Psychological predictors of sport injuries among Swedish elite soccer players

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Introduction

- Between 65 – 91 % of elite football players experience at least one injury / year (Hägglund, 2007).

- Injury occurrence is a major problem at individual, group and society level and has its origin in a complex interaction between several risk factors (Bahr & Krosshaug, 2005).

- Internal – External risk factors

- Physiological – Psychological risk factors
Introduction

• Acute traumatic injury (macro-trauma) – due to a single, sudden and violent trauma such as contusion, a sprain or a fracture.

• Overuse injury (micro-trauma) – due to repeated micro-traumata having a cumulative effect on body tissues, such as strain, tendinitis and stress fractures.
Stress-Injury model

Figure 1. Williams and Andersen (1988;1998).
Methological issues in pre-injury research

Quantitative studies
- One baseline measure point
- Data analysis is often based on Null Hypothesis Significance Testing (NHST)
- The researchers often assumes that predicted relationships are linear by nature

Qualitative studies
- There are very few qualitative studies that have been conducted in injury prediction research.
Aim

The aim of the PhD project is to identify a number of psychosocial injury risk factors in an elite soccer population. Based on findings the second aim is to investigate a psychological skills interventions’ impact on injury frequency among elite soccer players.
Injury prediction in Swedish Elite Soccer: Study 1

**Purpose**
The purpose of the study was to prospectively examine whether personality variables, stress and coping styles can influence the risk of injury occurrence in an elite soccer population.

**Participants**
38 male and 18 female soccer players competing on four different teams in the Swedish Premier League (the highest level in Swedish soccer)

**Instruments/Procedure**
The players were asked to complete four questionnaires in the beginning of the season. Subsequent to the initial data collection, participants completed a stress questionnaire, once a week for a 13 week period. Injury was collected by the team physiotherapist during the study time.
Injury prediction in Swedish Elite Soccer: Study 1

Injury prediction in Swedish Elite Soccer: Study 2

Purpose
The aim of this study was to investigate if individual level and change in psychosocial stress (daily hassle) during a 10 week period could predict injuries, among junior elite players.

Participants
The participants were 101 junior elite soccer players (67 male and 34 female) aged between 17 and 19 (M=16.7, SD=.86).

Instruments/Procedure
Participants completed the Hassle and Uplift Scale weekly for a 10-week period throughout pre-season. Injury was collected by the Athletic trainer during the study time.
Injury prediction in Swedish Elite Soccer: Study 2

- ICC showed that 72.7% of the total variability in hassles across the 10 observations was due to between person variance.
- The results showed that injury occurrence was significantly predicted by both initial level of daily hassles and change in daily hassles. High initial levels of daily hassle and less decrease in daily hassles were associated with injury occurrence.


Figure 3. Intercept and slope in hassle for injured and non-injured players. The data from the injured group is only pre-injury data.
Conclusion

- High stress levels increases injury risk among elite soccer players.

- Players, coaches and physiotherapists are encouraged to develop a climate that could reduce the athletes stress levels.

- It is recommended to use repeated measure designs in order to monitoring changes in injury predictors.

- Researchers are encouraged to use a action theoretical perspective in injury prediction research in order to gain more knowledge about sport injuries.
Conclusion

**Action Theory Perspective**
- State – Trait relation
- Object – Subject relation
- Person – Task – Environment
Injury Prediction: Ongoing studies

**Purpose**
The purpose of the study is to investigate how female elite soccer players experience the time before a ACL-injury occurred.

**Participants**
18 female elite soccer players that during 2012 experienced a ACL-injury.

**Procedure**
All players were, during November 2012 to February 2013 interviewed about their experiences prior to injury occurrence.
Future studie: Injury prevention I

Purpose
The purpose of this study is to examine whether a mindfulness intervention reduces the occurrence of sports injuries for football players in Swedish elite football high schools.

Participants
48 junior elite soccer players will be needed to obtain a sufficient power (i.e. based on the decision that a Cohen’s d effect size of > .50 is a meaningful difference).

Intervention
Mindfulness based intervention grounded in the MAC (Mindfulness-Acceptance-Commitment) approach (Gardner & Moore, 2007). The intervention will include 7 group meetings (approx. 90 min), over a period of eight weeks. One and each of the meetings will respond to the 7 modules recommended of Gardner and Moore (2007).

Time period
January - December 2014
Future studie: Injury prevention II

Procedure:
Experimental: R O₁……O₂ X ......O₃
Control: R O₁……O₂ ......O₃

Injury recording:
To collect injury data the athletic trainer will be asked to use a standardized protocol.

Analysis:
A one-way ANCOVA, with the dependent variable pre intervention injury frequency, will be used in order to compare the injury frequency between the intervention and control group. Effect sizes and NNT will also be calculated in order to discuss the “real world meaning” of the data. A Cox regression model will be used to investigate if/when the potential intervention effect is decreasing.
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