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A rule-based approach to classify counterpressing – analysis of its risks and relationship with rest defence

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ABSTRACT

The Defensive Transition moment in football was analysed using data from all 380 matches in the 2020/21 English Premier League Season, which encompassed 12,460 possession sequences in the final dataset. Defensive Transition can be assessed by measuring counterpressure success against instances of shot and territory (counter-attack) concession. Following practitioner consultation, a *Rest Defence* variable was defined using a rules-based approach and its relationship with counter-attack vulnerability and counterpressing were examined. The number of players occupying the Rest Defence zone was found to have a significant relationship with shot concession (p < 0.05) and territory concession (p < 0.001) following possession loss in the opposition's final third. However, contrasting prior practitioner belief, there was no significant relationship between Rest Defence organisation and counterpress initiation (p = 0.11). When teams adopt a counterpressing strategy, there was not a significant concession of shots (X2 = 2.74; p = 0.1) but there was significant territory conceded (X2 = 6.93; p < 0.01) compared with when counterpressing wasn't applied. Overall, teams had greater counterpressing success against the weaker and medium ranked teams rather than higher ranked teams (p < 0.01). Future research may build machine learning models to a) classify possessions with successful counterpressing and b) attribute value to successful counterpressing performance.

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KEYWORDS

Counterpressing; rest defence; pressing; performance analysis

1. Introduction

Teams are often described based on their characteristic playing style (Lopez-Valenciano et al., 2021), although as football involves multiple possible actions from different player combinations, it is difficult to categorise different playing styles in an objective manner (Low et al., 2020). To aid the understanding of playing style, football has previously been categorised into repeatable phases or moments. Previous research (Oliveira, 2004) has characterised the four key phases: Established Attack, Established Defence, Offensive Transition and Defensive Transition. However, as Set Pieces account for approximately 30% of all goals in major football competitions (Ensum et al., 2000), it was also

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considered as a fifth additional moment in subsequent analysis (Hewitt et al., 2016). Breaking gameplay down into these moments and associating Key Performance Indicators (KPI's; Herold et al., 2021) with each moment, helps practitioner performance analysts classify different playing styles (Hewitt et al., 2016).

In this research, the moment Defensive Transition was examined, with a particular emphasis on the KPI quick defensive transition time, described as the time taken between possession loss (start of defence) and possession regain (end of defence; Barreira et al., 2013; Suzuki & Nishijima, 2004). A KPI that is said to facilitate quick defensive transition time is the tactical concept of Rest Defence. Rest Defence is a term used to describe the attacking team's structure that ensures a good transition into defending upon losing possession of the ball (Forcher et al., 2023). There are various different forms of Rest Defence, however they are all characterised by having defensive players positioned in central areas of the field when in possession who control defensive spaces in case of an opposition counter-attack (van Zoelen, & Baker, 2022). Contrasting this, KPI's can also evaluate the Attacking Transition phase of play. These can include a team progressing the ball quickly into the final third or creating shooting opportunities within a time period following possession regain (Herold et al., 2021). Hence, the Defensive Transition performance of a team can be evaluated by analysing quick defensive transition time facilitated by *Rest Defence* versus the concession of quick opposition final third entries and shooting opportunities.

Of the existing literature detailing defensive performance to limit *quick defensive transition time*, some focused on different types and regions of ball recoveries (Almeida et al., 2014; Santos et al., 2017). Other literature (Bauer & Anzer, 2021; Forcher et al., 2024; Herold et al., 2022) investigated applying pressure as a defensive strategy to minimise *quick defensive transition time*, as positional data became more readily available. This defensive strategy is referred to as pressing and it occurs whereby players collectively exert pressure on the opponent with the ball, and the likely pass recipients, with the objective of winning the ball back, usually in the opponent's half (high press; Merckx et al., 2021). Low et al. (2021) compared the defensive strategies: high-pressing and deep defending by using a local positioning system to capture positions of all players in a trial match. Whilst the findings were limited due to the trial-based nature of the study, small sample size and the use of youth footballers, it was a seminal study in reporting the descriptive nuances of a high pressing defensive strategy.

