



Preventing the Dreaded ACL Injury

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With the recent injury to Nebraska quarterback Kody Spano who tore his anterior cruciate ligament (ACL) a second time while returning to practice, I have had a number of friends ask me about this injury and how to prevent it. So, I thought this would be the perfect opportunity to expand on prevention of ACL injuries. The ACL is a ligament that attaches deep within the notch of the distal femur (upper leg) and to the intercondyloid eminence of the tibia (lower leg). The attachments allow it to resist forward movement of the tibia on the femur. Injuries are most often a result of a rapid deceleration of the knee, hyperextension of the knee, or abnormal rotational pattern of the knee. When these injuries are due to contact from another individual, i.e. a slide tackle in soccer, there is little prevention that can be done from a physical standpoint. When these injuries occur without contact, efforts can be made to prevent these occurrences by incorporating specific training aspects. There have been numerous studies evaluating contributing factors helping to reduce occurrence of ACL injuries and below I have highlighted four of the most current trends and thoughts and ways to address each of them.

1. **Postural Factors:** Although primarily studied on female populations due to higher incidence rates of ACL injuries, there have been some correlations made with postural positioning. These postures include an anteriorly rotated pelvis (increased curve in the low back), knock kneed position, flat foot position in standing, and reduced hamstring length.
2. **Weak gluteus muscles:** Individuals who are more prone to suffer ACL injuries typically decreased gluteus maximus activity when analyzing their landing mechanics when jumping.
3. **Poor body awareness with jumping:** Tendency toward landing with increased rotation inward at the knee (knock kneed).
4. **Fatigue:** Most non-contact ACL injuries occur towards the end of the 1st half and end of games. There has also been a case study noting decreased muscle strength 4 hours prior to sustaining an injury.

Prevention tips:

1. **Incorporate trunk strengthening:** Examples include planks (front and sides to work all muscles), bridges (lay on back and lift bottom) with alternating kicks, and standing windmill touches (stand with one leg straight, bend forward at the waist and try to touch the opposite hand to toe while the other leg comes up).
2. **Focus on stability exercises that emphasize the gluteus muscles.** These include single leg squats, dead lifts, and lunges (forward, side, and rotational).
3. **Use mirrors for feedback when doing exercises and when jumping for training.** Your knees should not be going into a knock kneed position. A mirror will help you see if they are going inward. When landing from jumps try to land soft, increase you knee bend, and land on your toes and recoil like a spring to absorb the shock.
4. **Rest when you are tired!**

Hopefully these suggestions will keep you out of our facility and on the field of play!