

# LONG CORNER KICKS IN THE ENGLISH PREMIER LEAGUE: DELIVERIES INTO THE GOAL AREA AND CRITICAL AREA

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## Abstract:

The purpose of this study was to investigate long corner kicks within the English Premier League that entered either the goal area (6-yard box) or the critical area (6-12 yards from the goal-line in the width of the goal area) with the defining outcome occurring after the first contact. A total of 328 corner kicks from 65 English Premier League games were analysed. There were nine goals scored from the first contact (2.7%) where the ball was delivered into either the goal area or the critical area. There was a significant association between the area the ball was delivered to and the number of attempts at goal ( $p < .03$ ), and the area the ball was delivered to and the number of defending outcomes ( $p < .01$ ). The results suggest that the area where a long corner kick is delivered to will influence how many attempts at goal can be achieved by the attacking team and how many defensive outcomes can be conducted by the defensive team. There was no significant association between the type of delivery and the number of attempts at goal from the critical area ( $p > .05$ ). It appears as though the area of delivery is more important than the type of delivery for achieving attempts at goal from long corner kicks; however, out of the nine goals observed within this study, seven came from an inswinging delivery. From an attacking perspective, coaches should reflect on what determines a successful corner kick.

*Key words: performance analysis, notational analysis, soccer*

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## Introduction

Soccer has been researched extensively within sports performance analysis with the primary objective of improving individual or team performance through the collection of objective, valid and reliable data. Different aspects of soccer performance that have been explored include possession (Clemente, Couceiro, Martins, Mendes, & Figueiredo, 2013); physical demands (Gregson, Drust, Atkinson, & Di Salvo, 2010); tactical behaviour (Tenga, Holme, Ronglan, & Bahr, 2010); and the influence of situational factors such as match status (Lago, 2009) and match location (Gomez, Gomez-Lopez, Lago, & Sampaio, 2012). To win a soccer match a team must score more goals than the opposition and therefore this area of performance has received considerable attention (e.g. Shafizadeh, Sproule, & Gray, 2013). These goals can come from open play or from set-plays (penalty kicks, free kicks and corner kicks). Previous research has identified that approximately one-third of goals within elite

soccer are scored either directly or indirectly from a set-play (Yiannakos & Armatas, 2006; Armatas, Yiannakos, Papadopoulou, & Glazoulas, 2007). A corner kick is awarded to the attacking team when the defending team last made contact with the ball prior to its passing over the goal line outside or over the goalposts (Luongo, 1996). A long corner kick is defined as a corner kick that is delivered directly into the 18-yard box by the corner kick taker with the intention of creating a goal scoring opportunity.

Previous research on corner kicks has explored the outcomes of corner kicks in relation to attempts at goal and goals scored (Taylor, James, & Mellalieu, 2005); the delivery type of a corner kick (Carling, Williams, & Reilly, 2005; Page & Robins, 2012; Schmicker, 2013); match status (De Baranda & Lopez-Riquelme, 2012); area of delivery (Page & Robins, 2012; Poon, Douglas, & Hopkins, 2012) and defensive tactics (Pulling, Robins & Rixon, 2013). An overview of the main findings of previous research is presented in table 1.

Table 1. Overview of previous research

| Author (year)                        | Competition                       | Number of corners analysed | Main findings   |
|--------------------------------------|-----------------------------------|----------------------------|---|
| Carling et al. (2005)                | World Cup 2002                    | 465                        | 244 in-swinging corners and 6 goals were scored from these corners (2.5% of total in-swinging corners).<br>221 out-swinging corners and 2 goals were scored from these corners (0.9% of total out-swinging corners).  |
| Taylor et al. (2005)                 | English Premier League 2001-2002  | 217                        | 68 attempts at goal (31.3% of total corners).<br>6 goals scored (2.8% of total corners).<br>29 attempts on target that did not lead to a goal (13.4% of total corners).<br>33 attempts off target (15.2% of total corners).   |
| De Baranda and Lopez-Riquelme (2012) | World Cup 2006                    | 653                        | 155 attempts at goal (23.7% of total corners).<br>17 goals scored (12 directly from a corner kick and 5 from a penalty kick) (2.6% of total corners).<br>83 attempts off target (12.7% of total corners).   |
| Page and Robins (2012)               | English League One 2010-2011      | 136                        | 35% of in-swinging and out-swinging corners delivered into the critical area led to an attempt at goal.   |
| Poon et al. (2012)                   | International Under 17 tournament | 141 (long corners)         | 1 goal scored (0.7% of total long corners)  |
| Pulling et al. (2013)                | English Premier League 2011-2012  | 436                        | 136 attempts at goal (31.2% of total corners).<br>18 goals scored (4.1% of total corners).<br>28 attempts were on target but did not lead to a goal (6.4% of total corners).<br>90 attempts off target (20.6% of total corners).                                    |
| Schmicker (2013)                     | Major League Soccer 2010          | 1859                       | 40 goals scored (2.2% of total corners).<br>1060 in-swinging corners and 21 goals were scored from these corners (2.0% of total in-swinging corners).<br>799 out-swinging corners and 19 goals were scored from these corners (2.4% of total out-swinging corners). |

