

Original research

# Is injury the major cause of elite soccer players being unavailable to train and play during the competitive season?

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## Abstract

*Title:* Is soccer-related injury the major cause of elite soccer players being unable to train and play during the competitive season?

*Objectives:* The aims of this study were to utilise comprehensive data to quantify the cost, in terms of loss of training and match availability, of all absences and to determine if injury is the major cause of absence.

*Study design:* Descriptive epidemiology.

*Participants:* All players ( $n = 55$ ) (Mean  $\pm$  SD; age,  $24 \pm 5$ ; height,  $179 \text{ cm} \pm 9$ ; weight,  $82 \text{ kg} \pm 7.4$ ) at an English Division One soccer club had their attendance and absence recorded on a comprehensive daily register throughout the two seasons 2003/2004 and 2004/2005. An absence was defined as an inability to train with the rest of the squad or play competitive first team matches irrespective of the cause.

*Results:* A total of 110 competitive matches and 287 squad training sessions were recorded generating 2604 and 10740 exposure hours, respectively. Individual absences totalled 378 for first team matches and 1441 for training sessions. Reportable injuries accounted for 49% of first team match unavailability and 60% of training sessions missed. Other health-related problems accounted for more than one in four and suspensions almost one in seven of missed matches.

*Conclusions:* Soccer-related injury is the major single factor affecting player availability. However, strategies to maximise player availability by targeting player discipline and general health initiatives may also be effective in reducing unavailability.

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## 1. Introduction

The proportion of a professional soccer squad available for first team selection can be affected by numerous factors including injury, illness, suspension and personal circumstances. Important players, players in key playing positions or an accumulation of players being unavailable for selection can tax playing resources. Such unavailability of players is frequently blamed for unsuccessful performances (Bech, 2003; Doherty, 2003; Frost, 2002; West, 2003).

Injury is often cited as the major reason for player unavailability in professional soccer (Hawkins, Hulse, Wilkinson, Hodson, & Gibson, 2001; Rahnama, Reilly, & Lees, 2002; Witvrouw, Danneels, Asselman, D'Have, & Cambier, 2003), although no studies can be found to confirm this. There is a plethora of epidemiological studies that analyse injuries in elite (Junge, Dvorak, Graf-Baumann, & Peterson, 2004), amateur (Goga & Gongal, 2003), youth (Kakavelakis, Vlazakis, Vlahakis, & Charissi, 2003) and female (Engström, Johansson, & Törnqvist, 1991) soccer players and report the effects of injuries on availability of players for team selection. These studies do not examine the effect of other factors on player availability choosing instead to determine the impact of soccer injuries in isolation. There appears therefore to be little, if any, current data that

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acknowledges the various reasons why soccer players may not be available for first team selection or to train with the rest of the squad. These reasons may include such diverse factors as non-soccer-related injuries, illness, suspensions, loan periods to other clubs, international call-ups and social and family related reasons. It is therefore not known whether injury is, in fact, the major cause of players being unavailable for training and playing.

This prospective study was performed to examine the incidence of reasons for all absences from training participation and competitive match availability at an English Division One club for the competitive seasons 2003/2004, 2004/2005. This data would quantify the cost, in terms of loss of training and match availability, of all absences and allow analysis of the significance of absence due to soccer-related injury to be determined. It may also highlight areas where comprehensive proactive initiatives could be developed that would minimise non-injury-related player absence and hence improve match availability.

## 2. Methods

The study was conducted over two competitive soccer seasons, 2003–2004 (S1) and 2004–2005 (S2) and was designed to document all absences from training and first team availability. Data were collected from the first to the final competitive match each season. All contracted professional players (Table 1) agreed, in writing in accordance with the institution's ethical procedures, to allow the use of their injury, physical activity and attendance data to be included in the present study. Each player was identified by a randomly assigned code in order to protect confidentiality.

Players' age was categorised into four age groups (18–22, 23–28, 29–34, 35+), allowing comparison with the English FA injury audit (Hawkins et al., 2001). Player position was determined at the beginning of each season by individual coaches ( $n = 5$ , all UEFA Licence coaches) specifying each player's normal playing position on a standard form. There was 100% agreement when comparing returns. These player positions were used throughout the study.

All players' attendance and absence were recorded by the club physiotherapist on a comprehensive daily

register throughout the study period. An absence was defined as an inability to train with the rest of the squad or play competitive first team matches irrespective of the cause. Possible reasons for absence were not pre-selected but it was expected that they would include injury, suspension, rest-days off, loans to other clubs, illness, international duty and personal circumstances.

### 2.1. Exposure to training and matches

An involvement in a competitive first team or reserve team match was recorded if a player participated on the field of play at any point during the match. Every player's precise participation on the field of play, including any additional time added on at the end of each half, extra-time etc., was timed (Uwin 100 series, Reydon Sports, Nottingham). This was recorded to the nearest minute by the club physiotherapist for all first team and reserve team matches.

Every player's participation in coach-directed physical activity was recorded as a training session (Häglund, Waldén, & Ekstrand, 2003). In order that an accurate number of squad training sessions could be reported, a squad training session was defined as 'any session when a coach-directed physical activity session took place and >10 of the study group participated'. The duration of training sessions were accurately recorded (Uwin 100 series, Reydon Sports, Nottingham) from start of warm up until completion of cool down. This allowed precise calculation of total training exposure hours by multiplying session time by the total number of subjects participating. Any partial absence time was subtracted to give total training exposure hours for each session. A day off was defined as any day when a player's attendance for training or playing was not required.

### 2.2. Reportable injury absences

A soccer-related reportable injury (SRRI) was defined as an incident during training or competition that prevented the injured party from participating in squad training or competition for more than 1 day, not including the day of injury. A consensus in recent articles (Hawkins & Fuller, 1999; Hawkins et al., 2001; Lewin, 1989) appears to suggest that this is a widely used definition of injury and allowed comparisons with

Table 1  
Player details for each season (mean  $\pm$  SD) and player position frequencies

Season	N	Age (years)	Height (cm)	Weight (kg)	Playing position			
					Goalkeeper	Defender	Midfielder	Striker
03–04	28	24 $\pm$ 5	179 $\pm$ 9	81 $\pm$ 7.2	2	12	8	6
04–05	27	25 $\pm$ 6	180 $\pm$ 8	83 $\pm$ 7.5	2	9	9	7

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