

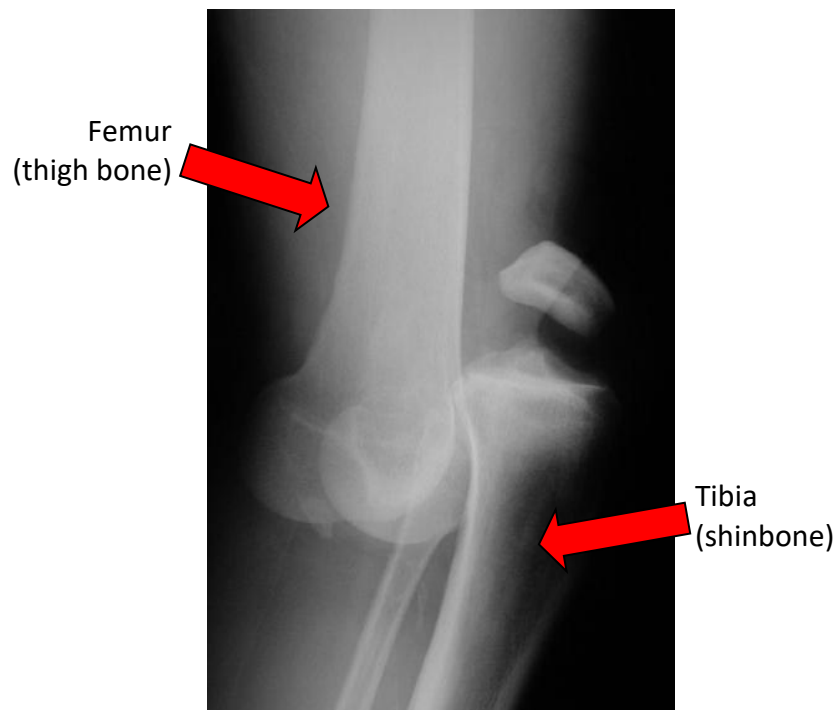
STEVEN CHUDIK MD

SHOULDER, KNEE & SPORTS MEDICINE

Knee Dislocation (Multiple Ligament Injuries)

Knee dislocations are a sprain (tear) of multiple (usually three of the four) major ligaments of the knee. The four knee ligaments are the anterior cruciate ligament (ACL), posterior cruciate ligament (PCL), medial collateral ligament (MCL), and lateral collateral ligament (LCL). Knee dislocations usually require injury to both cruciate ligaments and one collateral ligament.

Ligaments are structures that help keep the normal relationship of the femur (thighbone) and the tibia (shinbone). They allow motion until certain extremes, and any motion beyond these extremes results in ligament sprain. Injury to multiple ligaments results in difficulty in performing sports and even with day-to-day living.



Frequent Signs and Symptoms

- One or more pops usually heard or felt at the time of injury
- Inability to continue activity after the injury
- Knee swelling noticed within six hours after the injury; possibly, deformity of the knee
- Inability to straighten knee



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- Knee giving way or buckling; often, swelling with repeated giving way
- Occasionally, locking when there is concurrent injury to the meniscus cartilage
- Rarely, injury to nerves (numbness, weakness, paralysis), discoloration, or coldness (due to artery injury) of the foot and ankle

Etiology (Causes)

Knee dislocation is caused by a force that exceeds the strength of the ligament. This injury usually is the result of a severe injury, although it may be caused by a non-contact injury (such as stepping in a hole in the ground, hyperextending the knee, and twisting).

Risk Factors

- Sports that require pivoting, jumping, cutting, or changing direction (basketball, gymnastics, soccer, volleyball) or contact sports (football, rugby); sports on uneven terrain (cross-country running, soccer)
- Poor physical conditioning (strength and flexibility)
- Improper equipment

Prevention

- Appropriately warm up and stretch before practice and competition.
- Maintain appropriate conditioning:
 - Thigh, leg, and knee flexibility
 - Muscle strength and endurance
- Use proper technique.
- Wear proper equipment (such as the correct length of cleats for the surface).

Outcomes

If untreated, a knee dislocation will usually result in the knee giving way and recurrent injuries to the knee with sports and often with daily activities. Injuries to the arteries or nerves have a higher risk of poor outcome. Often surgery is required for knee stability. Some athletes never return to sports participation after this injury, although the prognosis is much better when there is no injury to the artery and nerves.

Potential Complications

- Frequent recurrence of symptoms, such as knee giving way, instability, and swelling
- Injury to the meniscal cartilage, resulting in locking and swelling of the knee



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- Injury to other structures of the knee, including the bone and articular cartilage, resulting in knee arthritis
- Injury to other ligaments of the knee
- Knee stiffness (loss of knee motion)
- Permanent injury to nerves (numbness, weakness, paralysis) or arteries
- Amputation of the leg due to nerve or artery injury

Treatment Considerations

Immediate repositioning of the bones (if displaced) and evaluation of artery and nerve function must be performed. Initial treatment consists of medications and ice to relieve pain and reduce the swelling of the knee. Walking with crutches is often recommended. Bracing or casting may also be recommended initially. Rehabilitation of these injuries usually concentrates on reducing knee swelling, regaining knee range of motion, regaining muscle control and strength, functional training, bracing (often), and education, such as avoiding sports that require pivoting, cutting, changing direction, and jumping and landing. Properly timed surgical repair or reconstruction (replacement) of one or both of the ligaments, in the hands of an experienced orthopedic surgeon, has the best chance for an optimal result. Artery injury requires immediate surgical attention. Some athletes never return to sports, although often this depends on the associated injuries and the demands of the sport.

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within seven days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Your physician may prescribe stronger pain relievers as necessary. Use only as directed and only as much as you need.

Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

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