Some of the previous research on corner kicks did not present information on the areas the corner kick was delivered to (Carling, et al., 2005; De Baranda & Lopez-Riquelme, 2012; Pulling, et al., 2013). However, Taylor et al. (2005) did explore the delivery areas and stated that there was a critical area; this is an area 6-12 yards from the goal-line in the width of the goal area (Figure 1). This area was deemed to be the critical area as it had the greatest frequency of first contacts (41%) and a high percentage of attempts at goal (42%). Schmicker (2013) also investigated where the ball was delivered to from long corner kicks by dividing the 18-yard box into 66 distinct 3-yard by 4-yard boxes and found that the area 6 to 9 yards from the goal line and positioned centrally in front of the goal had a significantly higher goal scoring rate (5.0% of total corners delivered into this area) from corner kicks. This area was positioned within the previously mentioned critical area.

Page and Robins (2012) explored the critical area. However, it is unclear whether an attempt at goal was actually performed within the critical area,

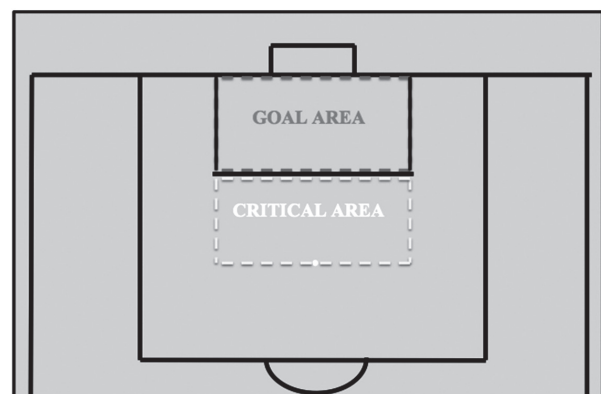


Figure 1. Goal area and critical area.

i.e. the ball could have been delivered to the critical area, but this ball might have been passed to a team-member who had an attempt at goal from another area of the penalty box. It may be appropriate to explore long corner kicks where the first contact produces the defining outcome, particularly as Page and Robins (2012) reported that corner kicks

resulting in an attempt at goal were characterised by a low number of attacking actions. By applying this form of analysis, an accurate representation of where outcomes occur can be produced.

Poon et al. (2012) stated that the area with the greatest frequency of delivered corners (48% of total corners) was positioned centrally, had the width of the goal area and was 9 yards into the field of play. An attempt at goal was achieved from 22% of the corners that were delivered into this area. This finding suggests that deliveries into the goal area should be further explored as corner kicks are regularly delivered into this area. However, it should be noted that this area is relatively large; therefore, it may be more appropriate to divide this area into smaller areas to produce a more detailed analysis.

The previous research that has focused on the corner kicks delivered into the critical area does not state whether the defining outcome was performed within this area, i.e. the ball could have been delivered to the critical area, but it may have been passed, after the first contact, to a team-member who takes an attempt at goal from another area of the penalty box. Analysing corner kicks where the defining outcome is produced after the first contact will provide an accurate representation of where outcomes occur. Also, Poon et al. (2012) highlighted that a high frequency of long corner kicks are delivered into the goal area. Therefore, the purpose of this study was to investigate long corner kicks within the English Premier League that entered either the goal area or the critical area with the defining outcome occurring immediately after the first contact.

