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Research Article

The acute effects of Home Advantage on English Professional Rugby Union

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Abstract

This study comprehensively explores the acute effects of home advantage (HA) in English professional Rugby Union, focusing on performance metrics that extend beyond winning percentages. The results reveal that home teams won 69% of their matches, with a higher try scoring rate (t = 3.39, P <0.001, ES = 0.44; home team scoring 3.36 ± 1.85 vs. the away team 2.61 ± 1.5). The home team (1.17 ± 0.11 m) also exhibiting superior ground gained per carry than the away team (1.05 ± 0.10 m, t = 2.48, P = 0.001, ES = 0.42). Moreover, the findings indicate that away teams (1.10 ± 1.04) were more prone to injuries than home teams (0.51 ± 0.64) during the early part of the season (t = −3.06, P = 0.003, ES = 0.68), suggesting a potential link between travel fatigue and physical strain. When attacking, away teams faced a higher frequency of penalties per game (3.77 ± 2.14) compared to the home team (3.24 ± 1.80, t = −2.10, P = 0.037, ES = 0.27), complicating the away team's ability to mount effective scoring opportunities. These findings suggest that HA not only influences match outcomes but also significantly impacts key in-game behaviours, such as try-scoring efficiency and defensive performance. This research provides valuable insights for coaches and players, emphasizing the need to adapt strategies for both home and away games to account for the unique advantages and disadvantages associated with HA. Future research should examine these effects across multiple seasons and competitions to deepen our understanding of the complexities surrounding home advantage in Rugby Union.

Keywords: injury, performance analysis, sports performance, tackle completion, try-scoring.

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Introduction

Home Advantage (HA) is the given nomenclature for the phenomenon of 'home' competitors having increased success compared to their 'away' counterparts (Courneya & Carron, 1992; Carron et al. 2005; Jamieson, 2010). HA can be observed in individual or team sports (Jamieson, 2010) and is not exclusive to sports; it is also seen in politics, business, and warfare (Edwards, & Archambault, 1979; Devine & Kopko, 2013). Research on HA heavily focuses on the source/s of the phenomenon, this research has spanned a vast variety of sports, locations and competitions (Jamieson, 2010). Courneya and Carron (1992), produced a conceptual model of HA's major components: game location, game location factors, critical psychological states, critical behavioural states, and performance outcome.

Fans are thought to be a key influence on HA. The Covid-19 pandemic provided natural evidence of how teams perform with fans absent; during this time HA noticeably decreased, occasionally HA was nullified completely (Wang & Qin, 2023). Technical skills such as goals, shots or shots on targets were negatively impacted for the home team, whilst the away team experienced the opposite effect (Wang & Qin, 2023; Bhagwandeen et al., 2024). Physical capabilities do not seem to be affected by HA (Wang & Qin, 2023). Indoor sports show an increased HA, due to a more tangible crowd presence (Pollard, 2017). As many sports have ventured further into professional, they have seen the impact of travel and familiarity on HA decrease (Pollard, 1986; Jamieson, 2010). Whilst both are key impacts on HA, the magnitude of their impact has decreased with more efficient travel methods and preparation, as well as less variability in pitch dimensions, surface quality, etc. (Jamieson, 2010; Beckmann, 2022). This is one of the causes of lower leagues experiencing increased HA, having poorer travel and more standardisation (Leite & Pollard, 2018). Parallels in the unfamiliarity with terrain and conditions can be drawn to asymmetric warfare tactics such as the Vietnam conflict, an example of HA outside of sports (Buffaloe, 2006).

Global Travel being easier allows for increased away fan attendance (Beckmann, 2022). Most of the components of HA directly strengthen the home team, travel is a distinct negative effect on the away team (Lee & Galvez, 2012; Edwards & Archambault, 2012; Leatherwood & Dragoo, 2013; Huyghe et al., 2018). The modality and length of travel change the type of stress that they experience, therefore showing differing performance decrements (Hands et al., 2023). Nutrition, recovery and access to facilities are all impacted by travel (Leatherwood & Dragoo, 2013; Huyghe et al., 2018; Losak & Sabel, 2021). Whilst all travel modalities increase injury risk and travel fatigue, international travel is especially damaging on the athlete's circadian rhythm (Leatherwood & Dragoo, 2013; Huyghe et al., 2018; Losak & Sabel, 2021). With the travel and fixture demands of many elite sports, it can be

impossible for athletes to have a healthy in-season circadian rhythm (Leatherwood & Dragoo, 2013; Huyghe et al., 2018; Leota et al., 2022)

