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ORIGINAL ARTICLE

Muscle injuries in the academy of a Spanish professional football club: A one-year prospective study

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KEYWORDS

Epidemiology;
Hamstring;
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Abstract

Introduction: Due to its high incidence, muscle injury is one of the major problems for football players. The aim was to analyse the rate and characteristics of muscle injuries in the academy of a Spanish professional football team (Spanish First Division) during a complete competitive season (2015–2016) using a prospective cohort design.

Material and methods: Time-loss injuries and exposure time were recorded following the UEFA consensus in 139 elite young football players from 4 levels (Senior, U19, U16 and U14) over one season.

Results: A total of 118 injuries were recorded. Overall injury incidence was 1.47 muscle injuries/1000h, with a lower incidence in younger players. Nevertheless, injury burden (days lost/1000h) was similar between levels. The injuries with the highest incidence and burden were hamstring and adductor injuries in Senior (50 and 58 days respectively), hamstring injuries in U19 and U16 (109 vs 89), and adductor injuries in U14 (175 days). Regarding the severity of injuries, it was observed that moderate injuries were the most common injuries and muscle injuries during competition had a higher incidence towards the end of the matches (75–90').

Conclusions: Muscle injury prevention strategies are necessary in players from all levels and should be adapted to their specific needs, with hamstring and adductor injuries being the main problem in the present study.

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PALABRAS CLAVE

Epidemiología;
Isquiosurales;
Aductores

Lesiones musculares en las distintas categorías de un club profesional de fútbol Español: estudio prospectivo de una temporada

Resumen

Introducción: Debido a su elevada incidencia, las lesiones musculares son uno de los principales problemas para los futbolistas a lo largo de su carrera profesional. El objetivo de este estudio fue analizar la incidencia lesional y las características de las lesiones musculares de la cantera de un equipo de fútbol profesional (primera división española) durante una temporada completa (2015–2016).

Material y métodos: Se registraron las lesiones y el tiempo de exposición de 139 jugadores de fútbol de 4 categorías (sénior, U19, U16 y U14) durante una temporada siguiendo los criterios UEFA.

Resultados: Un total de 57 lesiones musculares fueron registradas. La incidencia lesional fue de 1,47 lesiones musculares/1.000h, siendo esta incidencia menor cuanto menor era la categoría. No obstante, las consecuencias en forma de días de baja/1.000h fueron similares entre categorías. Las lesiones más comunes y las que produjeron el mayor número de días de baja fueron las de isquiosurales y aductores en los sénior (50 y 58 días, respectivamente), las de isquiosurales en U19 y U16 (109 vs. 89 días), y las de aductores en U14 (175 días). Además, las lesiones moderadas fueron las más comunes y las lesiones musculares producidas en competición tuvieron una mayor incidencia hacia la fase final de los partidos (75-90 min).

Conclusiones: Las estrategias preventivas de lesiones musculares son necesarias en futbolistas de todas las categorías y deben ser adaptadas a sus necesidades específicas, siendo las lesiones de isquiosurales y aductores el mayor problema para los jugadores del presente estudio.

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Introduction

Injuries are now a major cause of concern for football clubs. This is because they have been shown to reduce team performance, have a high economic cost and may lead to long-term health problems.¹ Muscle injuries are one of the main problems faced by footballers throughout their professional career.² They now amount to approximately 54% of the total number of injuries suffered by high level football players,³ although the corresponding percentage for semi-professional players is lower.⁴ This is shown in the results of a recent study, in which it was found that about 15 muscle injuries per season could be expected in a club with 25 players.² It also has to be taken into account that these injuries are not uniformly distributed among the 4 main muscle groups² (ischio-crural, quadriceps, adductor and calf muscles), as most injuries occur to the ischio-crural and adductor muscles, so that this notably hinders the task of preventing muscle injuries.

Due to the significant differences between the incidence of injuries in players at different levels,⁵ it is advisable to commence the process of preventing injuries on the basis of an epidemiological analysis of the category in question.⁶ This is why many previous studies have been conducted in recent years, the majority of which cover high level international players.^{1,2,5} Nevertheless, there are few studies of Spanish team epidemiology.^{3,4} Noya et al.³ studied the incidence of injuries in 16 Spanish first division clubs, showing that muscle injuries account for 53.8% of all the injuries suffered by these players in a year. On the other hand, Mallo et al.⁴ studied the specific epidemiology of Spanish semi-professional

players. The results showed that the most common muscle injuries are to the ischio-crural muscles (1.0 injury/1000h exposure). In spite of the valuable information supplied by these previous studies, there is very little information on the incidence of injuries among young players.⁷⁻⁹ The work by Price et al.⁹ stands out, in which the injury rate in the young players of 38 professional English clubs was studied over two complete years. During this time muscle injuries were the most common (39%), and as was the case with the results of previous studies with senior footballers,³⁻⁵ the ischio-crural muscles suffered the highest percentage of injuries.

Although the epidemiology of injuries has been studied in depth in footballers at different levels, the authors believe that to date the incidence of muscle injuries in the young players of a professional club in Spain has not been studied. As there are a great many young players in Spain, it would be important to learn the epidemiological characteristics of the young players in a Spanish football team to optimise preventive strategies and reduce the incidence of injuries in this population. This study therefore analyses the rate of muscle injuries and their characteristics in a professional football team during a whole season.

Methods

Participants

139 young players in a professional football club took part in this study. More specifically, they belonged to 7 different teams which were grouped into categories (senior, U19,

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