In addition to trial-based analysis, there has been an effort to measure and attribute value to pressing behaviour (Robberechts, 2019). However, pressing is quite difficult to characterise quantitatively, as multiple players apply pressure to the ball and likely pass recipients when performing successful pressing behaviour. Existing data providers have attempted to measure individual pressure actions, by assessing if an opposition player has entered a certain radial distance from the ball carrier (Yam, 2018). Basic measures of these events include counts, and their calculated proportions (such as the proportion of pressure actions in the opposition half), to evaluate a team's playing style and performance (Lago-Penas & Dellal, 2010).

A key component of a successful pressing strategy is the timing of pressing behaviour. The action of applying pressure quickly after losing possession is called counterpressing (Navarro Férnandez, 2018), with the counterpress considered to last 6 s following possession loss (Bauer & Anzer, 2021). Regaining possession back



Figure 1. Flow diagram of the three primary aims of this research.

quickly by pressing (counterpressing), can be an important determinant of successful defensive performance for some team playing syles (Vogelbein et al., 2014). In its simplest form, counterpressing can be measured by aggregating pressure events that occur within the first 6 s after possession loss and investigating its relationship with possession regain. Therefore, it is possible to evaluate successful counterpressing performance in the context of its dual aims: 1) winning the ball back and 2) preventing the opponent's counter-attack (Bauer & Anzer, 2021). Hence, successful counterpress behaviour can be labelled in a data-driven approach as successful possession regain and limiting shot concession.

Using event and positional data, this study aims to examine the Defensive Transition moment (Oliveira, 2004) in football; with a particular emphasis on analysing counterpressing behaviour. Hence, this paper can be structured into three core aims relating to counterpressing (Figure 1). The first aim was to characterise counterpressing behaviour in a data-driven way by using a rules-based approach. The second aim was to undertake a comprehensive analysis of counterpressing and examine its relationships. This aim involved: examining the location of successful counterpressure; examining the reward of regaining possession in advanced regions versus the risk of conceding territory; investigating the impact of performing counterpress. The final aim was to develop a KPI using positional data termed as *Rest Defence*. This KPI can be used to evaluate a team's attack to defence transition and its relationship with counterpressing can be examined.

2. Method

2.1. Data sample

This study was conducted with event and positional data from all 380 matches of the 2020/21 Premier League Season, using data provided by *Statsbomb* (2022). Hence, for every event (as labelled by the data provider) present within the dataset, there is accompanying positional information detailing the locations of teammates and opposition players. However, this positional information is only present for players within the television broadcast camera's range. In addition, the positional data does not include information with respect to body orientation or direction of travel. However, previous

Label	Statsbomb definition
Ball Recovery	An attempt to recover a loose ball.
Duel	A duel is a 50–50 contest between two players of opposing sides in the match.
Interception	Preventing an opponent's pass from reaching their teammates by moving to the passing lane/ reacting to intercept it.
Pass	Ball is passed between teammates.
Possession	New possessions are triggered after a team demonstrate they've established control of the ball.

Table 1. Statsbomb definitions for terms used to define possession loss.

analysis of the *Statsbomb 360* 2020/21 Premier League dataset demonstrated that the average player count within each freeze-frame was sufficiently large (13.64) to conduct a thorough data analysis (Peters et al., 2024).

The event and positional datasets were merged through a left join, by using freezeframe id's as provided by *Statsbomb*, which ensured that the positional and event data matched up. The 2020/21 season's data was selected as a 'proof-of-concept' sample, as experts considered that teams Liverpool FC and Manchester City, managed by Jurgen Klopp and Pep Guardiola respectively, adopted successful counterpressing strategies (Bauer & Anzer, 2021).

