, particularly if the person has poor knee/foot alignment. More frequently, the injury is dramatic and sudden. The foot is usually planted firmly on the ground and there is a sudden forceful outward twist of the knee with the foot stationary. The knee isn't designed to twist in this way. What gives way first is the ligament, not the meniscus. This injury frequently occurs during basketball games where the player lands while turning in midair out of a jump shot. In football, too, this injury can easily occur when two players kick the ball simultaneously.

Another cause of this injury is lax cruciate and collateral ligaments. The cruciate ligaments in the center of the knee stabilize the knee in forward and backward motions. The medial and lateral collateral ligaments stabilize the knee in side-to-side activities. When one or both sets of these ligaments are loose, either due to a trauma or heredity, the knee literally wobbles when placed under stress through strenuous physical activity. This pre-condition of lax ligaments makes it very likely that the lateral coronary ligament will be injured, particularly if the person engages in vigorous athletic activities.

Injury Verification

When performing this test, be careful not to twist the ankle. A client will often say that hurts! You may think it's the knee, but the client often means the ankle.

Test (see *Fig. 2*)

Standing at the knee, lift the leg in the air so it is bent at about a ninety-degree angle. Now face the knee and place one hand (the one closest to the head) on the medial aspect of the heel and the other hand on the lateral forefoot. Now dorsiflex the client's foot and medially rotate the foot as far as you can and if no pain is felt, give it a gently extra push which is called a jerk.



Fig. 2

Another way to accomplish the same test is to have the client stand in an open doorway and place the lateral aspect of the foot of the injured knee against the inner frame of the doorway, (*Fig. 3*). Then have the person slowly twist the knee outward as far as they possibly can or until they feel pain. The object of this test is to twist the knee outward without moving the foot. Have the person use their hands and arms on the doorway to rotate and stabilize their body. In mild cases the client may need to give a little more force at the end of the twist or reproduce the pain. In extreme ones the person only needs to twist gently to feel the pain begin.



Figure 3

Treatment Choices

Self-Treatment

Ice treatments along with quadriceps exercises are often effective in mild and moderate coronary ligament injuries. The person limits activities to those that produce no pain. This means Rest! No dancing, no running or no sports – except swimming for several months.

Continued on page 24.

Treatment

1. Friction Therapy

This method of treatment is only effective when the tear is in the anterior or lateral portion of the ligament. This is generally indicated by pain at the anterior to lateral edge of the tibial condyle and tenderness there when palpated. If the injured part of the ligament is in the posterior portion of the ligament the therapist's fingers cannot reach it.

Positioning the Client: Stand next to the client's knee on the side opposite to the injured knee. The client's foot is resting on the table with the injured knee bent at about a ninety-degree angle. The therapist then gently rotates the client's foot medially so that it is turned as far as it will rotate comfortably. Now, stabilize the leg by placing the headward hand on top of the knee and pressing gently downward so that the foot is stable on the table. The therapist then reaches across the table to the injured knee and places his/her middle or index finger at the lateral edge of the patella and slides it down onto the bony shelf formed by the top of the tibial condyle.

Finding the Best Hand Position: If the friction is to be performed by the index finger, then the middle finger is placed on top for reinforcement and the thumb is wrapped medially around the knee in a gripping action to offer a counterforce. Some therapists prefer to use the middle finger to perform the friction because their hand just works better that way. In that case the middle finger can be reinforced by the index finger of the other hand. Others are more comfortable using the tip of their thumb. If I haven't lost you yet, do the technique in whatever way is comfortable.

This maneuver requires a highly skilled action, so follow these instructions as precisely as you can. Once you are in position, move your working finger laterally and simultaneously press the tip of your finger downward toward the table. This puts pressure directly onto the coronary ligament. Now, keeping the downward pressure constant and bringing the skin with you as you move, apply a friction motion horizontally across the top of the tibial shelf. As you bring your finger back to the starting position release pressure so you are only working in one direction.

Friction Tips: Be sure that the pressure you are applying is shared by the muscles of your forearm, hand and shoulder or you will end up injuring yourself. The main action is controlled by extending and flexing the wrist, the downward pressure of your hand and arm and the anterior pressure created by the upper arm and shoulder.

Remember to apply pressure in one direction only to give yourself and your client a breather. After two or three minutes, switch the direction in which you give pressure. Take a short break after five or six minutes and then repeat the same procedure. Doing it in this way makes it less likely that you will need friction of the tendons of *your* wrist when you are finished helping this person.

Begin your friction rather lightly and increase your pressure very gradually so that the client feels the least possible discomfort. As you work, the tissue will become slightly numb and less sensitive. If you increase your pressure, slowly, you can keep the level of discomfort to the client quite minimal.

Ice and Massage: After applying friction therapy for 10 to 12 minutes. Next, massage all the surrounding tissue to increase the general circulation as much as possible. I suggest working on the thigh, shin and calf area as well as the buttock. Treat the other leg with massage as well for it is probably under strain from extra stress from compensating. Then ice the area you frictoned for four to five minutes or have the client do so in your waiting room.

Frequency of Treatment: Friction should be given two or three times per week for 10 to 12 minutes. In my experience treatment will take from four to eight weeks depending on the seriousness of the injury and the general health of the client. As the client improves, taper off the treatment to once a week, then twice a month.

Ben E. Benjamin holds a PhD in sports medicine and education and is founder and president of the Muscular Therapy Institute in Cambridge, Massachusetts. He is the author of dozens of articles on working with injuries and chronic pain, as well as the widely used books in the field, "Are You Tense?", "Exercise Without Injury" and "Listen To Your Pain: The Active Person's Guide to Understanding, Identifying and Treating Pain and Injury". Dr. Benjamin has been in private practice for over 35 years. He can be reached in Cambridge, Massachusetts at BB@mtfi.com.

CONFERENCE 2005 – 5TH/6TH MARCH 2005 - EDINBURGH

Dr Ben Benjamin will be presenting a TWO-DAY WORKSHOP at the SMTO CONFERENCE 2005. The workshop will cover common injuries and include hands-on testing, treating and drawing the anatomy of the injured structures very precisely on the body.

Contact 01224 822960 or smt@scotmass.co.uk for more details or a booking form.