Ritualised, “must win” and high-stakes matches show an increased magnitude of HA due to increased crowd activity and pressure to perform (Ward, 1998; Jamieson, 2010). In sports with more games, HA is dampened due to the individual importance and pressure of each match being comparatively less (Jamieson, 2010). Territorialism increases the pressure, as can be seen in derbies or rivalry games where both fan, player and officiating activity is affected, increasing HA (Edwards & Archambault, 2012; Sors et al., 2019; Islam et al., 2021). Trending decrease in HA may be a consequence of declining testosterone levels, aggression, and violence (Batrinos, 2012; Beckman, 2022).

Higher degrees of officiating subjectivity increase the magnitude of HA (Balmer et al., 2001; Raab et al., 2021). Highly objective sports such as track and field events, show decreased or a complete absence of HA (Balmer et al., 2001). Referees are not immune to HA, showing a natural inclination to favouring the home competitors especially with penalisation (Edwards & Archambault, 2012; Areni, 2014; Wang & Qin, 2023; Bhagwandeen et al., 2024). Jamieson (2010) finds home teams win 60% of games across various sports (0.60 ± 0.07), with sport-specific differences. This aligns with Gómez et al. (2011) and Pollard et al. (2017), who note Rugby's high HA. Gómez et al. (2011) report a 67% HA in a Spanish rugby (2005–2010; 67.00 ± 3.84) and include HA data from France (73.4%), Italy (66.2%), and England (65.9%). France’s increased HA may be due to stronger fan activity than other Rugby cultures. HA is most prominent in close-quarters, contact sports with minimal stoppage in play like Rugby (Pollard et al., 2017).

This study uniquely examined HA in Rugby Union, focusing on in-game effects rather than broad outcomes like winning percentages (Jamieson, 2010; Pollard et al., 2017). Unlike prior research, it analyses 119 matches from the 2022-2023 season, exploring metrics such as try-scoring, tackle completion, carrying efficiency, and injury patterns to understand HA's impact on match dynamics. Addressing gaps noted by Du Preez and Lambert (2007), it investigates acute performance changes caused by HA, offering actionable insights for players, coaches, and teams to enhance strategies (Courneya & Carron, 1992; Nevill & Holder, 1999).

Methods

Participants

The dataset comprises all matches from the 2022-23 season of the Gallagher Premiership, within which 12 teams competed amongst each other. The data was obtained via one of these teams and all performances for each team are included. Two of the teams did not compete for the full duration of the season. These team's performances remained within the dataset although were removed when looking at per team values rather than league-wide calculations. This exclusion was done as the teams did not have an acceptable number of games played to account for anomalous performances.

Whilst it would have been preferable to analyse multiple seasons, previous years were impacted by Covid-19, thus providing a poor reflection of a standard season and the performances that can be found within it. Within the dataset, all 561 players were competed in the season and their performances were accounted for within the analysis. All players were male. The dataset does not contain player age, mass, stature or other such characteristics. Within the season the oldest player was 39 whilst the youngest was 18 years. Additionally, 43 different officials were involved in the season and therefore the dataset, whether it be as a lead referee, assistant referee or Television Match Official. Two of the 43 officials were female and matches were played across 17 different venues.

The Northumbria University Ethics Board granted ethical approval for this study. The data used within the research was obtained via a third-party data provider which services accurate match statistics to professional Rugby Union teams globally. All teams and individuals within the data have consented to the data provider for their performance data to be collected in such a manner, and to be used to the discretion of their clients.

