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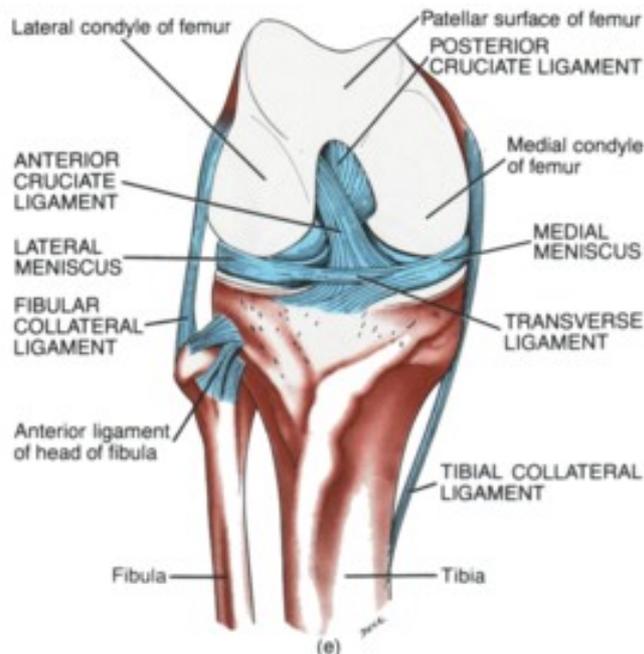
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ACL Injury

ACL injury, or Anterior Cruciate Ligament injury, is another common problem that affects the knee joint. The ACL is damaged in about 70% of all serious knee injuries, which makes it the most common injury affecting the knee joint.

Anatomy of the Knee

The anterior cruciate ligament is located within the capsule of the knee and connects the femur (thigh bone) to the tibia (shin bone).



The picture on the right is a front-on view of the bones, tendons and ligaments that make up the right knee. In the middle of the picture there is a ligament called the "Anterior Cruciate Ligament." It is this ligament, most commonly referred to as the ACL, which is damaged in an ACL injury.

The ACL is responsible for restraining excessive forward movement of the tibia and limiting rotational movement at the knee

joint.

How is the ACL Injured?

As with any sprain, an ACL injury is the result of excessive stretching or tearing of the ligament. The severity of the injury can range from a slight stretching to a complete rupture. An ACL injury most commonly results from:

- A sudden stop or change of direction.
- A twisting motion at the knee joint.
- A blow or sudden impact to the front of the knee.

Athlete's involved in sports that require a lot of running and change of direction and speed; (especially contact sports) are most susceptible to ACL injury. Sports that involve the highest risk are football, soccer, basketball, skiing, hockey and gymnastics.

What are the Signs and Symptoms of an ACL Injury?

The severity of the symptoms tends to correlate with the severity of the injury. In other words, the worse the injury, the worse the symptoms. The most common symptom of an ACL injury is pain and swelling at the knee joint.

ACL Surgery

For major ACL injuries, including a complete tear of the ligament, surgery will be necessary. The specific procedures for each surgery varies according to the degree of damage done, the age of the patient, the activity level of the patient and if there are any other injuries to the knee joint.

There are a number of tests your doctor or physical therapist can perform to help determine the extent of the damage of the ACL. Depending on certain factors your doctor may also choose to perform an x-ray and MRI, but these are not always necessary.

As it is not possible to repair the ACL by simply reconnecting the torn ends, in most cases, surgery will involve using a segment of another healthy ligament to replace the damaged ACL.

After surgery, expect to be on crutches for one to three weeks. Full recovery, using a comprehensive rehabilitation program will generally take about three to four months and athletes involved in high demand sports can be back on the field in about six to eight months.

ACL Injury Prevention

Although it is important to be able to treat ACL injury, prevention should be your first priority. So what are some of the things you can do to help prevent an ACL injury?

- **Warm Up properly.** A good warm up is essential in getting the body ready for any activity. A well structured warm up will prepare your heart, lungs, muscles, joints and your mind for strenuous activity.
- **Avoid activities that cause pain.** This is self-explanatory, but try to be aware of activities that cause pain or discomfort, and either avoid them or modify them.
- **Rest and Recovery.** Rest is very important in helping the soft tissues of the body recover from strenuous activity. Be sure to allow adequate recovery time between workouts or training sessions.
- **Balancing Exercises.** Any activity that challenges your ability to balance, and keep your balance, will help what is called, proprioception: - your body's ability to know where its limbs are at any given time.
- **Stretch and Strengthen.** To prevent ACL injury, it is important that the muscles around the knee be in top condition. Be sure to work on the strength and flexibility of all the muscle groups in the leg.
- **Footwear.** Be aware of the importance of good footwear. A good pair of shoes will help to keep your knees stable, provide adequate cushioning, and support your knees and lower leg during the running or walking motion.
- **Strapping.** Strapping, or taping can provide an added level of support and stability to weak or injured knees.

Exercises

Do as tolerated, include the following.

- **Heel slide:** Sit on the floor with legs outstretched. Slowly bend the knee of you injured leg while sliding your heel/foot across the floor toward you. Slide back into the starting position and repeat 10 times.
- **Isometric Contraction of the Quadriceps:** Sit on the floor with your injured leg straight and your other leg bent. Contract the quadriceps of the injured knee without moving the leg. (Press down against the floor). Hold for 10 seconds. Relax. Repeat 10 times.

- **Prone knee flexion:** Lie on your stomach with your legs straight. Bend your knee and bring your heel toward your buttocks. Hold 5 seconds. Relax. Repeat 10 times.

Add the following exercises once knee swelling decreases and you can stand evenly on both legs without favouring the injured knee.

- **Passive knee extension:** Sit in a chair and place your heel on another chair of equal height. Relax your leg and allow your knee to straighten. Rest in this position 1-2 minutes several times a day to stretch out the hamstrings.
- **Heel raise:** While standing, place your hand on a chair/counter for balance. Raise up onto your toes and hold it for 5 seconds. Slowly lower your heel to the floor and repeat 10 times.
- **Half squat:** Stand holding a sturdy table with both hands. With feet shoulder's width apart, slowly bend your knees and squat, lowering your hips into a half squat. Hold 10 seconds and then slowly return to a standing position. Repeat 10 times.
- **Knee extension:** Loop one end of Theraband around a table leg and the other around the ankle of your injured leg and face the table. Bend your knee about 45 degrees against the resistance of the tubing and return.
- **One Legged Standing:** As tolerated, try to stand unassisted on the injured leg for 10 seconds. Work up to this exercise over several weeks.