## Methods

### Measures and procedures

Long corner kicks were sampled from 65 English Premier League soccer matches during the 2011/2012 and 2013/2014 season. All of the games sampled were taken from broadcast coverage provided by Sky Sports and BT Sport television. Initially, 540 long corner kicks were observed, with 328 of these corner kicks being sampled as they were delivered into either the goal area or critical area and had a defining outcome following the first contact. Pilot testing was conducted on 100 long corner kicks to develop operational definitions for delivery type and corner kick outcomes. The pilot test found that 88% of the long corner kicks were delivered into either the goal area or the critical area, and this information was used to decide how the goal area and critical area would be divided up into smaller areas. Previous research (Taylor, et

al., 2005; Page & Robins, 2012; Poon, et al., 2012) had not separated the goal area into different areas. However, the pilot test highlighted that 36% of long corner kicks were delivered into this area, therefore, it was considered appropriate to divide the goal area into three different sections (goal area 1=GA1, goal area 2=GA2, and goal area 3=GA3). A decision was also made to split the central space of the critical area (the width of the goalposts) as 37 out of the 100 corner kicks were delivered into this area. The critical area was therefore separated into four areas (critical area 1=CA1, critical area 2=CA2, critical area 3=CA3, and critical area 4=CA4) (Figure 2). The corner kicks utilized within the pilot testing were not used within the sample for this study.

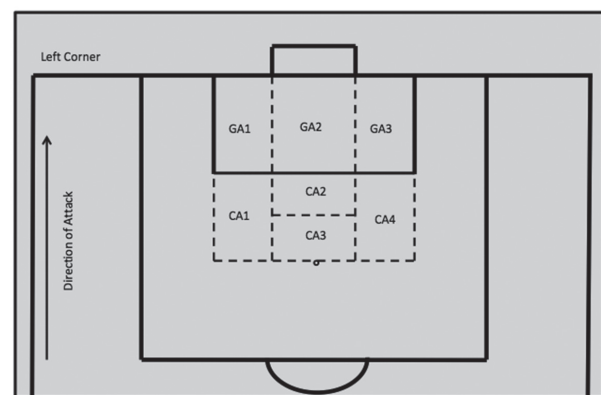


Figure 2. The divided areas of the goal area and the critical area (adapted from Taylor et al., 2005, and Page & Robins, 2012).

The data were recorded onto a specifically designed Microsoft Office Excel spreadsheet (Microsoft Corporation, Excel 2010, Redmond, WA). The type of long corner kick delivery was recorded; this was coded as either an inswinging delivery, an outswinging delivery, a clipped delivery, or a driven delivery. The inswinging delivery was when the ball was kicked and moved through the air in a curve towards the goal. The outswinging delivery was when the ball was kicked and moved through the air in a curve away from the goal. The clipped delivery was when the ball was kicked with no curve and the ball entered the 18-yard box aerially at a limited to moderate pace. The driven delivery was when the ball was kicked with no curve and the ball entered the 18-yard box aerially at a rapid pace. The area that the corner kick was delivered to was then recorded. The operational definitions for the corner kick outcomes are presented in Table 2.

Table 2. The operational definitions of the corner kick outcomes (adapted from Pulling et al., 2013)

| Corner kick outcome                  | Operational definition  |
|--------------------------------------|---|
| Goal                                 | The ball went over the goal-line inside the dimensions of the goalposts. The referee awarded a goal.  |
| Attempt on target excluding goals    | Any goal attempt that was heading towards the goal which was saved by the goalkeeper or blocked by a defensive player.  |
| Attempt off target                   | Any attempt by the attacking team that was not directed within the dimensions of the goal. An attempt that made contact with the crossbar or either of the posts was classified as an attempt off target. |
| Goalkeeper catch                     | The goalkeeper gained possession of the ball by catching the ball.  |
| Goalkeeper punch                     | The goalkeeper made contact with the ball by using a punching action.   |
| Ball cleared for another corner      | A defensive player made contact with the ball and the referee awarded another corner kick.  |
| Ball recycled out of the 18 yard box | The attacking team made contact with the ball which led to the ball exiting the 18 yard box and possession being retained by the attacking team.  |
| Ball cleared out of the 18 yard box  | A defensive player made contact with the ball and it exited the 18 yard box.  |

## Reliability

Intra-observer and inter-observer reliability analyses were completed to assess the reliability and objectivity of the data, respectively. The intra-observer reliability analysis was completed by the initial observer analysing 82 corner kicks (25%) from the original sample. The second analysis was conducted six weeks after the initial analysis in an attempt to reduce potential learning effects (Taylor, Mellalieu, James, & Shearer, 2008). The inter-observer reliability test involved a performance analyst with a two-year experience of analysing football. Prior to the analysis, the analyst participated in a training session on how to conduct the analysis. Information was also provided on the operational definitions of the corner kick outcomes, as well as on the areas of the goal area and critical area. The analyst observed 82 corner kicks in total (25%). Kappa were utilized to assess both intra-observer and inter-observer reliability for corner kick outcome and area of delivery.