Measures

The data was received in numerous event-based formats for each match, an individual file for each match. In chronological order, the events of the match were listed with necessary detail included, such as the event itself, the in-game time, the current score, the player and team responsible, etc. This format gives a detailed account for each event within the game and allows for a quantitative and qualitative review of the in-game performances. The units varied dependent upon the event that was being categorised, distance (such as carry or kick metres) used metres as their unit, time variables (such as ruck speed) is measured in seconds, percentage were used for qualitative measure such as tackle completion percentage, dominant tackle percentage, etc. Other metrics are simply frequency of the event i.e. tackles or passes.

Procedures

As the data was sourced from a professional performance data provider, the procedures were not done by the researchers themselves. The data is obtained via live match analysis/ data entry and is rigorously validated prior to being distributed to clients. The data is collected in chronological order of events. The detail of each event including information such as current score, team responsible, player, responsible, event action, event detail (tackle dominance, kick outcome, etc.), coordinates, among other information.

Analysis

The data was received in an event-based format, processed to attribute and total the statistics such as tackles, carries or penalties conceded for each match, for both the home and away team. This giving a reflection of each team's statistical performance. The dataset that that was generated from the processing of the original sequential event-based dataset holds over 95 data points for each team for all 119 matches within the 2022-23 season. An additional three datasets were created by sectioning the full season dataset into approximate tertiles that reflect the early, mid, and late stages of the season. The tertiles were manually chosen, using in-season breaks that were approximate thirds into the season, to present the chosen segment. Playoff matches were excluded from the late season and were not given their own section due to small number of matches. There would be merit to studying the changes of HA in playoff games but it is not suitable with the given data.

With a performance profile for the home and away team in each match prepared, a descriptive analysis of each event type was conducted, providing a mean and standard deviation for the aspects of a rugby union team performance. Following this, an independent two sample t-test was performed on each given statistic across the season. This test providing an indication of each aspect of the game show the most significant differences between the away and home team. Effect size (ES) was calculated concurrently to further quantify the magnitude of significance between the values. Cohen's D was the chosen effect size method. Significance was accepted as a P value less than 0.05. The same t-test procedures were followed for the early, mid, and late season datasets.

Results

Overview

The home team won 82 of a possible 119 games, providing a league wide winning percentage of 69%. The mean for each team's home winning percentage was 64% (0.64 ± 0.27), greater than that observed for the away team winning percentage (0.30 ± 0.17; t = 3.80, P <0.001). The most significant difference presented by the analysis was tries scored (t = 3.39, P <0.001, ES = 0.44), wherein the home team scored a greater number of tries compared to the away team (3.36 ± 1.85 vs. 2.61 ± 1.54). The mean difference between home and away winning percentage was approximately 40%. The analysis looked at the home winning percentage under each referee (excluding those with less than 6 matches). This analysis provided a mean of 68% (± 11%). The same process was applied to the Television Match Official (TMO), showing less variance than the referees but a clear HA present (0.68 ± 0.09).

Scoring

The home team scored significantly more tries (3.36 ± 0.85), than the away team (2.61 ± 1.41; t = 3.39, P = 0.001, ES = 0.44). No other scoring aspects showed a difference between the teams throughout a full season, although there were increases for the home team (see Table 1). No difference of tries scored in the early season (t = 0.32, P = 0.750) but a difference was observed for mid (P = 0.002), and late-season (P = 0.004) season (see Figure 1). No other aspects of scoring in Rugby Union were significant when the season is segmented.

Tackling

None of tackling metrics have a difference although a notable effect size can be observed in certain metrics. Despite not being significant (P = 0.060), the tackles missed has a small effect size (ES = 0.34), as does the tackle completion (ES = 0.36), which is also not different (P = 0.10). No significance is observed when the season is segmented.

Carrying

When the home team attacked, they made more amount of ground for each carry (t = 2.48, P = 0.001, ES = 0.42), where the home team made 5.63 metres per carry (± 1.17 m) compared to the 5.16 m (± 1.05) which the away team gained. Although only metres per carry was different, line breaks (ES = 0.32) and defenders beaten (ES = 0.34) both have small effect sizes. The home team breaks the line 5.74 times per game (± 3.20) whilst the away team does so 4.81 times (± 2.58). Defenders beaten per match for the home team is 20.14 (± 7.28) and the away team is 17.83 (± 6.51). As seen in Figure 2, the home team has the edge is carry quality. Carries that fail to cross the gain line did not differ

between the home team (0.38 ± 0.07) to the away team (0.39 ± 0.07) with a small effect size (ES = 0.21).