The dataset was filtered to include all possessions that started in the defensive third, following an opposition possession loss. The opposition possession loss was defined as a change in possession following an unsuccessful pass or a successful duel, interception or ball recovery (Table 1). As the *Statsbomb* pitch co-ordinates are standardised to a 0–120 ×-axis and 0–80 y-axis area, this co-ordinate system was used to label the start of possession sequences in the defensive third. Hence, as team's attack from left to right using the *Statsbomb* co-ordinate system, changes of possession originating between 0 and 40 × co-ordinates were labelled as the defensive third and retained for downstream analysis. This final dataset comprised of 12,460 possession sequences originating in the defensive third following opposition possession losses.

2.2. Data labelling

To classify counterpressing scenarios, a set of rules were defined to characterise them. Counterpressing is defined as collectively applying sustained pressure to the opposition (colloquially known as pressing) immediately after possession loss (Navarro Férnandez, 2018) in advanced pitch locations (Merckx et al., 2021). As counterpressing is performed as a sustained effort, it was relevant to extract sustained pressure rather than an independent pressure event following possession loss. Therefore, all passes within a 6-s window following a possession loss were analysed and where the proportion of pressured passes was greater than or equal to 50%, a sustained pressure was labelled. Hence, a counterpressing scenario was labelled where there was a sustained pressure following possession loss in the opposition's final third. Of the 12,460 possession sequences used for analysis, 2,310 were classified as *Counterpressing Scenarios*.

After a counterpressing scenario was gleaned, the aims of counterpressing; 1) to win the ball back and 2) to prevent the opponent's counter-attack, were revised when applying labels. A successful counterpress was hence labelled whereby a team applied a sustained pressure which forced a change in possession (won

Label	Description
Counterpressing Scenario	Sustained pressure following possession loss in the opposition's final third.
Possession Loss	Loss of possession following a duel, interception, ball recovery or pass.
Shot Concession	Shot Concession Within 20 s of Possession Loss
Successful Counterpress	Counterpress scenario whereby opposition team experienced possession loss within 6 s.
Sustained Pressure	Proportion of opposition passes pressured was 50% or greater within 6 s of a possession loss.
Territory Concession	Final Third Entry Concession Within 15 s of Possession Loss
Unsuccessful Counterpress	Counterpressing scenario whereby opposition team did not experience possession loss within 6 s.

Table 2. Rule-based labels to characterise attack to defence transitions.



Figure 2. Flow diagram displaying data sample.

the ball back) within 6 s of losing possession in the opposition's final third. The prevention of counter attacking opportunities was split into two labels: 1) the concession of territory or final third entries within 15 s of possession loss and 2) shot concession within 20 s of possession loss (Table 2). The 20-s mark threshold was selected for shot concession, as this was used to reflect counterpress success in previous studies (Bauer & Anzer, 2021). This counter-attack prevention aim was assessed over counterpress and non-counterpress scenarios, to interpret the relationship between counter-attack vulnerability and counterpressing behaviour. Using this rules based-approach, the dataset was subsequently labelled (Figure 2).

The positional data additionally enabled the identification of *Rest Defence* setup immediately after possession loss. A well-structured *Rest Defence* is characterised by having defensive players in central locations near the location of possession loss. Hence, the number of defending players that occupied the pitch's central region (width of 6-yard box), within a 30-m radius of possession loss was calculated (Figure 3). Only possession losses in the opposition final third were examined, as only advanced pitch regions are subject to pressing and/or counterpressing, behavior. The result was a KPI used as a proxy for a well-established *Rest Defence*.



Figure 3. Pitch displaying rest defence setup following possession loss. Opposition players present in the yellow zone & within 30 m radius (purple dotted line) are part of the rest defence.

2.3. Data analysis

A 2-dimensional Kernel Density estimation was applied to show relative success of counterpressing behaviour. The resulting heatmaps exhibit where individual teams are successful and/or unsuccessful relative to their counterpressing volume. It was additionally possible to investigate where teams lost the ball when subject to successful counterpressing (or when counterpressed).

