

ANTERIOR CRUCIATE LIGAMENT (ACL) INJURY

OVERVIEW

The knee joint is held together by four ligaments.

The inner and outer ligaments (medial and lateral collateral ligaments) are attached to the femur (thigh bone) and the tibia or fibula (lower leg bones). They hold the two bones together and prevent side to side motion.

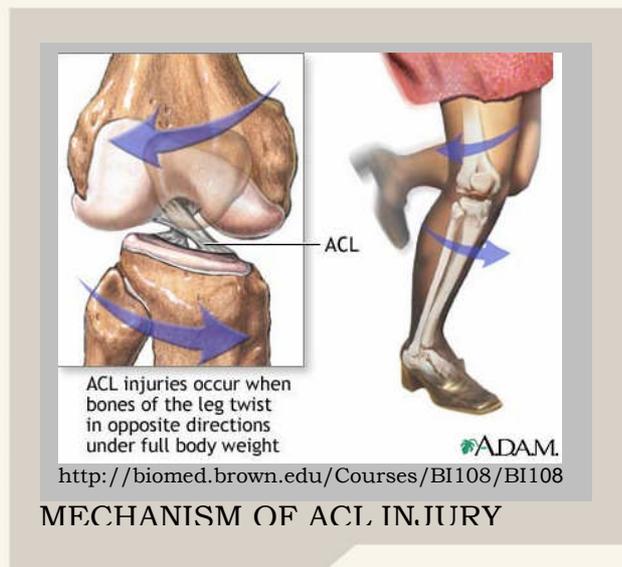
The crossing ligaments, which sit in the middle of the joint (anterior and posterior cruciate ligaments) are attached to the femur and the tibia. The PCL and ACL prevent forward and backward motion of the knee joint.

A person can partially or completely tear any of the ligaments in the knee. In the United States, there are approximately 200,000 ACL tears per year. Women are at a higher risk of ACL injuries than men, although the exact reason for this is not clear.

CAUSES

NON-CONTACT INJURIES - Occur when a person is running or jumping and suddenly slows and changes direction (e.g., cutting) or pivots in a way that involves rotating or bending the knee sideways. Commonly seen in skiing, gymnastics, and tennis.

CONTACT RELATED INJURIES - Occur from a direct blow causing the knee to be hyperextended or bent inwards towards the other leg. Occur when a player's foot is planted and an opponent strikes him / her on the outside or front of the thigh. Commonly seen in football, soccer, rugby, and basketball.



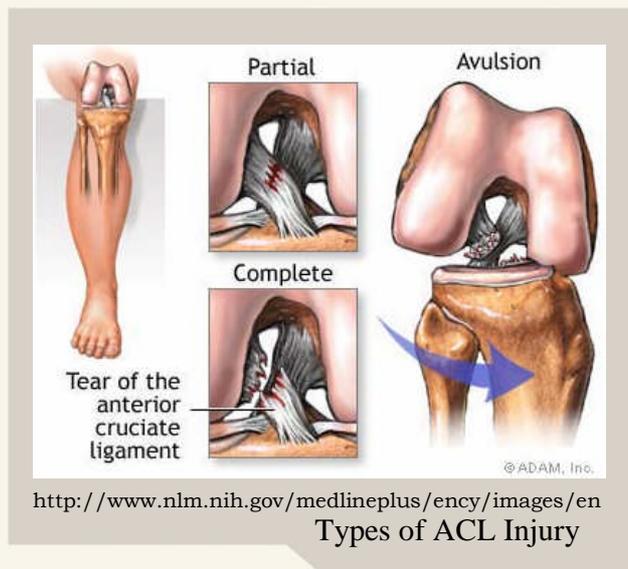
SYMPTOMS

People with an ACL injury often complain of feeling a pop in their knee at the time of injury. Within a few hours of the injury, swelling of the knee usually develops due to a combination of bleeding from injured blood vessels, damage to the joint capsule, or other structures within the joint.

After swelling improves, most people can bear weight but may feel as if the knee is unstable, giving out, or buckling, especially with movements such as squatting, pivoting and stepping.

WHEN TO SEEK MEDICAL CARE AND WHAT TO EXPECT

Anyone with a knee injury resulting in pain, swelling, and/or instability while standing, should be evaluated by a doctor. The provider will perform a physical examination. Imaging tests, such as X-rays, MRIs or arthroscopy, may be recommended to examine the bones and ligaments.



TREATMENT

Soon after an ACL injury, you must always remember to **R**est, **I**ce, **C**ompress, and **E**levate the knee. (A good way to remember this is the mnemonic RICE.)

After a physician evaluates the injury, the knee joint may need to be drained with a needle in order to remove the fluid from the joint. The patient may also be prescribed a knee brace and / or crutches in order to support and protect the joint.

Non-surgical rehabilitation may be indicated if the person has a small partial tear of the ACL that may heal with rest and rehabilitation, or does not plan to participate in sports, especially if the person is older than 55 years.

Surgery and rehabilitation is required if the person is young, plans on continuing sports, needs a strong and stable knee, is unsteady when standing on the injured knee, has multiple injuries, or has completed rehabilitation and still has instability. Surgery involves reconstructing the ACL with a graft from the person's own tendon tissue, or tissue from a donor.

Both options require rehabilitation, which includes balance, stretching, and strengthening exercises. Rehabilitation can begin soon after the injury and may need to be continued up to one year after the injury.

PROGNOSIS

Most people with surgical reconstruction of the ACL can usually return to all previous activities within six months after surgery. Athletes return to sports once their knee demonstrates strength and balance equivalent to the uninjured knee (usually six to twelve months). These outcomes are dependent on the person's dedication to the rehabilitation program.

ACL INJURY PREVENTION

Some key elements for ACL injury prevention:

1. Technique - proper landing technique, proper deceleration & cutting, avoiding excessive "caving in" at the knee.
2. Strength and Power - increase hamstring, gluteus medius and hip abductor strength with neuromuscular training, plyometrics, and agility exercises.
3. Identify Players at Risk

ACL injury prevention programs have been proven to be beneficial for female athletes and any athlete who is at high-risk for an ACL injury (football players, skiers, etc.). Programs are usually tailored to a particular sport and should be initially taught and supervised by a knowledgeable athletic trainer, physical therapist or physician. It is very important to visit a qualified healthcare provider for an individualized assessment for an ACL injury prevention program.