Table 1. The effect of Home Field Advantage on Scoring events per game throughout a full season (mean ± SD).

Event	Home	Away	t	Effect size
Tries**	3.36 ± 1.85	2.61 ± 1.54	3.39	0.44
Conversions made	2.54 ± 1.50	2.40 ± 1.52	0.69	0.09
Conversion attempts	3.4 ± 1.62	3.28 ± 1.28	0.71	0.09
Conversion completion %	73 ± 29	72 ± 23	0.36	0.05
Penalties made	1.27 ± 1.15	1.16 ± 1.32	0.68	0.09
Penalty attempt	1.56 ± 1.34	1.30 ± 1.42	1.46	0.19
Penalty completion %	60 ± 44	57 ± 47	0.60	0.08
Penalty tries	15 ± 50	09 ± 37	1.04	0.14

** P < 0.001.

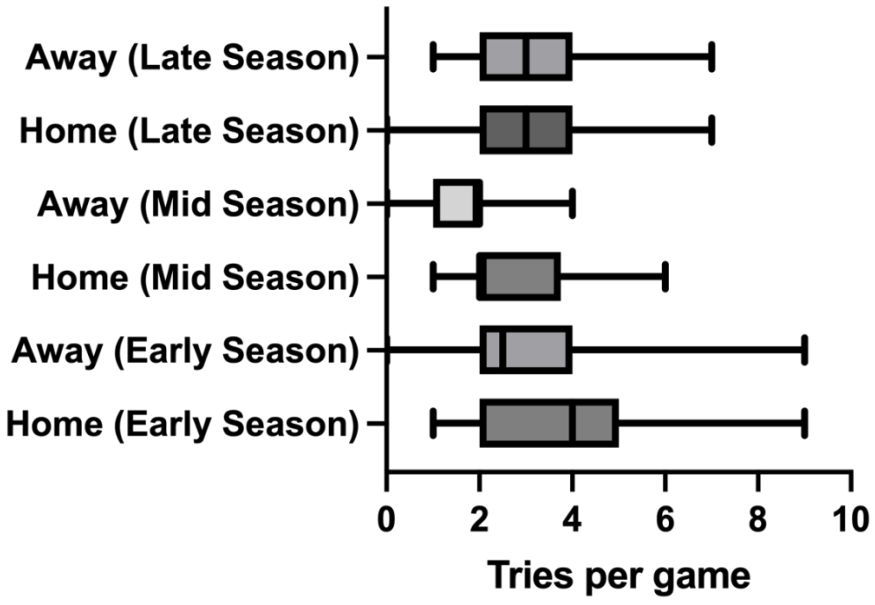

Figure 1. Try scoring throughout the season.