A simplistic way to evaluate the success of team counterpressing is to calculate the overall success rate. This was achieved by dividing the total number of successful counterpressures by the total number of counterpressures that a team engaged in. Conversely, the ability of different teams to evade the counterpress was calculated by summing the total number of opposition unsuccessful counterpressures and dividing by the total number of opposition counterpressing scenarios. The relationship between counterpressure success rate and opposition team quality was also investigated. To achieve this, the eventual teams that finished the season in the top six positions were considered *Top Ranked Teams*, teams that finished in the bottom six places were considered *Low Ranked Teams* and all other teams were considered *Medium Ranked Teams*. A non-parametric Kruskal-Wallis Rank Sum test was applied to interrogate whether there was a significant difference between counterpress success rate and opposition team quality.

To examine counterpress risk, the counter-attacking output of opposition teams was analysed over counterpress and non-counterpressing scenarios. The counter-attacking threats were quantified by the proxies: shot concession & territory concession (Table 2). A chi-square test was applied, to investigate if there was a significant difference between the volume of shot concession during counterpressing scenarios versus noncounterpressing scenarios. A chi-square-test was also applied to detect if there was a difference in the number of final third entry concession when counterpressing versus non-counterpressing. Methods to evade opposition counterpressure was also examined, by analysing the length of the first three passes that took place within the first 6 s for all countrepressing scenarios. Only successful passes were considered, to prevent contamination of intercepted or misplaced passes which would influence pass length for the successful counterpress group.

To determine its inter-play with counter-attack vulnerability, the number of players occupying the *Rest Defence* region was also investigated. A non-parametric Mann-Whitney-Wilcoxon test was applied to differentiate if there was a significant difference in player counts present in the *Rest Defence* region when subject to a) counter attack concession versus non-concession and b) final third entry concession versus non-concession. In addition, the same test was applied to determine whether there was a significant difference in the number of *Rest Defence* players initiating counterpressing scenarios compared with non-counterpressing scenarios. Non-parametric tests were used in all cases as they don't assume that the samples follow a normal distribution.

3. Results

3.1. Counterpressure heatmaps

When considering the counterpressure relative success following a 2-dimensional Kernel Density estimation, most success occurs further to the wings rather than central areas (Figure 4(a)). The relative success of counterpressing was also established for each team (Figure 4(b)). It is evident from the team analysis, that the location of counterpress success can vary from team to team.

3.2. Counterpressed heatmaps

After counterpressure success was established, it was also possible to extract spatial information about where teams receive counterpressure or are counterpressed (Figure 5). Again, the location of successful counterpressure is relatively team-specific. Hence, this information can be used on a practitioner level, to help preplan pressing strategies to specific areas where there's a history of opposition possession loss.

3.3. Counterpress success

The counterpressure (Figure 6(a)) and counterpressed (Figure 6(b)) success rate was established for all Premier League teams. Overall, the proportion of successful counterpressure varied from 24% to 15%, demonstrating a variance in team-specific counterpressing abilities. In terms of counterpress evasion, teams were successful between 86% and 72% of the time.

a.



Figure 4. Pitch displaying all successful counterpressures relative to unsuccessful counterpressures for (a) all &; (b) subdivided by teams. The direction of play for each counterpressing team is right to left.

There was a significant difference (p < 0.01) between counterpress success rates and opposition team quality. In particular, teams achieved lower counterpress success against *Top Ranked* opposition (Figure 7).

