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Football without the fans: new study reveals effect of empty stadiums during pandemic

As the new Premier League season kicks off with crowds of fans cheering on their teams, new research has revealed the hugely negative effect of playing professional football games in empty stadiums last season, with home advantage almost halved.

Home advantage describes the benefit a sports team playing at their own venue is said to enjoy over the visiting team. This could be attributed to the effect of fans on the players or referee; playing in familiar surroundings and the effects of travel on the visiting team.

The new study, by researchers at Northumbria University and the University of Leeds, used the unique opportunity presented by the COVID-19 pandemic to test whether home advantage applies when fans are not present in the stands.

The researchers found that home teams accrued significantly fewer points and scored fewer goals when crowds were absent, and that the lack of crowds also affected how referees judged fouls against home and away sides.

The [findings of their study](#) are published in the September issue of *Psychology of Sport and Exercise*.

The researchers used data from Football-Data.co.uk and the FiveThirtyEight online database to assess almost 5,000 games from 11 countries including the English Premier League and Championship, Germany's Bundesliga 1 and

2, Spain's La Liga 1 and 2 and Italy's Serie A and B, as well as the top Portuguese, Greek, Turkish, Austrian, Danish, Russian and Swiss leagues.

They found, on average:

- With fans present, teams won 0.39 points more per game at home than away
- With fans absent, the advantage was almost halved when teams won only 0.22 points more at home than away
- With fans present, home teams scored 0.29 goals more per game than away teams
- With fans absent, home teams scored just 0.15 goals more than the visitors.

Furthermore, the lack of crowds affected how referees judged fouls against home and away sides.

The data also showed that referees gave more fouls against the home team in empty stadiums and they gave far fewer yellow cards against away teams in empty stadiums. Referees gave similar numbers of yellow cards against the home team in empty stadiums – even though they fouled more and red cards followed a similar pattern which was less pronounced, yet still significant

Lead author Dane McCarrick, from the University of Leeds' School of Psychology, said: "COVID-19 forced football at all levels to an unexpected halt just a quarter of the way through the 2019/2020 season.

"When it returned, the remainder of the games took place behind closed doors with no fans present. This provided an unintentional, and unique, opportunity to examine one of the most talked about and empirically studied phenomena in professional team sport: the home advantage.

"This new knowledge reveals that in the most basic sense, fans attendance matters."

Dr Sandy Wolfson, a sport and exercise psychologist from Northumbria University's Department of Psychology, worked with Dane on this study. Dr Wolfson has undertaken extensive research exploring the psychological aspects of football for players, referees and fans, working with English

Premier League clubs and the Football Association.

She said: “This is a really important investigation that contributes to the long-standing debate on the main reasons for the home advantage in sport - a worldwide phenomenon affecting team sports at all levels, from recreational to elite. “

Dominant play

Previous studies into home advantage have considered how goals scored and points awarded at home games compared with performance at away matches.

This study is the first to consider whether home advantage affects a team's dominance over a game.

The researchers measured dominance by the number of corners, shots and shots on target they had in any given match.

The study showed home teams were less dominant without their supportive fans, with an average per game of 0.7 fewer corners won, 1.3 fewer shot attempts and 0.4 fewer shots on target.

But the findings suggested that the lack of crowds made very little difference to away teams' attacking hold on games, with only 0.10 more corners, 0.17 more shots, and 0.20 more shots on target.

And the researchers discovered that teams' dominance had a much greater influence over referees' decisions than the presence of home fans.

Mr McCarrick added: “When a team's dominance over the game was included in the analysis, the associations were much weakened for fouls and yellow cards and, remarkably, become non-significant for red cards. This shows, for the first time, that the influence of home fans on referees mostly disappears when the style of play is taken into account.”

The study, [Home advantage during the COVID-19 pandemic: Analyses of European football leagues](#) is published in the September issue of *Psychology*

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