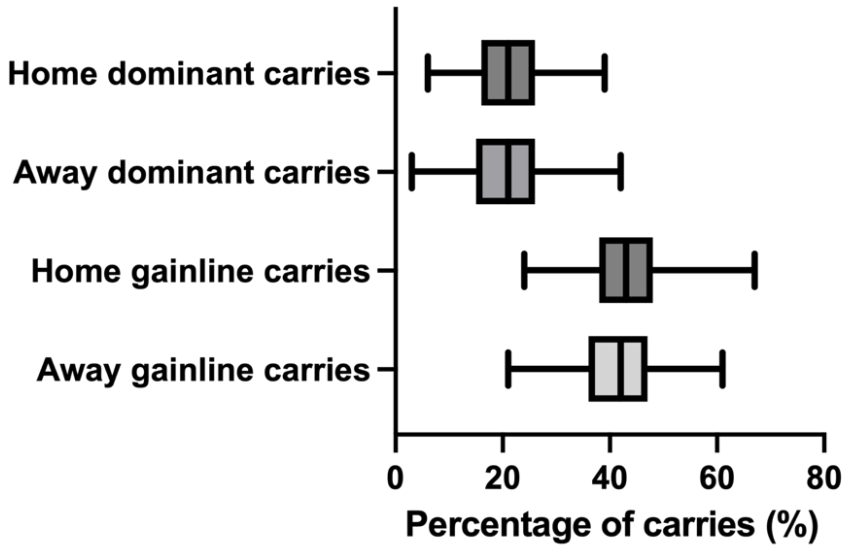

Figure 2. Carry quality throughout the season

Injuries

Whilst injuries are not different between the teams throughout the full season, when the season is segmented into approximate thirds representing early, mid, and late season, the away team is more likely to get injured (1.10 ± 1.04) than home teams (0.51 ± 0.64) in the early season (t = −3.06, P = 0.003, ES = 0.68, Figure 3. This difference is not seen for head injuries (t = 0.13, P = 0.900, ES = 0.02).

Officiating

Whilst total penalties did not differ throughout a full season, the effect size can be noted as being small (ES = 0.21). However, total penalties conceded was different in the late season (t = −2.19, P = 0.031) where the away team conceded more than the home team (12.19 ± 3.12 vs. 10.71 ± 3.05). When the away team was attacking, they are more likely to be penalised (t = −2.10, P = 0.037). The only area of advantages that hold a difference are advantages that end in a scrum being awarded, which the away team is more likely to experience (t = −2.10, P = 0.036, ES = 0.28).

Errors

None of the numerous error events showed between the teams when looking at the full season, nor were any effect sizes large (see Table 5). Passing errors become different in the later third of the season, the home team make more errors (t = 2.11, P = 0.038).

Set piece

There is no difference throughout any of the lineout or scrum events at any point of the season, although there is a small effect size (ES = 0.21) for scrum win percentage, in which the home team wins 88% (0.88 ± 0.16) and the away team wins 85% (0.85 ± 0.19).

Table 2. The effect of Home Field Advantage on Tackling events per game throughout a full season (mean ± SD).

Event	Home	Away	t	Effect size
Tackles made	146.26 ± 36.34	147.79 ± 39.19	-0.31	0.04
Tackles missed	17.79 ± 6.50	20.12 ± 7.29	-2.60	0.34
Tackle attempts	164.05 ± 40.26	167.91 ± 43.92	-0.70	0.09
Tackle completion %	89 ± 3	88 ± 3	2.80	0.36
Dominant tackles	8.41 ± 5.39	8.57 ± 5.25	-0.23	0.03
Dominant tackle %	5 ± 3	5 ± 3	-0.230	0.01
Non-dominant tackles	41.55 ± 18.378	44.87 ± 16.305	-1.474	0.19
Non-dominant tackle %	25 ± 9	27 ± 8	-1.559	0.20

Table 3. The effect of Home Field Advantage on Carrying events per game throughout a full season (mean ± SD).

Event	Home	Away	t	Effect size
Carries	114.36 ± 27.82	113.04 ± 25.58	0.38	0.049
Line Breaks	5.74 ± 3.20	4.81 ± 2.58	2.48	0.32
Defenders Beaten	20.14 ± 7.28	17.83 ± 6.51	2.58	0.34
Metres per carry*	5.63 ± 1.17	5.1587 ± 1.05	3.27	0.42
Post Contact Metres per carry	2.52 ± .40	2.4674 ± .44	0.91	0.12

* $P < 0.05$

Table 4. The effect of Home Field Advantage on officiating events per game throughout a full season (mean ± SD).

Event	Home	Away	t	Effect size
Ruck penalties	4.64 ± 2.04	4.76 ± 2.14	-0.43	0.06
Maul penalties	0.91 ± 1.03	1.03 ± 1.23	-0.86	0.11
Offside penalties	1.24 ± 1.28	1.45 ± 1.29	-1.31	0.16
Foul play penalties	1.45 ± 1.29	1.58 ± 1.49	-0.70	0.09
Scrum penalties	2.51 ± 1.75	2.64 ± 1.75	-0.56	0.07
Lineout penalties	0.48 ± 0.69	0.47 ± 0.61	0.1	0.01
Advantages	5.45 ± 2.91	5.13 ± 2.67	0.86	0.11

