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FOOTBALLER'S KNEE – RUPTURE OF THE ANTERIOR CRUCIATE LIGAMENT

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Abstract: *One of the most common knee injuries is the stretching or rupture of the anterior cruciate ligament.*
Approximately 50% of the anterior cruciate ligament injuries occur simultaneously with the injury of other structures of the knee, such as articular cartilage, meniscus, or other ligaments.
Ligament injuries are referred to as "sprains" and have different degrees of severity.

Key words: *football, cruciate ligament, performance.*

1. Introduction

About 300 million people play football - regardless of the level worldwide! In Germany alone there are 6 million organized players.

American statistics have confirmed that 10% of all injuries in developed countries are sports injuries. Every year, 1.5% of active athletes in all sports branches are suffering trauma: 75% light injuries, 20%, average injuries and 5% severe injuries. In 2003 were reported approximately 7 million footballers who have received emergency assistance as a result of sports injuries (25.9 injuries per 1,000 inhabitants).

One of the most common knee injuries is the stretching or rupture of the anterior cruciate ligament.

Athletes who practice sports such as performance football and basketball are more likely to suffer from damage to the anterior cruciate ligaments.

If you have suffered an injury to the anterior cruciate ligament, you may need surgery to resume full motor function of your knee. The decision in this regard depends on several factors such as severity of the lesion and your activity level.

Approximately 50% of the anterior cruciate ligament injuries occur simultaneously with the injury of other structures of the knee, such as articular cartilage, meniscus, or other ligaments.

Ligament injuries are referred to as "sprains" and have different degrees of severity.

First degree sprains. In the first degree sprains the lesion of the ligament is moderate, this being slightly stretched but keeping its capacity to maintain the knee's stability.

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Second degree sprains. A second degree sprain causes a stretch of the ligament so that it's partially ruptured. This type of sprain is often referred to as partial rupture of the anterior cruciate ligament.

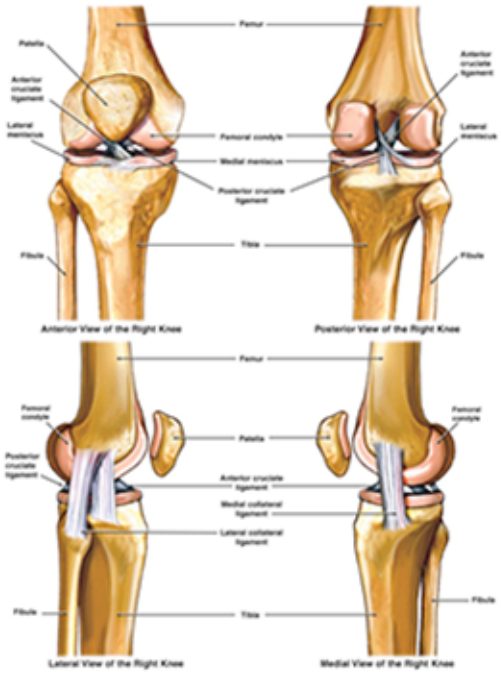

Fig.1. *Knee*

Third degree sprains. Most often, this type of sprain is referred to as rupture of anterior cruciate ligament. The ligament is ruptured in two pieces and the knee loses its stability.

Partial ruptures of the anterior cruciate ligament (ACL) are rare; most of the ACL ruptures represent complete or nearly complete ruptures of the anterior cruciate ligament.

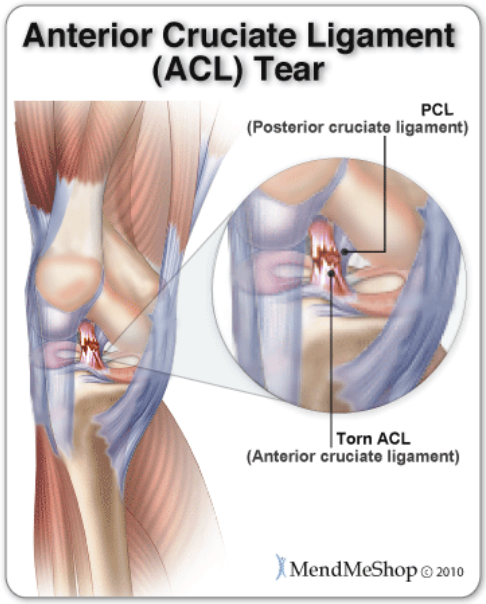

Fig. 2. *Rupture of the anterior cruciate ligament*

2.1. Causes

The anterior cruciate ligament may be broken by several mechanisms:

- Sudden change of direction;
- Sudden stop;
- Deceleration while running;
- Incorrect landing following a jump;
- Direct contact or collision, as in the case of rugby plating.