## Data analysis

All data are presented as absolute frequencies and supported by percentage occurrence (stated in brackets). A key assumption underpinning the use of chi-squared tests is that the expected values

should not be less than 5 (see Thomas & Nelson, 1996). To prevent this assumption being violated, the outcome data were collapsed in the following way. Attempts at goal were defined as either a goal scored, attempt on target excluding goals and attempt off target, whereas the “non-attempt outcomes” were defined as a GK action (e.g. GK catch and GK punch), attacking outcome (e.g. ball cleared for another corner and ball recycled out of the 18-yard box), or defending outcome (ball cleared out of the 18-yard box). However, even when the data were collapsed in this fashion, the non-attempt outcomes of GK action and attacking outcome still violated the assumption underpinning the use of chi-squared tests. It should be noted that the deliveries placed into GA3 or deliveries that were driven were removed from the statistical analyses due to a small sample size. The following associations were tested statistically using the chi-squared test of independence: (1) the number of attempts at goal in relation to the area of delivery, (2) the number of defending outcomes in relation to the area of delivery, (3) the number of attempts at goal performed within the critical area in relation to the type of corner kick delivery, (4) the number of defending outcomes performed within the critical area in relation to the type of corner kick delivery. The alpha level was set at .05.

Table 3. Reliability tests and Kappa statistics

| Reliability Test | Component           | Kappa value | Strength of agreement (Altman, 1995) |
|------------------|---------------------|-------------|--------------------------------------|
| Intra-observer   | Corner kick outcome | 0.93        | Very good                            |
| Intra-observer   | Area of delivery    | 0.86        | Very good                            |
| Inter-observer   | Corner kick outcome | 0.89        | Very good                            |
| Inter-observer   | Area of delivery    | 0.79        | Good                                 |



### Results

There were nine goals scored from the first contact out of 328 corner kicks (2.7%) when the ball was delivered into either the goal area or the critical area. The area from where most goals were scored was CA2 with four goals being scored from this area out of a total of 90 corner kicks (4.4%). There were two goals scored from 49 deliveries into CA1 (4.1%), two goals scored from 63 deliveries into GA2 (3.2%) and one goal from 12 deliveries into GA3 (8.3%). No goals were scored from the first contact when the ball was delivered into GA1, CA3 and CA4. There was a significant association between the area the ball was delivered to and the number of attempts at goal ( $\chi^2_5=12.91$ ,  $p=.024$ ) (please, note that corner kicks from GA3 were not used for statistical analyses). The highest percentage of attempts at goal from the first contact was recorded for GA3 where there were seven attempts out of 12 corner kicks (58.3%). The next highest percentage of attempts at goal was recorded for CA3 (33.3%), whilst the lowest percentage of attempts at goal was from GA2 (9.5%) (Figure 3).

There was a significant association between the area the ball was delivered to and the number of defending outcomes ( $\chi^2_5=23.95$ ,  $p=.001$ ). The highest percentage of defending outcomes (79.6%)

was recorded for CA1 where there were 39 defending outcomes out of 49 corner kicks. The lowest percentage of defending outcomes was in GA3 (25.0%) (Figure 3).

There were three goals scored from within the goal area from the first contact and all these goals were from the inswinging deliveries. Goalkeeper actions within the goal area were most commonly observed from an inswinging delivery. The highest percentage of defending outcomes (73.9%) within the goal area was recorded for the outswinging deliveries (Table 4).

