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Frequency and trends in foot and ankle injuries within an English Premier League Football Club using a new impact factor of injury to identify a focus for injury prevention

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ABSTRACT

Background: Foot and ankle injuries are common in football. Prevention strategies exist in order to decrease the incidence of such injuries and minimize the number of days that a player is unavailable for selection.
Methods: Injuries were recorded over a 4-season period while the team was playing in the English Premier League (EPL). We present the epidemiology of foot and ankle injuries within a professional football club and offer a calculation that may be of use in the future to identify areas of injury prevention.
Results: Anterior Talo-Fibular Ligament (ATFL) injuries and fifth metatarsal fractures were of high impact as they were both common and resulted in significant time periods where the player was unavailable.
Conclusions: This is the first time an EPL club has been prepared to publish data regarding injury. Our findings may be used by others to focus their prevention strategies on the injuries with the highest impact.

1. Introduction

Foot and ankle (F&A) injuries are a common occurrence amongst footballers of all levels with many causative factors [1–3]. Studies have reported a 20% incidence of all injuries occurring at either the foot or ankle [4]. It would benefit the player and the club to have a better understanding about how often these injuries are expected to occur and whether there are any predictive factors or any possible ways of preventing these injuries [5].

Proposals have been made in an attempt to introduce methods of injury prevention. Possibly the most popular method of late has been the FIFA 11+ [6]. This is a specific set of exercises promoted by FIFA to be incorporated into a team's warm-up exercise prior to a game. It has been shown to be of benefit in reducing the incidence of foot and ankle injuries in football among both youth and female players [7,8]. In professional male football, there are huge pressures on ensuring players are available for selection – measures which can reduce the incidence of any preventable injuries are therefore also of great financial importance to the club [5]. It may be that the FIFA 11+ and other injury prevention strategies would benefit professional footballers as well. However, in order to be able to know how effective injury prevention techniques are, an understanding of both the frequency of injuries and the importance of injuries is required.

The purpose of this study was to determine the frequency of foot and ankle injuries at an English Premier League (EPL) Professional Football Club over the course of four seasons and to establish whether any specific factors are associated with sustaining a foot and ankle injury. No EPL club has previously published such data. This information may aid clubs in their preparation for a season and enable a comparison of injury rates to assess any potential changes in rate in subsequent seasons. In

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Table 1
Summary of demographic data from players with a foot and ankle injury.

Number of first team players	28
Age (years)	
Mean	25.1
Range	19–35
Height (metres)	
Mean	1.84
Range	1.71–1.98
Weight (kg)	
Mean	82.6
Range	74–100
BMI (kg/m^2)	
Mean	24.3
Range	20.8–29.6

addition it will permit evaluation of any changes following the introduction of prevention strategies.

2. Methods

Data was collected prospectively for all foot and ankle injuries at one EPL club (Wolverhampton Wanderers FC) over 4 seasons from August 2007 to July 2011 (first team, developmental and academy players). Each player's demographic data (Table 1) and injury details were recorded including whether the injury was sustained during a game or training. The number of minutes played and the number of games was calculated. Only significant injuries were included and this was defined as an injury that prevented a player being available for selection for at least 5 days (the time frame that may cause the player to be absent for at least one competitive match). The end of the injury episode was taken when the player was declared as fit for full training or for selection in a match by the medical staff.

The risk of sustaining an injury and any predisposing factors were recorded. An impact factor was assigned to each injury as a measure of increased time away from training/matches (the frequency of injury type multiplied by mean number of days missed due to that injury).

3. Results

A total of 226 injuries occurred among a total of 67 players during the study period. This comprised 28 players of the first team squad, 18 players in the development squad and 21 players within the academy squad. Forty-five of the 226 injuries (19.9%) were injuries to the foot and ankle (Table 2). The breakdown of injury by body region is shown in Fig. 1. The frequency of F&A injuries

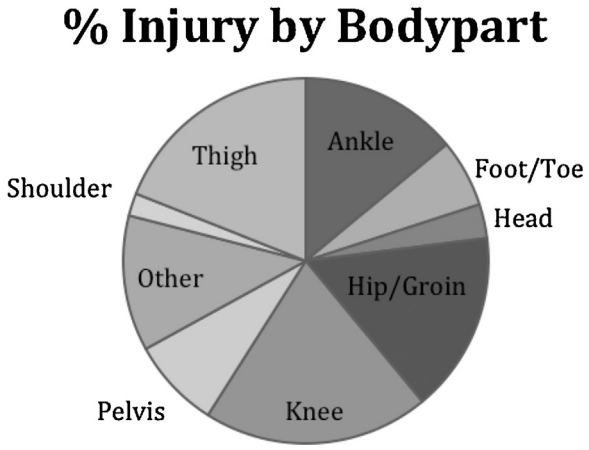

Fig. 1. Breakdown of injuries observed by body region.

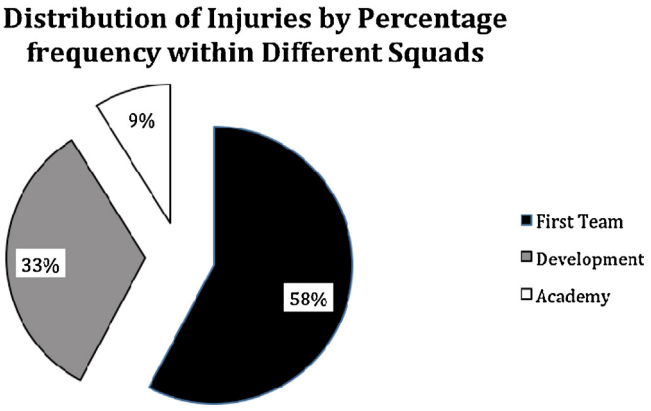

Fig. 2. Frequency of injuries observed within the different squads.

equated to 12% of first team players per season with an injury rate of 7.2 per 1000 h of match play. An individual first team player may expect one F&A injury every 92.6 games and the first team may expect one F&A injury in a player every 8.4 games.

The frequency and mean return to play of each squad is shown in Figs. 2 and 3, respectively. The proportion of whether the injuries were sustained in a match or training are presented in Fig. 4. It should be noted that 9% of the injuries recorded were sustained in circumstances other than a match or training. Regarding mechanism of injury, where recorded, 60% of injuries were sustained in the contact of a tackle and 33% were sustained

Table 2
Overview of results.

	Frequency	%	Impact rating	Meantime return to play (days)	Range (days)	Recurrence	Recurrence (%)
ATFL	14	31.1	607.6	43.4	5–378	4	28.6
5th Metatarsal	6	13.3	412.8	68.3	15–113	2	33.3
Syndesmosis	6	13.3	342	57	7–165	1	33.3
Lisfranc	1	2.2	243	243		0	0
FHL pathology	3	6.7	152.1	50.7	13–113	2	66.7
Bone bruise	10	22.2	126	12.6	5–30	0	0
Ankle synovitis	1	2.2	65	65		1	100
SubTalar joint	1	2.2	31	31		0	0
Retinacular tear	1	2.2	10	10		0	0
Deltoid impingement	1	2.2	6	6		0	0
Heel pad irritation	1	2.2	5	5		0	0
Overall	45			53.9	5–378	11	23.8