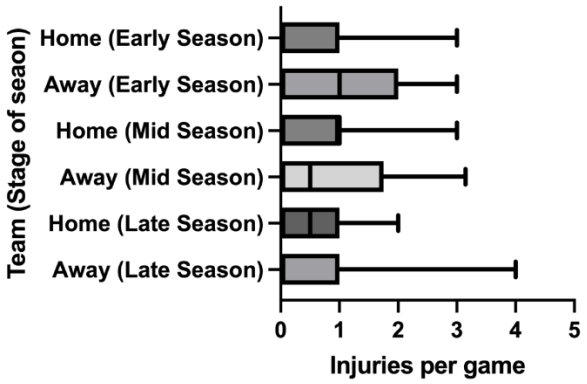

Figure 3. Injuries throughout the season

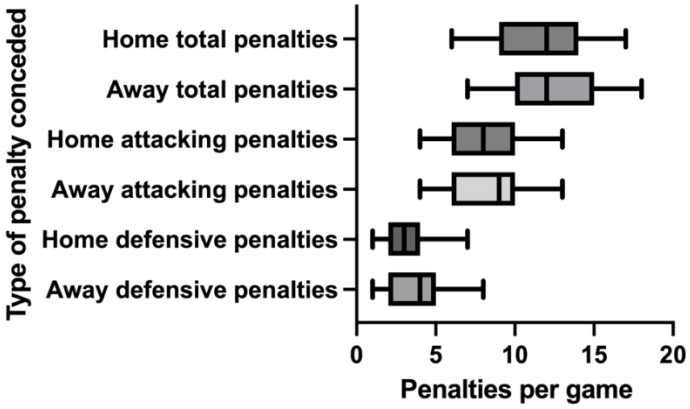

Figure 4. Penalties conceded under the effects of Home Advantage

Table 5. The effect of Home Field Advantage on player error events per game throughout a full season (mean ± SD).

Event	Home	Away	t	Effect size
Unforced errors	8.44 ± 2.96	8.57 ± 2.80	-0.36	0.05
Forced errors	4.13 ± 2.15	4.14 ± 2.27	-0.03	0.00
Passing error	0.65 ± 0.83	0.58 ± 0.85	0.62	0.08
Intercepted pass	0.5 ± 0.69	0.39 ± 0.63	1.38	0.17
Unforced dropped ball	5 ± 2.17	5.06 ± 2.25	-0.21	0.03
Forward pass	0.31 ± 0.52	0.29 ± 0.51	0.38	0.04
Forced lost ball	1.76 ± 1.49	1.76 ± 1.28	0.00	0.00
Ball lost in ruck	1.89 ± 1.52	1.95 ± 1.490	-0.30	0.04
Kicked dead	0.26 ± 0.46	0.24 ± 0.50	0.41	0.04
Missed touch	0.23 ± 0.48	0.18 ± 0.47	0.69	0.11
Accidental knock on	0.24 ± 0.48	0.29 ± 0.60	-0.83	0.09

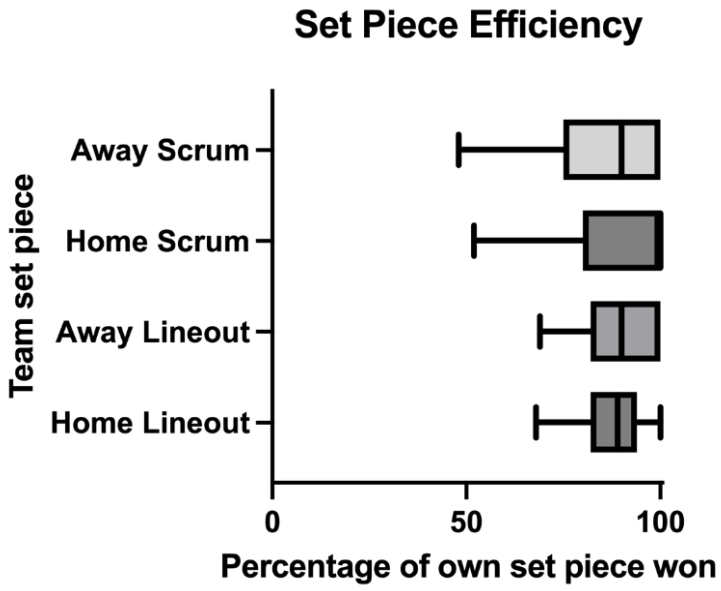

Figure 5. Set Piece efficiency under the effects of Home Advantage

Discussion

The study aimed to explore the acute effects of Home Advantage (HA) in professional Rugby Union during the 2022-2023 Gallagher Premiership season. The analysis revealed that home teams won a significant majority of their games, with a home winning percentage of approximately 69%, aligning with previous research showing Rugby Union having a higher HA than most sports (Jamieson, 2010; Gómez et al., 2011; Pollard et al., 2017).