There were six goals scored from within the critical area from the first contact, four of these goals were from an inswinging delivery (5.9% of total inswinging deliveries into the critical area), whilst one goal was scored from an outswinger (1.0%) and one goal from a clipped delivery (3.7%). There was no significant association between the type of delivery and the number of attempts at goal from the first contact within the critical area ( $\chi^2_2=1.21$ ,  $p=.547$ ). The percentage of attempts at goal from the first contact within the critical area from the outswinging deliveries was 28.7%, whilst for the inswinging deliveries it was 25.0% and for the clipped deliveries it was 18.5%. There was no significant association between the type of delivery

|   |   |   |
|---|---|---|
| <p><b>GA1</b><br/>                 Frequency: 55<br/>                 Goals: 0 (0%)<br/>                 Attempt on target (excluding goals): 3 (5.5%)<br/>                 Off target: 5 (9.1%)<br/>                 GK action: 0 (0%)<br/>                 Attacking outcome: 7 (12.7%)<br/>                 Defending outcome: 40 (72.7%)</p>  | <p><b>GA2</b><br/>                 Frequency: 63<br/>                 Goals: 2 (3.2%)<br/>                 Attempt on target (excluding goals): 0 (0%)<br/>                 Off target: 4 (6.3%)<br/>                 GK action: 30 (47.6%)<br/>                 Attacking outcome: 2 (3.2%)<br/>                 Defending outcome: 25 (39.7%)</p>   | <p><b>GA3</b><br/>                 Frequency: 12<br/>                 Goals: 1 (8.3%)<br/>                 Attempt on target (excluding goals): 1 (8.3%)<br/>                 Off target: 5 (41.7%)<br/>                 GK action: 1 (8.3%)<br/>                 Attacking outcome: 1 (8.3%)<br/>                 Defending outcome: 3 (25.0%)</p> |
| <p><b>CA1</b><br/>                 Frequency: 49<br/>                 Goals: 2 (4.1%)<br/>                 Attempt on target (excluding goals): 3 (6.1%)<br/>                 Off target: 4 (8.2%)<br/>                 GK action: 0 (0%)<br/>                 Attacking outcome: 1 (2.0%)<br/>                 Defending outcome: 39 (79.6%)</p> | <p><b>CA2</b><br/>                 Frequency: 90<br/>                 Goals: 4 (4.4%)<br/>                 Attempt on target (excluding goals): 0 (0%)<br/>                 Off target: 20 (22.2%)<br/>                 GK action: 7 (7.8%)<br/>                 Attacking outcome: 4 (4.4%)<br/>                 Defending outcome: 55 (61.1%)</p> <p><b>CA3</b><br/>                 Frequency: 36<br/>                 Goals: 0 (0%)<br/>                 Attempt on target (excluding goals): 1 (2.8%)<br/>                 Off target: 11 (30.6%)<br/>                 GK action: 1 (2.8%)<br/>                 Attacking outcome: 1 (2.8%)<br/>                 Defending outcome: 22 (61.1%)</p> | <p><b>CA4</b><br/>                 Frequency: 23<br/>                 Goals: 0 (0%)<br/>                 Attempt on target (excluding goals): 2 (8.7%)<br/>                 Off target: 5 (21.7%)<br/>                 GK action: 1 (4.3%)<br/>                 Attacking outcome: 4 (17.4%)<br/>                 Defending outcome: 11 (47.8%)</p> |

Figure 3. Area of delivery and corner kick outcomes.

Table 4. Type of delivery and corner kick outcomes within the goal area (GA1-GA3)

| Type of delivery | Frequency | Goal     | Attempt on target excluding goals | Attempt off target | GK action  | Attacking outcome | Defending outcome |
|------------------|-----------|----------|-----------------------------------|--------------------|------------|-------------------|-------------------|
| Inswinger        | 104       | 3 (2.9%) | 3 (2.9%)                          | 12 (11.5%)         | 30 (28.8%) | 7 (6.7%)          | 49 (47.1%)        |
| Outswinger       | 23        | 0 (0%)   | 1 (4.3%)                          | 1 (4.3%)           | 1 (4.3%)   | 3 (13.0%)         | 17 (73.9%)        |
| Clipped          | 3         | 0 (0%)   | 0 (0%)                            | 1 (33.3%)          | 0 (0%)     | 0 (0%)            | 2 (66.7%)         |
| Driven           | 0         | 0 (0%)   | 0 (0%)                            | 0 (0%)             | 0 (0%)     | 0 (0%)            | 0 (0%)            |

