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RESEARCH ARTICLE

Investigating the Impact of Football Boots on Acute Lower Limb Injuries in Football Players

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Abstract

This study explores the connection between football boots and lower limb injuries among football players, investigating the impact of football boot design and type on player well-being and performance. The research reviews the historical evolution of football boots, identifying their transformation into modern footwear with advanced technologies. It also examines sports injury prevalence, especially in football, while shedding light on multifaceted risk factors related to injuries.

Key lower limb injuries such as lateral ankle ligament injuries, anterior cruciate ligament (ACL) injuries, and plantar fasciitis are studied for their association with different football boot designs. To support this, data was collected through two surveys: The first targeting professional football players from Motor Lublin Football Club and the second, health professionals including physiotherapists, sports doctors, and performance practitioners.

The research found that football boots play a role in causing lower limb injuries, especially in relation to inappropriate use on various playing surfaces. Alarmingly, 63% of the surveyed players had never been advised to change their boots to mitigate injury risks, although 94% believed that improper boots could contribute to injuries. In addition, football boot personalization and individualization are recommended to reduce injury risks, especially due to anatomical variations. Players also favoured comfort and stud design as key factors for choosing boots, underscoring a need for better education regarding appropriate footwear for various surfaces.

Keywords

Football boots, Lower limb injuries, Professional football players, Injury prevention, Surveys

Objectives

The primary objective of this study is to determine the relationship between football boots and the incidence of acute lower limb injuries among professional football players. Specific objectives include:

1. Understanding past and present injury patterns among players.
2. Assessing the players' knowledge about football boots and their potential impact on injuries.
3. Evaluating the role of medical and performance practitioners in advising boot changes.
4. Proposing strategies for reducing football boot-related injuries through education and customization.

Methods

This research employed a quantitative methods approach, incorporating two distinct surveys:

- **Survey 1:** Aimed at 16 professional football players from Motor Lublin Football Club.
- **Survey 2:** Administered to 109 physiotherapists, medical, and performance professionals via social media platforms like LinkedIn and Instagram. The questions were designed to gather data on injury patterns, boot-related education, and perceptions regarding the relationship between football boots and lower limb injuries. Statistical methods including descriptive statistics, correlation analysis, and regression were used to

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analyze the collected data.

Results

- **Players' perception of football boots:** 94% of players believe improper boots contribute to injuries. However, 63% had never been advised to change their boots by medical staff, highlighting a significant knowledge gap.
- **Most frequent injuries:** Thigh muscle strains (44%), ankle sprains (25%), and knee injuries (13%) were identified as the most common lower limb injuries.
- **Key considerations for choosing boots:** Players prioritize comfort (75%), stud type (44%), and feel for the ball (56%). However, 44% of players wore bladed studs on soft natural grass, an inappropriate choice for such surfaces.
- **Practitioners' insights:** 72% of health practitioners believe that football boots play a role in causing injuries. They emphasize the importance of customizing boots to accommodate individual foot anatomy and ensuring proper education for both players and coaches on boot selection.

Discussion

The data supports the hypothesis that football boots significantly influence the occurrence of lower limb injuries. The surveys reveal a considerable lack of education among players regarding suitable boots for different playing surfaces, which could contribute to the high rates of ankle and knee injuries. Practitioners, on the other hand, are aware of the impact but are not always proactive in advising players. Boot personalization emerged as a critical recommendation, particularly for women, as their boots are often less tailored to specific anatomical needs.

Moreover, football boot manufacturers must consider biomechanical factors in boot design, as well as initiate educational campaigns targeting players, coaches, and medical staff. This could significantly lower injury rates, especially for injuries linked to inappropriate footwear.

Limitations

1. The sample size of the player survey (16 participants) was relatively small and limited to a single professional club, which may affect the generalizability of the findings.
2. Some players struggled with injury classification, often citing general terms like "thigh strain" instead of specific diagnoses such as "hamstring tear."
3. The study did not include observational data post-recommendations to test the efficacy of custom boots or educational interventions.

Conclusion

Football boots play a notable role in the occurrence of lower limb injuries. Immediate steps should be taken to address the lack of awareness regarding appropriate footwear, particularly in professional settings. Both customization of boots and proper education for players and coaching staff are crucial for injury prevention. Future research should focus on testing these recommendations in real-world settings to validate their effectiveness in reducing injury rates.

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Statement of Equal Contribution

All authors contributed equally to the design, analysis, and writing of this manuscript.