3.4. Counterpress risk

To examine counterpress risk, shots (Figure 8(a)) and final third territory conceded (Figure 8(b)) was visualised with respect to the groupings: counterpressing and non-

5



Figure 5. Pitches displaying where each team was counterpressed. The direction of play for each counterpressing team is right to left.

counterpressing scenarios. The raw counts were converted to percentages to enable a fair comparison prior to visualisation. After applying a chi-square test to the raw counts, there was no significant difference in shot concession between the counterpressing and non-counterpressing groups ($X^2 = 2.74$; p = 0.1). However, there was significantly more final third entries (territory) conceded for counterpressing teams compared to non-counterpressing teams ($X^2 = 6.93$; p < 0.01). Overall, this result conveys the risk of counterpressing, suggesting that teams concede more final third entries when performing this tactic.

3.5. Beating the counterpress

The pass length of the first three passes following a counterpress scenario were examined, to interrogate a relationship between pass length and counterpress evasion. Overall, the mean pass length of possessions that advanced past the counterpressure was longer (18 yards) compared with those that succumbed to the counterpress (16.5 yards; p < 0.001).

3.6. Rest defence analysis

The number of players occupying the *Rest Defence* position was also investigated, to determine its impact on counter-attack vulnerability. The mean number of defending players within the *Rest Defence* position was significantly less (p < 0.05) when shots were conceded (1.22 compared with 1.31). Likewise, there was a significantly lower mean

Liverpool

а

10

Proportion of Successful Counterpressures

Teams Who Played in the 2020/21 Premier League Season



Sheffield United Fulham Southampton Arsenal Leeds United Crystal Palace Aston Villa Manchester United Leicester City Brighton & Hove Albion Everton West Ham United Tottenham Hotspur Manchester City Chelsea Volverhampton Wanderers West Bromwich Albion Newcastle United Burnley

Proportion of Successful Counterpress Evasion Teams Who Played in the 2020/21 Premier League Season



Figure 6. Bar chart displaying success rate of teams that are: (a) Counterpressing &; (b) Counterpressed.

b



Figure 7. Counterpress success rate against different opposition quality. Counterpressure average success rate is indicated by the yellow diamond.

number of defending players within the *Rest Defence* zone (1.26 compared with 1.33) when subject to final third entries (p < 0.001).

The relationship between players occupying the *Rest Defence* region and initiating a counterpress scenario was also investigated. Following a Mann-Whitney-Wilcoxon test there was no significant relationship between mean number of players occupying the *Rest Defence* region and counterpress initiation (1.27 when counterpressing compared with 1.32; p = 0.11). Prior practitioner opinion suggested that a well-structured *Rest Defence* may enable good counterpressing opportunities. However, this non-significant result may be due to what was discovered in the earlier section, that many successful counterpressures occur in wide pitch locations. Hence, teams that have players in wide as opposed to central locations are just as capable in initiating counterpressing.

4. Discussion

The aim of this study was to examine the impact of counterpressing by analysing the Defensive Transition (Oliveira, 2004) phase of play. This was achieved by investigating the ability of teams to win possession in advanced areas versus the negative trade-off of shot and territory concession. Alongside event data, positional data was used to create a *Rest Defence* KPI. To our knowledge, this is early work in research terms that attempts to classify *Rest Defence* using a rule-based approach. The presence of players in central regions (*Rest Defence* variable) prevented counter-attacking opportunities, indicated by a significant reduction in opposition final third entry concession (p < 0.001) and shot concession (p < 0.05). A further theoretical reason behind adopting a well-structured *Rest Defence* is because it enables good counterpressing opportunities. However, the results suggest that the number of defensive players within the *Rest Defence* zone had no impact on initiating a counterpress (p = 0.11). A potential



b

Counter Attack F3 Entries Conceded F3 Entries Conceded per 100 Possession Losses in Opposition Third