The most pronounced effect of HA was in try-scoring, home teams scoring significantly more tries than away teams, particularly in the mid and late season. Perhaps indicative of the increased pressure as the season progresses (Wang & Qin, 2023). Contradictory to the assumption that the crowd's presence would be most tangible during quiet moments in the game, placekicking did not have a significant difference. Missed tackles and tackle completions had small effect sizes which suggest that away teams struggle more defensively; Further supported by the small effect size seen on line breaks and defenders beaten favouring the home team. When carrying the ball, home teams gained significantly more ground per carry compared to away teams. The increased on-ball attacking capabilities of the home team and the away teams tackling deficiency can be linked to the increased try scoring for the home team. Away teams were significantly more likely to sustain injuries in the early season. This result could be linked to the stress of travel, a key factor in reducing away team performance (Beckmann, 2022), and poor pre-season preparation. Although no significant differences were found in dominant collision or head injuries, suggesting that the injuries may not be linked to in-game impacts.

Refereeing also played a role in HA, with away teams being penalised more frequently when attacking. Supporting findings of official's bias toward home teams (Edwards & Archambault, 2012). The study also noted that away teams experienced more advantages ending in scrums, suggesting that referees may prolong home team advantages, further contributing to their attacking success. These increased advantages awarding a scrum may also be indicative of poorer attacking play that necessitates returning to the original penalty. Overall, the findings indicate that HA in Rugby Union significantly impacts both offensive and defensive metrics, particularly in the collision area and scoring. These effects are in line with the broader body of HA research, which highlights the role of crowd support, environmental familiarity, and psychological pressures in enhancing home team performance while hindering away teams.

Implications

The findings provide valuable insights for teams looking to either capitalise upon or mitigate HA in Rugby Union. For home teams, the results suggest that an aggressive, attacking strategy is beneficial, especially in open play where they experience attacking advantages. Home teams should focus on maximising possession and maintaining attacking pressure to leverage their increased likelihood to beat defenders, break the line and gain ground. Away teams, on the other hand, face clear challenges, particularly in defence. To counteract this, away teams should focus on strengthening defensive cohesion and improving tackle accuracy, as this is an area where they struggle under the effects of HA. Territorial focused play may be an effective strategy. With poor try-scoring and on-ball success, focusing on kicking for territory and scoring through penalties could help reduce the impact of HA. Research on HA in other sports (Pollard, 1986; Gómez et al., 2011) supports this gameplan.

Given that travel has been shown to negatively impact away team performance (Beckmann, 2022), teams should also consider strategies to minimise travel-related fatigue, such as adjusting pre-match routines or ensuring better recovery and nutrition management during away trips. The relational influences of HA and referees on one another further highlights the opportunity to leverage HA. With referees more likely to penalise away teams, discipline is crucial. Home teams should aim to maintain pressure on referees through sustained offensive phases, as the study showed they are less frequently penalised in attacking scenarios.

Finally, injury prevention is a critical consideration for away teams early in the season when they are more prone to injuries. Coaches should prioritise physical conditioning and injury management to ensure players are resilient enough to handle the physical and mental demands of traveling to away venues. In conclusion, the study enables coaches to tailor their strategies to either exploit or counteract the effects of HA. Home teams should emphasise attack and possession, while away teams would benefit from a more territorial and disciplined approach, focusing on minimising errors and travel fatigue. These adjustments could help teams navigate the challenges of playing at home or away, aligning with established theories of HA (Courneya & Carron, 1992) and performance dynamics in competitive sports.

