



Part IV—Knee Ligament Injuries

Below is a “sports dictionary” of terms that you may hear to describe injuries to the knee ligaments.

The knee is the largest joint of the body. More than 5.5 million people per year have medical visits due to knee problems. Ligament injuries are common in adults and older adolescents. The stability of the knee is dependent on the muscles which act as active restraints and ligaments which act as passive restraints. Ligaments are strong cords of tissue that connect bone to bone across joints.

Ligament injuries are graded by their severity.

Grade I, mild: the ligament is stretched, but is intact.

Grade II, moderate: the ligament is partially torn.

Grade III, severe: the ligament is totally torn and instability is present to examination.

Four main ligaments of the knee connect the femur (thigh bone) to the tibia (shin bone) **Anterior cruciate ligament (ACL):** Located in the center of the knee. The ACL and PCL crisscross each other to form an “X”. The ACL controls rotation and forward movement of the tibia under the femur. The ACL is stretched or torn by sudden twisting motion, coming to a sudden stop when running, landing from a jump or direct contact (such as in a football tackle). It is not unusual in football for a player to have a foot planted one way and have the knee twist the other direction. In skiing the ACL is injured when the bindings do not release in a twisting fall. Basketball and soccer are also sports with high risk of ACL injury. At the time of cruciate injury, there is generally a loud pop followed by the leg buckling when the person stands up. Swelling occurs due to bleeding and may take 2 to 12 hours to develop. Ice and elevation should be used immediately and the knee should be evaluated by your physician. Complete tears of the ligament in active people of any age may require surgical reconstruction. Rehabilitation to full return of motion, strength, and agility takes an amazing effort.

Posterior cruciate ligament (PCL): Located in the center of the knee. It controls backward movement of the tibia under the femur. The PCL is more rarely injured because it is stronger than the ACL. The usual cause is a direct blow to the knee such as during a football tackle or in a car accident. Luckily, frequently after PCL injury, the knee is still stable and does not require surgery. Vigorous, prescribed rehabilitation generally results in a fully functioning knee.

Medial collateral ligament (MCL): Located on the inside of the knee joint. It gives stability to the inner knee. Injuries to the MCL are usually caused by forceful contact on the outside of the knee. A typical example in football is another player landing on the outside of a downed player’s knee. A pop, sharp and immediate pain will occur on the inside of the knee. Swelling occurs quickly. Immediate treatment includes rest from

motion, crutches, ice, ace wrap compression, and elevation. Most MCL injuries do not require surgery as the ligament heals with time and protection. Surgical repair may be needed if the fibers are torn in a way that cannot heal.

Lateral collateral ligament (LCL): Located on the outside of the knee joint. It gives stability to the outer knee. LCL injuries usually occur in combination with injury to the other three ligaments. Blows to the knee and twisting injuries are the most common mechanisms of injury. Damage to the LCL causes pain and tenderness on the outside edge of the knee. The knee usually swells. Immediate treatment is the same as for the MCL.

Knee Ligament Injury Prevention:

1. exercise regularly to stay in shape
2. stretch and warm up before starting the sport
3. wear suitable pads or protection
4. use proper technique for the sport
5. wear appropriate shoes—too much traction creates risk!
6. train on appropriate surfaces

Next issue, look for Part V—Other knee Injuries.