

# Barriers to Implementing Anterior Cruciate Ligament Injury Prevention Programs: A Survey Study of Youth Soccer Coaches

Matthew Siow, Dawei Zhao, Ashley Roy, Karen J Mohr, Ali Zafar-Khan, Joshua C Scott, Bert Mandelbaum, Carlos Uquillas

## INTRODUCTION:

Youth athlete injury prevention programs, when performed appropriately, are successful in decreasing the rate of injuries. The challenge for these programs lies in successful implementation. Previous studies have not attempted to establish dialogue with coaches to foster collaboration. We used two validated ACL injury prevention programs, FIFA 11+ and Kerlan Jobe Core Strengthening, Agility, Plyometrics (CAP) program, and determined the effectiveness of teaching and implementing these programs in local youth soccer leagues. We hypothesized that CAP would have higher implementation and completion rates. We also aimed to analyze the barriers for completion.

**METHODS:** After IRB approval for this prospective cohort study, local American Youth Soccer Organization (AYSO) teams were randomly assigned to one of the two ACL injury prevention programs. After group assignment, each coach received the corresponding instructional video to facilitate proper implementation for their team. Study personnel attended team practices early in the season to demonstrate correct exercise technique for both programs. Weekly surveys were distributed to coaches throughout the season to monitor program adherence and completion rates. In addition, two comprehensive surveys—administered at the midpoint and end of the season—collected data on perceived barriers to implementation. At the conclusion of the season, survey responses were tabulated to generate frequency tables, which were then used for descriptive statistical analysis.

## RESULTS:

Twenty-seven all-female youth soccer teams participated in the study. Fourteen were assigned to the CAP program and thirteen to FIFA 11+. Age groups of teams ranged from 12U to 16/19U. Overall survey response rate was 41% (110/270). Coaches reported a 77.9% completion rate of the CAP program, versus 51.8% for the FIFA 11+ program ( $p < 0.001$ ). 100% of survey participants reported the athletes were “very motivated” or “somewhat motivated” to complete the CAP program, compared to 50% of those in the FIFA 11+ program. All coaches in the CAP cohort reported the time commitment was “about right”, whereas 25% of coaches in the FIFA 11+ cohort reported the time commitment was “too much”. Coaches largely considered both programs either standard or easy to teach (17 of 18 responses), with only one coach rating the FIFA 11+ program difficult to teach.

## DISCUSSION AND CONCLUSION:

Both FIFA and CAP programs have been validated for improved performance and biomechanics, but only FIFA has been validated for injury prevention. In this survey study, coaches of youth soccer teams reported a higher implementation rate for the CAP program as compared to the FIFA 11+ program, and potentially a more appropriate time commitment. In terms of barriers, one of the biggest problems was that youth athletes overall were largely unmotivated to participate in injury prevention programs. On the positive side, neither cohort faced significant challenges in teaching the athletes the respective programs. However, overall participation rate and survey response rates were low. Future work is needed to explore how to further increase participation rates, especially in younger age groups, and decrease barriers to implementation of



### ACL

Metric	CAP Mean (SD)	FIFA Mean (SD)	p-value
Program Completion	77.9	51.8	0.0004
Survey Completion	68.6	47.6	0.0007

  

Program	12U	13U	14U	15U	16/19U
CAP	83.3	75.0	75.0	75.0	75.0
FIFA	50.0	50.0	50.0	50.0	50.0

### injury prevention

Month	12U	13U	14U	15U	16/19U
Month 1	0.0%	0.0%	0.0%	0.0%	0.0%
Month 2	0.0%	0.0%	0.0%	0.0%	0.0%
Month 3	0.0%	0.0%	0.0%	0.0%	0.0%
Month 4	0.0%	0.0%	0.0%	0.0%	0.0%
Month 5	0.0%	0.0%	0.0%	0.0%	0.0%
Month 6	0.0%	0.0%	0.0%	0.0%	0.0%
Month 7	0.0%	0.0%	0.0%	0.0%	0.0%
Month 8	0.0%	0.0%	0.0%	0.0%	0.0%

### prevention programs.

Month	12U	13U	14U	15U	16/19U
Month 1	0	0	0	0	0
Month 2	0	0	0	0	0
Month 3	0	0	0	0	0
Month 4	0	0	0	0	0
Month 5	0	0	0	0	0
Month 6	0	0	0	0	0
Month 7	0	0	0	0	0
Month 8	0	0	0	0	0

Month	12U	13U	14U	15U	16/19U
Month 1	0	0	0	0	0
Month 2	0	0	0	0	0
Month 3	0	0	0	0	0
Month 4	0	0	0	0	0
Month 5	0	0	0	0	0
Month 6	0	0	0	0	0
Month 7	0	0	0	0	0
Month 8	0	0	0	0	0