Limitations

While this study offers valuable insights into the effects of Home Advantage (HA) in Rugby Union, several limitations must be acknowledged. The analysis focused exclusively on the 2022-2023 English Premiership season, limiting transferability to other leagues and seasons. Unique factors such as team

dynamics or injuries could have influenced results, highlighting the need for research that spans multiple seasons to assess consistency (Jamieson, 2010). Additionally, the study did not account for environmental variables like weather conditions, pitch quality, and travel distances, which can significantly affect performance (Pollard, 1986; Beckmann, 2022). The lack of individual player attributes data such as age, experience, and injury history further constrain the analysis. These factors may influence how players respond to the pressures of HA, as shown in previous studies (Huyghe et al., 2018). Moreover, the research was limited to the English Premiership, which restricts applicability to other Rugby Union contexts where crowd behaviour and venue-specific advantages can vary (Gómez et al., 2011). Finally, while officiating decisions were recognised as a significant component of HA, the study did not explore the specifics of referee biases or crowd influence on officiating.

Future Research Directions

There are several promising areas for future research that could deepen our understanding of Home Advantage (HA) in Rugby Union and other sports. One major direction involves expanding the dataset to cover multiple seasons. Since this study focused solely on the 2022-2023 Gallagher Premiership season, further research could determine whether the observed effects of HA are consistent across years, competitions, locations and cultures. Jamieson (2010) highlighted the need for longitudinal studies to track changes in HA over time, and this approach would also help mitigate the impact of anomalies in a single season. Since Rugby Union is played in varying cultural and geographical contexts, examining HA in different leagues or countries could shed light on how cultural factors, affect the magnitude of HA. For instance, research has shown that French rugby teams experience a particularly high HA (Gómez et al., 2011; Pollard, 2017). Location will also have a big impact on the weather conditions and terrain that is played upon.

While this study focused on in-game performance metrics, variables such as travel fatigue and familiarity with playing conditions were noted as potential contributors to HA (Pollard, 1986; Beckmann, 2022). Future studies could incorporate data on these factors to examine their direct effects on player performance. Research that accounts for these variables could help refine our understanding of how travel and environmental conditions exacerbate or reduce HA. The role of individual player characteristics also presents a rich area for future exploration. For instance, older players or those recovering from injuries may experience different effects of HA compared to younger, fitter players. By examining these personal attributes, researchers could gain more insights into which players are most susceptible to the pressures of playing away and how this impacts overall team performance.

Additionally, the psychological aspects of HA warrant deeper investigation. While previous research has linked crowd pressure and territorialism to increased HA (Edwards & Archambault, 2012), future studies could incorporate psychological measures to assess how players' mental states differ when playing at home versus away. Factors such as stress, motivation, and crowd intimidation could be measured through surveys or biological markers like heart rate and cortisol levels. This would allow researchers to explore how mental conditioning and stress management strategies could mitigate the effects of HA for away teams.

From a practical standpoint, future research could also focus on developing targeted interventions for teams and investigating how these interventions affect HA. This approach could also be done for officiating, with attempts to limit referee bias. For instance, understanding how home crowd dynamics impact referee decisions (Wang & Qin, 2023) could allow teams to better exploit the psychological pressures referees face in these settings as influencing their own crowd.

Conclusion

This study highlights the significant impact of HA on both offensive and defensive performance metrics in professional Rugby Union. The findings confirm that home teams not only win more games, with a 69% winning percentage, but also outperform away teams in key areas such as try-scoring, ground gained per carry, and tackle completion rates. Away teams, on the other hand, are more susceptible to injuries, especially early in the season, and face a higher rate of penalties when attacking. These results provide critical insights for both coaches and players, suggesting that home teams should focus on maximising their attacking opportunities, while away teams should adopt more conservative, territorial strategies to mitigate the disadvantages posed by HA. Future research should explore these dynamics across multiple seasons and different leagues to determine the consistency of HA effects and examine additional factors such as environmental conditions and player characteristics. Future research should aim to broaden the scope of HA analysis by incorporating longitudinal data, environmental variables, and individual player characteristics. These avenues will help refine our understanding of HA and provide actionable insights for teams and coaches to optimise performance in both home and away games. Such insights would help refine strategies for both home and away teams, enhancing overall performance in competitive rugby.

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