One ACL injury is enough! Focus on female football players: PhD Academy Award

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Summary of my completed (defended and awarded) PhD

“One Anterior Cruciate Ligament injury is enough!

Focus on female football players”

Anne Fältström

What did I do?

I investigated;¹ (I) factors that differ between females with an anterior cruciate ligament (ACL) reconstructed (ACLR) knee who return to football or not, (II) functional performance between these females who returned to football and knee-healthy players, (III) predictors for additional ACLR, and (IV) patient-reported outcomes in patients with bilateral ACL injuries.

Why did I do it?

ACL rupture is a serious and common injury in football. Return to sport (RTS) is a common goal after an ACLR, but females RTS and to football specifically to a lower degree than do males.² There is lack of knowledge about factors associated with return to football in females after ACLR.

A key dilemma is the high re-injury risk after ACLR in female football players.² It has been suggested that movement asymmetries may be contributing factors to an increased risk for new ACL injury. However, several of the functional tests used in previous studies have been done in a laboratory setting, and may have limited clinical utility.

Understanding predictors for additional ACL injury and ACLR is important inform efforts to prevent such recurrences. An ACL injury is a major trauma to young and active patient. Knowledge about patient-reported outcomes in people with bilateral ACL injuries is poor.

How did I do it?

Study I focussed on if player-related factors (demographic, personality or psychological factors) or the characteristics of the ACL injury were associated with the return to playing football in 182 females after ACLR.³ In study II, I tested 77 female football players with an ACLR and 77 knee-healthy female football players with a battery of tests to assess postural control (Star excursion balance test) and hop performance (1-legged hop for distance, 5-jump test and side hop). Movement asymmetries were assessed with the drop vertical jump and the tuck jump using 2-dimensional analyses.⁴ In study III, I included 22,429 patients with a primary ACLR registered in the Swedish national ACL register. Several data were extracted from the register to identify predictors for additional ACLR.⁵ In study IV, I evaluated patient-reported knee function, quality of life and activity level in 66 patients with bilateral ACL injuries and outcomes were compared with 182 patients with unilateral ACLR.⁶

What did I find?

I found that;

- Female football players who returned to football after an ACLR had high motivation and had undergone ACLR within 1 year after injury.³
- In all functional tests, the reconstructed and uninvolved limbs did not differ, and players with ACLR and controls differed only minimally. Movement asymmetries, which in previous studies have been associated with increased risk for primary and secondary ACL injury, occurred to a high degree in both groups.⁴
- Main predictors for revision and contralateral ACLR were younger age, having ACLR within 1 year after the primary injury and incurring the primary injury while playing football.⁵
- Sustaining a contralateral ACL injury led to impaired knee function, quality of life and activity level.⁶

What is the most important clinical impact/practical application?

Clinicians should be aware of;

- The importance of players' motivation for their return to football.
- Young female football players are a high risk group of sustaining an ACL injury and many players had side-to-side differences and movement asymmetries whether they had had an ACLR before, or not.
- The increased risk for additional ACLR among young patients who return to strenuous sports after primary surgery.

The new knowledge of patient-reported outcome in patients with bilateral ACL injuries can be used to inform patients with bilateral ACL injuries because explicit patient information about realistic goals for ACLR seems to be necessary to prevent dissatisfaction.

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