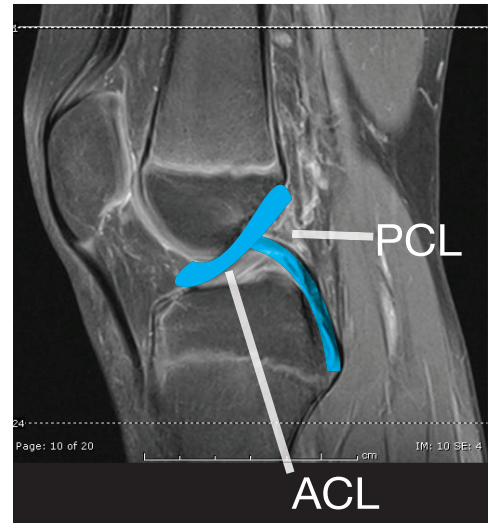


# Anterior cruciate ligament injury

## What is an anterior cruciate ligament injury of the knee?

The knee contains the anterior cruciate ligament (ACL), one of four ligaments (tough bands of tissue) that connect the femur (thigh) bone to the tibia (lower leg) bone. In combination with the posterior cruciate ligament (PCL), the ACL makes a diagonal "X" through the center of the knee joint and provides stability to the knee and allows it to twist/rotate and move side-to-side. The ACL is injured or torn when it is stretched beyond its normal range of movement. Research shows approximately 50 percent of ACL injuries also involve other structures in the knee (meniscus, the pad/disc between knee bones, cartilage or other ligaments). ACL injuries are among the most common of all sports injuries, with one in 3,000 people sustaining, rupturing or tearing an ACL in their lifetime.



## Mechanism of injury:

- ACLs can be injured if a child/adolescent stops suddenly or changes direction quickly with a foot firmly planted, creating a twist or overextending the knee.
- ACL injuries are also common when landing from a jump with poor knee alignment.
- Often ACL injuries are NOT from contact with another player.

## Who is at risk?

- Females are at greater risk than males due to the alignment of their legs, hormone levels and differences in strength/conditioning.
- Child/adolescent athletes who play sports where aggressive cutting motions are common have a greater risk.
- Child/adolescent with loose joints.
- Child/adolescent who is deconditioned or has weak muscles.
- Child/adolescent who has imbalances with flexibility and/or strength in their legs and core.
- Child/adolescent with a previous knee injury.

## What are the symptoms?

- May report hearing/feeling a "pop" when the knee is injured.
- May have intense pain in the knee.
- May have immediate swelling.
- May report feeling the knee will buckle or give out if they try to stand on it, or report feeling the knee is unstable.

# Anterior cruciate ligament injury

## What are the treatment options?

### Conservative/non-surgical treatment:

- Rest from activities that cause pain or “relative rest.”
- Ice the area for swelling/pain for 10 to 20 minutes, once an hour as needed.
- A knee brace may be help stabilize the knee during activities.
- Physical therapy could address pain, swelling, range of motion, flexibility, strength, gait, bracing and sport training will usually improve symptoms.
- Muscle stretching to improve flexibility and strengthening, assisting with knee alignment:
  - Concentrate on stretching the hamstrings (back of thigh) and gastrocnemius/soleus (calf).
  - Focus strengthening the leg on the inside quadriceps (thigh) muscle and the vastus medialis (VMO) muscle (inside thigh muscle). It is recommended to avoid deep squats, leg presses and long/short arc exercises.
  - The child/adolescent may benefit from a progressive core/balance program to provide sport-specific retraining.

### Surgical treatment:

- ACL injuries in athletes and young adults typically require surgical reconstruction.
- There are a number of techniques depending on the patient’s age and activities.
- Reconstruction options may be limited in children with open growth plates (the cartilage area at the end of bones that allow for growth).

## What is the time frame for returning to activity/sport?

- Typically six to nine months after surgical reconstruction.

## What are the long-term side effects of an ACL injury?

- May not be able to return to same level of activity, compared to before injury.
- Increased potential for arthritis in adulthood.
- May have instability of knee.