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Treatment of Anterior Cruciate Ligament (ACL) Injury

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Opinion Article

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DESCRIPTION

The Anterior Cruciate Ligament (ACL) is stretching causes partially tear, or complete tear, resulting in anterior cruciate ligament injury. A complete tear is the most common injury. Symptoms include pain, an audible cracking sound during the injury, knee instability, and joint swelling. Swelling usually appears within a few hours. In about half of the cases, other knee structures such as surrounding ligaments, cartilage, or the meniscus are damaged.

Common causes include a sudden change in direction, a sudden stop, landing after a jump, or direct contact with the knee. Athletes are more likely to develop it, especially those who participate in alpine skiing, football (soccer), netball, American football, or basketball. A physical examination is typically used to make a diagnosis, but Magnetic Resonance Imaging may be used to confirm it in some cases (MRI). On physical examination, tenderness around the knee joint, reduced range of motion, and increased looseness of the joint are all common findings.

To avoid injury, neuromuscular training and core strengthening are used. The level of activity desired determines the treatment options. In those with low levels of future activity, nonsurgical treatment options such as bracing and physiotherapy may be sufficient. In those who engage in a lot of physical activity, surgical repair *via* arthroscopic anterior cruciate ligament reconstruction is frequently recommended. A tendon is replaced with one taken from another part of the body or a cadaver in this procedure. Rehabilitation involves gradually increasing the joint's range of motion and strengthening the muscles around the knee following surgery. If surgery is recommended, it is typically postponed until the initial inflammation of the injury has subsided.

Signs and symptoms

When the ACL in a person's knee is injured, they may hear a "pop" followed by pain and swelling. When they resume walking and other activities, they may experience knee instability because the ligament no longer has the ability to stabilise the knee joint and prevent the tibia from sliding forward. Acute ACL injuries can also result in a decrease in knee range of motion as well as tenderness along the joint line. The swelling and pain may go away on their own, but the knee will remain unstable, and returning to sports without treatment may result in further injury.

Causes

Causes may include:

- A possible cause is abrupt direction changes (also known as "cutting")
- A knee injury caused by a direct hit or collision (e.g., during a football tackle or a motor vehicle collision)
- The tibia shifts away from the femur quickly as a result of these movements, putting strain on the knee joint and potentially causing ACL rupture. In about 80% of cases, ACL injuries occur without any direct trauma. Female anatomy, specific sports, poor conditioning, fatigue, and playing on a turf field are all risk factors.

The femur (thighbone), tibia (shinbone), and patella (kneecap) are the three bones that make up the knee joint (kneecap). These bones are held together by ligaments, which are strong bands of tissue that keep the joint stable while an individual is walking, running, jumping, and so on. The two types of ligaments in the knee are the collateral and cruciate ligaments.

The medial collateral ligament (on the inside of the knee) and the lateral or fibular collateral ligament (on the outside of the knee) are examples of collateral ligaments (along the outside of the knee). These two ligaments work together to prevent the knee from moving in a sideways direction.

The anterior cruciate ligament runs from the front of the tibia to the back of the femur, forming a "X" inside the knee joint, and the posterior cruciate ligament runs the distance between the back of the tibia and the front of the femur by preventing the tibia from sliding out in front of the femur, the anterior cruciate ligament provides rotational stability. The medial and lateral meniscus is two C-shaped cartilage structures that sit on top of the tibia and act as a cushion for the bones in the knee joint.