Table 5. Type of delivery and corner kick outcomes within the critical area (CA1-CA4)

| Type of delivery | Frequency | Goal     | Attempt on target excluding goals | Attempt off target | GK action | Attacking outcome | Defending outcome |
|------------------|-----------|----------|-----------------------------------|--------------------|-----------|-------------------|-------------------|
| Inswinger        | 68        | 4 (5.9%) | 2 (2.9%)                          | 11 (16.2%)         | 6 (8.8%)  | 1 (1.5%)          | 44 (64.7%)        |
| Outswinger       | 101       | 1 (1.0%) | 4 (4.0%)                          | 24 (23.8%)         | 0 (0%)    | 6 (5.9%)          | 66 (65.3%)        |
| Clipped          | 27        | 1 (3.7%) | 0 (0%)                            | 4 (14.8%)          | 3 (11.1%) | 3 (11.1%)         | 16 (59.3%)        |
| Driven           | 2         | 0 (0%)   | 0 (0%)                            | 1 (50.0%)          | 0 (0%)    | 0 (0%)            | 1 (50.0%)         |

and the number of defending outcomes within the critical area ( $\chi^2=35$ ,  $p=.839$ ). The highest percentage of defending outcomes from the first contact within the critical area was recorded for the outswinging deliveries (65.3%), followed by the inswinging deliveries (64.7%), clipped deliveries (59.3%), and driven deliveries (50.0%) (Table 5).

## Discussion and conclusions

The purpose of this study was to investigate long corner kicks within the English Premier League that entered either the goal area or the critical area with the defining outcome occurring immediately after the first contact. There were nine goals scored from the first contact of 328 corner kicks (2.7%) when the ball was delivered into either the goal area or the critical area. There were six goals scored from the critical area (four goals from CA2 and two goals from CA1). It should be noted that no goals were scored from CA3 and CA4. Taylor et al. (2005) identified the critical area as being 6 yards deep and of the width of the goal area (6-12 yards from the goal-line). The authors stated this was the critical area due to a high number of corner kicks delivered within this area and the high frequency of first contacts by an attacking player. The current study would support the finding that a high frequency of corner kicks are delivered into this area. The results of the current study would also suggest that this area is critical for scoring from long corner kicks from the first contact, particularly from the central area 6-9 yards from the goal-line (CA2) and the near post area 6-12 yards from the goal-line (CA1). It is important to state that corners delivered into the area 9-12 yards from goal and within the

width of the goalposts (CA3) are unlikely to lead to a goal scored from the first contact. From this area it could potentially be difficult for an attacking player to generate enough velocity on an attempt to lead to a goal and, secondly, the attackers are under high defensive pressure (Hughes, 1996). There were three goals scored from the first contact within the goal area, two of these were within the central area of the goal area 0-6 yards from the goal-line and the width of the goalposts (GA2). The remaining goal was scored from the back post area of the goal area 0-6 yards away the goal-line. No goals were scored from the near post area from the first contact probably due to a high number of defensive players positioned within this space (Wilkinson, 1996).

There was a significant association between the area the ball was delivered to and the number of attempts at goal ( $\chi^2_5=12.91$ ,  $p=.024$ ) (please, note that corner kicks from GA3 were not used for statistical analyses). The highest percentage of attempts at goal from the first contact (58.3%) was recorded for GA3 where there were seven attempts out of 12 corner kicks; however, a small sample of corner kicks should be noted for this area. The next highest percentage of attempts at goal was recorded for CA3 (33.3%), followed by CA4 (30.4%) and then CA2 (26.75). This suggests that the critical area is a key area for the attacking team to get attempts at goal, thus supporting previous research findings by Taylor et al. (2005). The lowest percentage of attempts at goal was from GA2 (9.5%). It is not surprising that GA2 has a low percentage of attempts at goal as this area is directly in front of the goal and the defending team is likely to position defensive players within this area (Wilkinson, 1996). The goalkeeper is

also positioned within this area (Welsh, 1999) and a much higher percentage of catches and punches were performed by goalkeepers in this area compared to any of the other areas (47.6% of corner kicks delivered into this area). However, it should be noted that two goals were scored from this area from the first contact. The implication of this is dependent on what coaches consider a successful corner kick to be – either an attempt at goal or a goal being scored. Their interpretation of success from a corner kick could lead to different conclusions being drawn from the corner kicks observed.

