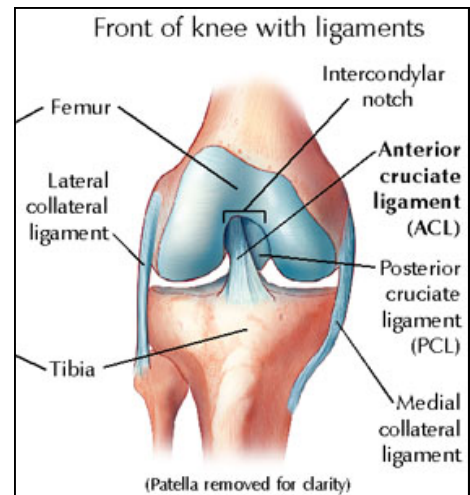


# The Non-Contact ACL Injury

## Anatomy and Physiology

The ACL is an acronym for the Anterior Cruciate Ligament. It provides a significant amount of support and stability to the knee joint by preventing the lower leg bone (tibia) from shifting forward on the upper leg bone (femur). We call this shifting forward motion anterior translation as it defines a motion of one object translating on another in an anterior or forward direction. As with any ligament, it's integrity directly relates to the stability of the joint where it is located. When a ligament is strong and uninjured, the joint is more likely to be stable. When a ligament is injured or torn, the joint is now highly likely to be unstable.



## Evaluate Your Athletes

### Strength and Conditioning

- The Hamstrings should be approximately 75% of the strength of the Quadriceps
- The outer hip musculature should be able to resist at least 40lbs of force
- When comparing one leg to the other, leg strength should be equal.

### Landing and Cutting

#### Watch Closely for Deviations from the Athletic Position in Landing and Cutting Activities.....

- The feet should be directed forward; approximately shoulder width apart
- The athlete should land on their toes for a soft landing rather than the hard landing that comes with landing on a flat foot.
- The knees should be bent to at least a 45 degree angle.
- The knees should be positioned straight over the feet and should not bend inward.
- The athlete should have their shoulders back and their head up.



Continued on the Reverse side.....

# The Non-Contact ACL Injury

## Train Specifically

### #1. FOCUS ON LANDING MECHANICS

Teach your athletes to land softly, on the balls of their feet, in the proper position;

#### The Athletic Position:

- \*Feet forward
- \***Knees straight forward and comfortably bent (at least 45 degrees)**
- \*The knees should not come together or “knock” when an athlete jumps or lands.
- \*Back straight and head up



### #2. FOCUS ON STRENGTH AND CONDITIONING

Basic strength and flexibility routines for the quads, hams, and glutes; as well as strengthening for the abs should be apart of any athletes regular training program.

### #3. FOCUS ON BALANCE AND STABILITY

- \*All athletes can improve their overall balance and stability.
- \*Greater stability correlates to greater joint control and an understanding of a joint's position in space.
- \*Athletes should be taught to balance in the Athletic Position and not allow the knees to bend inward.
- \*An athlete who has difficulty in this should focus on strengthening the outer hip musculature.



### #4. FOCUS ON AGILITY AND PLYOMETRICS

When proper landing mechanics are the main focus of agility and plyometrics (i.e. box jumps, plyo jumps, agility cutting, etc...), and when they are utilized in combination with strength and conditioning and balance and stability, ACL injury risk tends to be reduced.

Pictures Obtained From: The Journal of Athletic Training...Myer et al...2004



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