

Injury Timeout

Acute Knee Injury

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Knee injuries account for 15% of all sports injuries and are common in Ultimate due to the frequency of cutting, jumping, and collisions. This article will address acute injuries (vs. over-use injuries) and ACL injury prevention. This column is not meant to replace medical evaluation for your health problems. Always seek medical help for worrisome or persistent symptoms.

Just after a knee injury, the muscles around the knee spasm (fixed in contraction) and the injured area swells in an attempt to protect the knee. This makes a reliable examination difficult. Thus when evaluating knees a history of the injury and symptoms are often most important.

Warning signs of a serious injury are shown in Table 1. The warning signs are *suggestive only*, not diagnostic. Knees are complicated. You can view a diagram of the inner knee in Figure 1. Definitive diagnosis of a severe injury requires a doctor and often an MRI.

Table 1:

Warning Signs of Severe Injury and Correlated Common Injuries

- Mechanism of injury
 - Twisting/cutting → ACL or meniscus tear
 - Side impact → MCL or LCL tear, patellar dislocation
 - Collision → anything
- Pain
 - NOT very painful → complete tear
 - Lots of pain → partial tear
 - Location, severity, and onset are important to remember
- Sounds
 - "pop" that the athlete hears → ACL tear
 - loud pop that surrounding players can hear → patellar dislocation
 - crack → fracture
- Inability to weight bear → serious injury
- Feeling of instability → common symptom, frequently seen in complete ligament tears
- Immediate swelling → common symptom, frequently seen in ACL tear and patellar dislocation
- True locking (when you cannot move your leg) → meniscus tear, loose piece of cartilage or bone fragment from a fracture within the knee joint

Initial treatment is RICE: Rest, Ice, Compress, Elevate. Ice for 20 minutes four times a day until the swelling stops. Avoid heat. Compress by wrapping the knee

from below to above the joint. Elevate to at least waist level. Repeat this treatment any time the knee starts to hurt again. While waiting for your doctor's appointment you can control the pain with ibuprofen 600-800mg three times a day or Tylenol if ibuprofen bothers your stomach. You can do the exercises in Figure 2 to keep your knee strong and reduce swelling. Your doctor will usually order an x-ray because 6% of acute knee injuries have an associated fracture and then determine whether you need an MRI.

ACL Injury Prevention

ACL injury is a continual hot topic for athletes. Women are five times more likely to tear their ACL than men. There is debate about why and the best answer seems to be a combination of factors including anatomy, hormones, and movement dynamics. Prevention aims to change movement dynamics. An imbalance that favors the ligaments, quadriceps, or one leg can predispose an athlete to ACL injuries. Prevention programs use combinations of plyometrics, balance training, and single leg lifting. When doing jumping exercises make sure you are using good posture with your chest leaned forward over your bent knees. Throughout a jump, go straight up with no excessive side-to-side or forward-backward movement and land softly using toe-to-heel rocking with bent knees, easing into recoil position for the next jump. Use single leg lifting to identify imbalances between your legs. You should be able to lift with your hamstrings at least 60%-70% of the weight that you can lift with your quadriceps.

One successful prevention program, the PEP program, can be found at www.aclprevent.com/pepprogram.htm. An ongoing study that enrolled 3000 female soccer players showed a 74-88% reduction in ACL injuries over two years.

Overall, improve your landing biomechanics after jumping, increase your hamstring strength, and make sure that both of your legs are equally as strong; doing all three of these tasks will greatly decrease your risk of an ACL injury.

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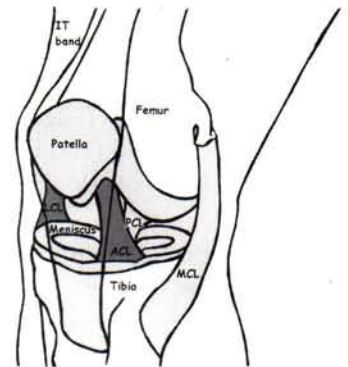


Figure 1: Diagram of knee anatomy

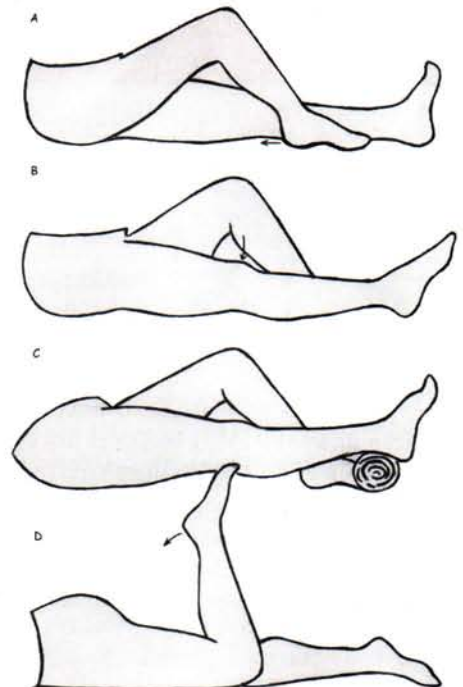


Figure 2: Do 3 sets of each exercise.

A. Range of motion (ROM) exercise: Slide heel towards you x 10.

B. Quad strength: Place injured leg flat on floor and bend other knee. Push down against floor with injured leg. Hold 10 seconds x 10.

C. ROM exercise: Relax injured leg on a rolled towel and allow gravity to straighten it. Hold for 2 minutes.

D. Hamstring strength: Lie on stomach and bring your heel towards your buttocks. Hold for 5 seconds x 10

References

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