Counterpressing Not_Counterpressing

Volverhampton Wanderers	29.3 %	27.2 %
Manchester City	32.2 %	24.7 %
Arsenal	33.3 %	24.4 %
Fulham	29.8 %	28.3 %
Liverpool	33.3 %	27 %
Chelsea	37 %	23.3 %
Southampton	33 %	27.4 %
Crystal Palace	31.2 %	29.4 %
Brighton & Hove Albion	33.6 %	27.4 %
Newcastle United	31.7 %	30.2 %
Manchester United	36.1 %	26.6 %
Sheffield United	31.2 %	31.9 %
Leicester City	36.3 %	27.1 %
West Ham United	32.1 %	33.8 %
Aston Villa	37.1 %	30.6 %
Tottenham Hotspur	42.4 %	28.4 %
West Bromich Albion	39.1 %	32.2 %
Burnley	40.4 %	32.4 %
Everton	44 %	29.
Leeds United	39.4 %	34.9 %

Figure 8. Breakdown of shot and final third entry concession. (a) Bar chart displaying shot concession following possession loss in attacking third. (b) Bar chart displaying final third entry concession following possession loss in attacking third.

reason for this is that many counterpressure events in football occur in wide positions (Bauer & Anzer, 2021) and hence having defensive players within central regions may not enable good counterpressing opportunities. Future directions to validate this may include characterising different *Rest Defence* forms and evaluating their impact on counterpress success. As this is a novel area being explored, potentially an updated definition of *Rest Defence* could be revised, by considering the pooled opinions of multiple domain experts, as it is a complex interaction of several players occupying space. Furthermore, space models using tracking data such as pitch control (Spearman et al., 2017) may be used in future studies to model *Rest Defence*, to gain a greater understanding of how much space defensive players occupy.

In addition, the optimal counterpress pitch locations were investigated for each team. This was achieved by computing a two-dimensional density estimate of where teams successfully counterpress, and where teams engage in unsuccessful counterpressing. It is evident, that when initial possession is lost in wide areas, whether in advanced areas or areas just within the opposition final third, that they represent the most ideal scenarios to counterpress. The lack of successful counterpressures in central regions may be because a) these areas carry a high volume of possession loss and hence a large volume of successful counterpressures will be required to overcome this or b) there are plenty of passing options in a 360-degree range once a player regains the ball in a central area and can therefore circumvent a counterpressing scenario. Additionally, there is differences in team-specific counterpressing patterns. This may be due to efficient couterpressing players in specific pitch sub-regions; a deliberate pre-game pressing strategy targeting specific pitch areas or the positioning/formation of teammates to enable good counterpressing opportunities. Finally, it is also possible to view the success of counterpressures against (or counterpressed). Again, this will offer insight at the practitioner level, as locations of where teams are successfully counterpressed will aid preparation of successful pressing structures for upcoming matches.

Once a counterpress is engaged, teams find it harder to successfully retrieve possession when playing against Top Ranked opposition. This is reflected by on average, lower counterpress success rates against the *Top Ranked* versus the *Low Ranked* sides (p < 0.01). The reason for this may be because higher quality teams have higher quality players and hence are more resistant to these pressured situations, leading to more successful pressure evasion. An additional reason is that lower ranked teams have lower quality players at regaining possession or may be part of an ineffective pressing system. A further reason may be that when teams play highly ranked opposition, particularly away from home, they may be more passive in applying pressure as this leaves them vulnerable to conceding shots and territory. This particular risk in collectively committing to a counterpress was reinforced in this study. Although there wasn't significantly more shots conceded ($X^2 = 2.74$; p = 0.1) when counterpressing, there was significantly more final third entries conceded ($X^2 = 6.93$; p < 0.01) when counterpressing compared with non-counterpressing scenarios. As shots are relatively infrequent events in the context of a whole football match, concession of final third entries may be a better proxy of territorial dominance, as they represent a larger sample size to perform analysis. Hence, these results are consistent with practitioner opinion, whereby regaining defensive positions immediately after possession loss is the best tactic in limiting opposition's territory, as opposed to pressing. When gaining territorial dominance, long passes are a

successful way to penetrate an opposition counterpress to reach the opposition final third. After all, teams with significantly longer pass distance (18 compared with 16.5 yards) were able to successfully retain possession when subject to counterpressure (p < 0.001). Overall, it would be important in the future to see if successful counterpressures lead to more shooting opportunities, since recovering the ball (after losing it) in the final third is associated with a higher probability of scoring (Vogelbein et al., 2014).