There was a significant association between the area the ball was delivered to and the defending outcomes ( $\chi^2_5=23.95$ ,  $p=.001$ ). The highest percentages of defending outcomes were recorded for CA1 (79.6%) and GA1 (72.7%). This suggests that teams are keen to defend the area in front of the near post 0-12 yards from the goal-line, which supports defensive tactical approaches that have been discussed in football coaching literature (Hughes, 1996; Wilkinson, 1996; Welsh, 1999). Future research could investigate the interactions of defenders and attackers in this area and how these interactions influence the outcome of a corner kick. Exploring player-player interactions could be a crucial area of investigation to gain a greater understanding of game behaviour (McGarry, 2009).

There were three goals scored from the first contact within the goal area and all these goals were from the inswinging deliveries. Goalkeeper actions within the goal area were most commonly observed after the inswinging delivery and this was expected as the ball was swerving towards the goal where the goalkeeper was positioned (Welsh, 1999). The highest percentage of defending outcomes (73.9%) from the first contact within the goal area was recorded for the outswinging deliveries. It may be easier for defensive players to clear an outswinger out of the penalty box compared to the other delivery types as the ball is already travelling away from goal (Edward, 2003); therefore, even a slight touch from a defensive player could help to remove the ball from the penalty area.

There were six goals scored from the first contact within the critical area, four of these goals were from the inswinging delivery (5.9% of total inswinging deliveries into the critical area), whilst one goal was scored from an outswinger (1.0%) and one goal from a clipped delivery (3.7%). The results suggest that attacking teams are more likely to score from the first contact within the critical area when the delivery type is an inswinger. The percentage of attempts at goal from the first contact within the critical area from the outswinging deliveries was 28.7%, whilst for the inswinging deliveries it was 25.0% and for the clipped deliveries it was 18.5%. There was no significant association between the type of delivery and the number of attempts

at goal from the first contact within the critical area ( $\chi^2_2=1.21$ ,  $p=.547$ ). The results of the current study are lower than those reported by Taylor et al. (2005) who found that 55% of the outswinging deliveries into the critical area led to an attempt at goal, whilst it was 30% for the inswinging deliveries. The results are also lower than those found by Page and Robins (2012) who stated that inswinging and outswinging deliveries produced a 35% chance of an attempt at goal if delivered into the critical area. The attempts at goal percentage may be lower for the current study as this study only explored the attempts at goal from the first contact; it could be that the percentage of attempts at goal might have been higher if subsequent contacts following the first contact were taken into consideration. It may also be that teams are now better at defending corner kicks and preventing teams from having attempts at target.

The highest percentage of defending outcomes from first contact within the critical area was recorded for the outswinging deliveries (65.3%), followed by the inswinging deliveries (64.7%) and clipped deliveries (59.3%). There was no significant association between the type of delivery and the defending outcomes within the critical area ( $\chi^2_2=.35$ ,  $p=.839$ ). The results suggest that delivery type has little influence on the defending outcomes from the first contact within the critical area.

One limitation of this study, as mentioned previously, was the small sample of long corner kicks that were placed into GA3 and those that applied the driven delivery. For future studies, it would be more appropriate to sample a larger number of corner kicks that were delivered into GA3 and a larger sample of corner kicks that used the driven delivery, as this would help to generate a representative profile of performance (Hughes, Evans, & Wells, 2001). A further limitation of this study was the size of areas used for CA1 and CA4. It may have been better to have divided these areas into two sections (6-9 yards from the goal-line and 9 to 12 yards from the goal-line), as this type of division for CA2 and CA3 revealed an interesting insight into goals scored from long corner kicks. For future studies exploring the critical area it would be advisable to divide this area into six sections. A further area to explore would be the impact of match status (winning, drawing or losing), match location (home or away) and quality of opposition on the outcomes of corner kicks, as these factors have influenced other aspects of soccer performance (see Mackenzie & Cushion, 2013).

In conclusion, the purpose of this study was to investigate long corner kicks within the English Premier League that entered either the goal area or the critical area with the defining outcome occurring after the first contact. When the goal area and critical area were divided into smaller areas, it



was evident that the area the ball was delivered to could influence the number of attempts at goal and the number of defending outcomes. However, the type of delivery used to place the ball into the goal area or critical area does not impact significantly the number of attempts at goal or the number of defending outcomes. It appears as though the area

of delivery is more important than type of delivery for achieving attempts at goal from long corner kicks; however, out of the nine goals observed within this study, seven came from the inswinging delivery. It is important for coaches to reflect on what is a successful corner kick from an attacking perspective.

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