

# TUSA ACL

## MONITORING AND PREVENTING ACL INJURIES

### *Fall 2008 Update*

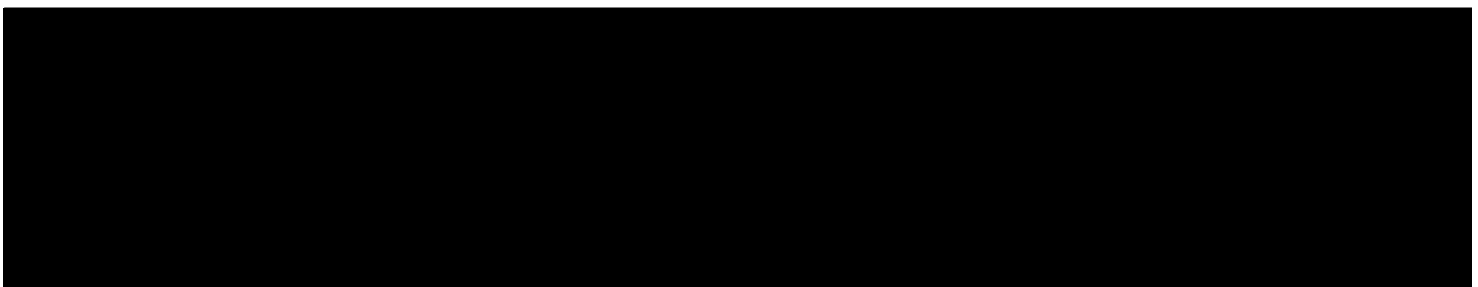
The Sports Medicine Research Laboratory at the University of North Carolina at Chapel Hill and the Triangle United Soccer Association are pleased to be partnering for the third full year by implementing an injury prevention program to all of the Classic teams. All teams perform the injury prevention program, targeted with reducing ACL injuries, as part of their normal practice warm-up. Players who choose to participate in the research study aspect are evaluated for potential injury risk factors before and after the season. A total of 574 players have participated in this program over the past two years, which greatly helps our ability to improve the program and determine how well the program is working. As we begin this third season, we want to provide players, coaches, and parents with an update about what we have discovered over the previous two years. We are very pleased to report reduced injury rates and improvements in how the players land from a jump due to the program, which should result in future declines in injury. To our knowledge, there are no leagues that currently implement injury prevention programs to boys and only a handful of leagues nationally that perform any type of formal injury prevention. Therefore, we hope this program helps all of the players in Triangle United and leads to future development of national and international programs.

### **Review of ACL Injuries**

- ?? 200,000 ACL injuries occur annually in the U.S. resulting in healthcare costs exceeding 3 billion dollars.
- ?? An average ACL injury reconstruction costs approximately 20,000 dollars.
- ?? The majority of ACL injuries occur to male athletes but females have a higher risk for injury in soccer.
- ?? Over 80% of athletes who sustain an ACL injury develop osteoarthritic changes in the knee joint within 15 years after the injury.

### **Lower Injury Rates**

The table below compares injury rates between Triangle United and previously published studies with and without the implementation of an injury prevention program. Over the past two years, Triangle United's rate of ACL injuries was lower than other leagues that did not have an injury prevention program and even lower than one league that did have a program. The rate of knee injuries in Triangle United was also lower than several other projects. Not only does it appear that the injury prevention program can have a positive effect with reducing knee injuries, but all types of lower extremity injuries seem to be reduced due to the program. We are encouraged by these preliminary results but hope to provide further evidence for these programs in the future.

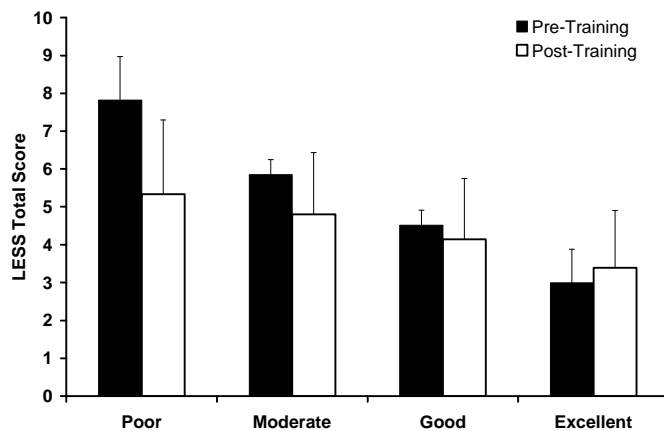


## Improvements in Movement

Certain movements during common activities in soccer, such as landing and cutting, are considered to be risk factors for ACL injury. These movements include landing or cutting with the knees collapsing in towards each other, “toeing-out”, or moving “stiffly” with little bending in the knee, hips, and trunk. The pictures on the right illustrate some of these positions.



We evaluate players’ movement using a clinical motion analysis tool called the Landing Error Scoring System (LESS) that we grade while players jump from a box. A high score on the LESS means a player landed with more “movement errors” or potential risk factors for injury. Below are graphs illustrating the improvements in LESS scores due to the injury prevention programs. LESS scores before starting the program are in black and scores after the program are in white.



The graph on the left shows LESS scores before and after the program for four groups of players. Players were categorized from “excellent” to “poor” based on how high their LESS score was prior to completing the injury prevention programs. It appears the program is most effective for players who initially possess the greatest number of movement errors. All groups improved their score after completing the program except the players who started with small amounts of error and did not have much room for improvement.

## Questions? Comments? Feedback?

We are constantly looking for ways to improve the injury prevention program with Triangle United. Therefore, if you have any feedback or suggestions about the program, please do not hesitate to contact us. We have made several adjustments to the program design and implementation over the past two years and we are committed to continuing to do so in the future. Ultimately, our goal is to develop a concise program that youth sport teams all over the country can perform to reduce potential for all kinds of injuries.

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