

Effects of Soccer Cleats Worn Versus Lower Extremity Injuries in the English Premier League

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TITLE:

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AUTHOR DISCLOSURES

The authors have no disclosures to disclose.

INTRODUCTION: As the most popular sport in the world, soccer has driven increased physical demands and higher levels of intensity, resulting in elevated levels of lower extremity injuries among players. Our study analyzed the effects of cleat stud patterns and models worn by players who sustained lower extremity injuries while playing in the English Premier League (EPL).

METHODS: Fifteen cleat models, 510 players, and 221 injuries were analyzed from the EPL 2021-22 season. The injured player cohort was established using Transfermarkt.com, while cleat attributes were obtained from footballbootsdb.com and were confirmed using product websites and online reviews. Odds ratios and confidence intervals were used to assess lower extremity injury risk. Stud patterns or cleat models were set as the experimental condition, with injury or no injury as the outcome.

RESULTS SECTION: Our results suggest that very aggressive stud patterns have significantly higher injury odds when directly compared to mildly aggressive. In addition, the odds of players sustaining ankle or knee injuries were significant with very aggressive stud patterns, while the odds of players sustaining hamstring injuries were significant with both very aggressive and non-aggressive. Cleat models with significant total or specific lower extremity injury odds were Nike Mercurial, Adidas X, Nike Phantom GT, Adidas Predator, and Nike Tiempo.

DISCUSSION: Although preliminary, these results suggest that highly significant associations may exist between some cleat patterns and models worn by EPL players in the 2021-2022 season. EPL players who wear very aggressive stud patterns may be at higher risk for total and specific lower extremity injuries compared to those who wear mildly aggressive stud patterns. These findings highlight the importance of carefully considering the choice of stud patterns to minimize injury risk for EPL players, as well as emphasizing the need for continued research into cleat design safety to better understand and mitigate injury risks.

SIGNIFICANCE/CLINICAL RELEVANCE: With the increase in injuries among professional soccer players, it is crucial to identify and address potential risks. This study presents preliminary data that could pave the way for further research on the association between stud patterns and injury risks in professional players during the playing season.

IMAGES AND TABLES:

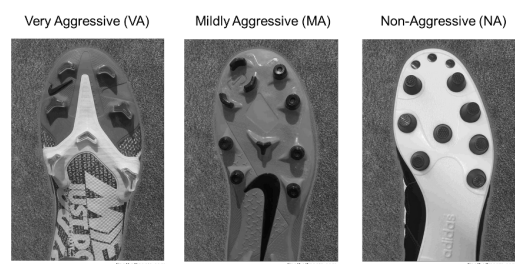


Figure 1. Classification of Very Aggressive, Mildly Aggressive, and Non-aggressive cleats.

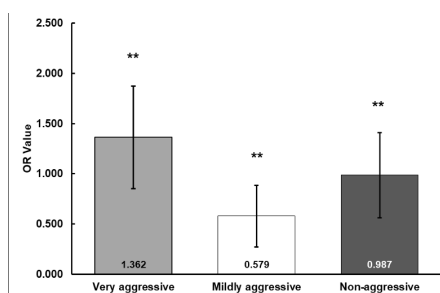


Figure 2. : EPL Odds Ratios, Standard Errors, and Injury Significance Stud Pattern Worn versus Total Lower Extremity Injuries

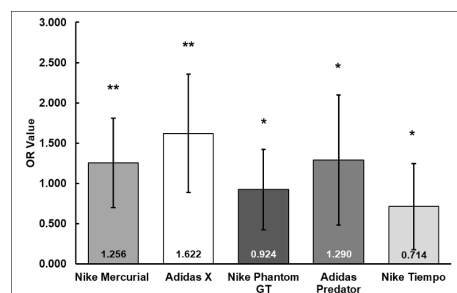


Figure 3: EPL Odds Ratios, Standard Errors, and Injury Significance for Cleat Model Worn versus Total Lower Extremity Injuries