4.1. Limitations and future work

Overall, this study was conducted on the event and positional data from the 2020/21 Premier League Season. This was an unprecedented season, owing to disruptions cause by the COVID-19 pandemic and most notably, a lack of spectators at matches. To ensure reproducibility, a similar study should be conducted on a dataset originating from a nondisrupted season. In addition, although a lot of important player positional information exists near the ball-carrier (particularly for pressure), the *Statsbomb 360* dataset used for positional information, does not include positional data for players outside of the television broadcast camera's range.

As research is sparse in the area of counterpressing, our current research labels counterpress scenarios using a simple rules-based approach. Future studies should perhaps include more sophisticated pressure models, rather than sustained pressured events, to classify counterpressing, such as that from Andrienko et al. (2017). The authors used various positional features such as: angle, distance and orientation of multiple players to calculate the pressure applied in a mathematical-based method. This pressure metric was adopted in further studies (Forcher et al., 2024; Herold et al., 2022; Merckx et al., 2021) and applied to different sports such as ice hockey (Radke et al., 2021).

A further limitation is that there has been no establishment of rules described in previous literature that defines the KPI *Rest Defence*. Hence, after practitioner consultation, a series of rules were defined. As *Rest Defence* is a complex tactical phenomenon, these rules should be refined and updated as future research progresses. In addition, this may only serve as a proxy, as some of the players occupying the *Rest Defence* region may not be recorded owing to the broadcast nature of the *Statsbomb 360* dataset. Hence, studies with full tracking data would better approximate *Rest Defence* scenarios.

A future direction may be to build machine learning model to: 1) convey that these counterpressing success can undergo binary classification and 2) apply them to examine their associated risk and success probabilities. It is imperative at the practitioner level to have tools which enable automatic classification. This is because many games occur simultaneously across different leagues, and hence a lot of time can be saved by analysts when specific moments in football, such as transitions or counterpressing, are correctly classified. As the nature of football provides such a narrow window of opportunity between games, similar models will help optimise workflows to enable practitioners to prioritise other tasks. In addition, it is possible to attribute value when applying such models. One such utility is that the counterpress scenarios with a high probability of successful counterpress retrieval can be examined by performance analysts, and the counterpressing team shape which enforce these successes can be gleaned. Hence, these optimal counterpressing shapes can be showed to the coaching staff, and training regimes can be designed which replicate these optimal pressing structures which enable possession regain.

5. Conclusions

The Defensive Transition moment of play was investigated by examining the success of counterpressing against the risk of conceding shots and territory. The tactical KPI Rest Defence was created using positional data and was found to have a significant relationship with both shot concession and territory concession. Interestingly, the number of defensive players occupying the Rest Defence region did not help initiate a counterpress. This may be because most successful counterpressure events occur in wide areas and hence concentrating a high volume of players in central locations may not enable good counterpressing scenarios. In addition, there was not a significant concession of shots but there was significant territory conceded when adopting a counterpressing strategy. As well, teams had greater counterpressing success against the weaker and edium ranked teams in comparison to higher ranked teams. A successful tactic employed by teams beating the counterpress was longer passes than those that succumbed to counterpressure. Future methods may build machine learning models to a) classify possessions with successful counterpressing and b) attribute value to successful counterpressing performance. Finally, future studies should incorporate full tracking data, to improve the accuracy of the Rest Defence KPI.

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Data availability statement

The data that support the findings of this study are available from *Statsbomb*. Restrictions apply to the availability of this data, which were used under licence for this study.

Ethics approval statement

No ethics approval was required as the data used for analysis was collected by the third-party data provider *Statsbomb*.

Code availability statement

The R code used for the statistical analysis presented in this paper will be made available upon request to the corresponding author.

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