Several studies have revealed that, in certain sports, the incidence of ACL injuries is higher in women athletes compared to men athletes. It is believed that this is due to the difference in physical condition, muscle strength and neuromuscular control [2].

Other possible causes of this incidence of anterior cruciate ligament injuries, differentiated by sex, include greater ligamentous laxity in women and the effects of oestrogen on the properties of ligaments.

3. Symptoms

In case of an anterior cruciate ligament injury, the patient is likely to hear a kind of "pop" and can feel like his/her knee gives into its own weight. Other symptoms are:

- Pain and inflammation. Within 24 hours, the knee will swell. Without treatment, the pain and inflammation may disappear by itself. However, if the patient tries to resume sports activity, the knee will most likely be unstable, in which case he/she risks causing additional damage to the meniscus;
- Failure to execute a complete movement of flexion/extension;
- Sensitivity to the entire joints;
- Discomfort during travel.

Fig. 3. *Causes*

3.1. Examination

Physical Examination and Patient History

During your first visit, your doctor will talk to you about your symptoms and medical history [1].

During the physical examination, your doctor will check all the structures of your injured knee, and compare them to your non-injured knee. Most ligament injuries can be diagnosed with a thorough physical examination of the knee.

Imaging Tests

Other tests which may help your doctor confirm your diagnosis include:

X-rays. Although they will not show any injury to your anterior cruciate ligament, x-rays can show whether the injury is associated with a broken bone.

Magnetic resonance imaging (MRI) scan. This study creates better images of soft tissues like the anterior cruciate ligament. However, an MRI is usually not required to make the diagnosis of a torn ACL.

3.2. Treatment

Treatment for an ACL tear will vary depending upon the patient's individual needs. For example, the young athlete involved in agility sports will most likely require surgery to safely return to sports. The less active, usually older, individual may be able to return to a quieter lifestyle without surgery.

3.2.1. Nonsurgical Treatment

A torn ACL will not heal without surgery. But nonsurgical treatment may be effective for patients who are elderly or have a very low activity level. If the overall stability of the knee is intact, your doctor may tendons at the back of the thigh are a common source of grafts. Sometimes a quadriceps tendon, which runs from the kneecap into the thigh, is used. Finally, cadaver graft (allograft) can be used.

There are advantages and disadvantages to all graft sources. You should discuss graft choices with your own orthopaedic surgeon to help determine which is best for you.

Because the regrowth takes time, it may be six months or more before an athlete can return to sports after surgery.
recommend simple, nonsurgical options.

Bracing. Your doctor may recommend a brace to protect your knee from instability. To further protect your knee, you may be given crutches to keep you from putting weight on your leg.

Physical therapy. As the swelling goes down, a careful rehabilitation program is started. Specific exercises will restore function to your knee and strengthen the leg muscles that support it.

3.2.2.Surgical Treatment

Rebuilding the ligament. Most ACL tears cannot be sutured (stitched) back together. To surgically repair the ACL and restore knee stability, the ligament must be reconstructed. Your doctor will replace your torn ligament with a tissue graft. This graft acts as a scaffolding for a new ligament to grow on. [3]

Grafts can be obtained from several sources. Often they are taken from the patellar tendon, which runs between the kneecap and the shinbone.

4. Rehabilitation

Whether your treatment involves surgery or not, rehabilitation plays a vital role in getting you back to your daily activities. A physical therapy program will help you regain knee strength and motion.

If you have surgery, physical therapy first focuses on returning motion to the joint and surrounding muscles. This is followed by a strengthening program designed to protect the new ligament. This strengthening gradually increases the stress across the ligament. The final phase of rehabilitation is aimed at a functional return tailored for the athlete's sport.

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