Evolution of Match Performance Parameters for Various Playing Positions in the English Premier League

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Abstract

This study aimed to investigate position-specific evolution of physical and technical performance parameters in the English Premier League (EPL). Match performance observations (*n*=14700) were collected using a multiple-camera computerised tracking system across seven seasons (2006-07 to 2012-13). Data were analysed relative to five playing positions: central defenders (*n*=3792), full backs (*n*=3420), central midfielders (*n*=3200), wide midfielders (*n*=2136) and attackers (*n*=2152). High-intensity running distance increased in the final season versus the first season in all playing positions ($p<0.05$, ES: 0.9-1.3) with full backs displaying the greatest increase (~36% higher in 2012-13). Similar trends were observed for sprint distance with full backs demonstrating the most pronounced increase across the seven seasons (36-63%, $p<0.001$, ES: 0.8-1.3). Central players (central defenders and midfielders) illustrated the most pronounced increases in total passes and pass success rate ($p<0.05$, ES: 0.7-0.9) whilst wide players (full backs and wide midfielders) demonstrated only small-moderate increases in total passes and pass success rate ($p<0.05$, ES: 0.6-0.8). The data demonstrates that evolving tactics in the EPL have impacted on the physical demands of wide players and the technical requirements of central players. These findings could be used for talent identification or position-specific physical and technical training.

Keywords: Longitudinal, football, positional, passing, sprinting

1. Introduction

Soccer match-play is characterised by its sporadic nature whereby multidirectional physical actions are integrated with an array of technical skills (Bradley et al., 2009; Wallace & Norton, 2014). Semi-automated computerised tracking systems have been used to identify the physical and technical requirements of elite soccer match-play and how these are influenced by positional, contextual and tactical factors (Bradley et al., 2011; Carling, Williams, & Reilly, 2005; Di Salvo et al., 2007; Lago, Casais, Dominguez, & Sampaio, 2010; Lago, 2009; Lago-Ballesteros, Lago-Peñas, & Rey, 2012). Relative to the overall distance covered by players, ~7-12% is covered at high-intensity and 1-4% whilst sprinting (Bradley et al., 2009; Di Salvo et al., 2010). Although team success is complex and multifactorial, technical indicators have been found to predict team success more accurately than physical indicators (Carling, 2013; Castellano, Casamichana, & Lago, 2012). More specifically, ball possession, number of shots, shots on target, number of passes and pass completion rates are all associated with team success (Castellano et al., 2012; Collet, 2013; Hughes & Franks, 2005; Lago-Ballesteros et al., 2012; Lago-Peñas & Lago-Ballesteros, 2011). Although physical performances are not associated with success, they impact technical proficiency (Rampinini et al., 2008), thus should not be disregarded as contributors to overall performance. Nevertheless, researchers often adopt a reductionist approach, analysing either physical or technical indicators in isolation across short time periods (Mackenzie & Cushion, 2013). Although physical and technical indicators can be seen as individual aspects of match-play, success is a culmination of suitable tactics completed with the appropriate level of physical and technical performance, analysing each in isolation restricts the context, understanding and application of the findings. Therefore, more research should adopt an integrated approach, analysing physical, technical and/or tactical indicators of various playing positions longitudinally in order to understand the overall development of soccer match-play.

Our research group identified high-intensity running and sprint distances have increased by 30-50% in the English Premier League (EPL), while the overall number of passes have increased by 40% across seven seasons (Barnes, Archer, Hogg, Bush, & Bradley, 2014). These longitudinal changes in the EPL mirrored those measured over a 44 year period in FIFA World Cup Final matches (Wallace & Norton, 2014). Nevertheless, previous studies failed to account for positional evolutionary trends (Bradley et al., 2009; Di Salvo et al., 2007, 2010; Gregson, Drust, Atkinson, & Di Salvo, 2010). Central midfielders have consistently been found to cover the greatest total distance whilst full backs, central midfielders and wide midfielders run greater distances at high-intensities (Barros et al., 2007; Bradley et al., 2009; Di Salvo et al., 2007; Di Salvo, Gregson, Atkinson, Tordoff, & Drust, 2009). Various reasons have been proposed as to why these positional differences in locomotive patterns exist. Research demonstrates that positional differences in maximal oxygen uptake (VO_{2max}) are evident for soccer players, with central midfielders and full backs displaying the highest values (Reilly, Bangsbo, & Franks, 2000), whist others found no differences (Haugen, Tønnessen, Hem, Leirstein, & Seiler, 2014). Nevertheless, central midfielders and full backs consistently have the greatest physical capacities when assessed using intermittent running tests (Mohr, Krustrup, & Bangsbo, 2003; Reilly et al., 2000). Additionally, central midfielders and full backs perform and complete more passes compared to other positions (Redwood-Brown, Bussell, & Bharaj, 2012; Taylor, Mellalieu, & James, 2004). Given the evolutionary changes highlighted previously in elite soccer match-play (Barnes et al., 2014; Wallace & Norton, 2014), it would be of interest to track longitudinal positional changes to gain insight into physical and technical requirements of modern players. Thus, this study aimed to investigate the position-specific evolution of physical and technical parameters in the EPL using one of the largest controlled samples published to date.

2. Materials and Methods

2.1 Match Analysis and Player Data

Match performance data were collected from seven consecutive EPL seasons (2006-07 to 2012-13) using a computerised multiple-camera tracking system (Prozone Sports Ltd®, Leeds, UK). Players' movements were captured during matches by cameras positioned at roof level and analysed using proprietary software to produce a dataset on each player's physical and technical performance. The validity and reliability of this tracking system has been quantified to verify the capture process and data accuracy (Bradley et al., 2009; Bradley, O'Donoghue, Wooster, & Tordoff, 2007; Di Salvo, Collins, McNeill, & Cardinale, 2006; Di Salvo et al., 2009). Ethical approval was obtained from the University of Sunderland with Prozone Sports Ltd® supplying the data and granting permission to publish.

Data were derived from Prozone's Trend Software and consisted of 1036 individual players across 22846 observations. Original data files were de-sensitised and included 33 different teams overall with all 20 teams evaluated in each season. Individual match data were only included for outfield players that had completed the entire 90 min, matches were excluded if a player dismissal occurred (Carling & Dupont, 2011). The total number of observations were substantially different across season (2006-07 to 2012-13), phase of season (Aug-Nov, Dec-Feb, Mar-May), position, location (Home and Away) and team standard based on final league ranking (A: 1^{st}-4^{th}, B: 5^{th}-8^{th}, C: 9^{th}-14^{th}, D: 15^{th}-20^{th}). The original data were re-sampled using a stratification algorithm in order to balance the number of samples in each of these factors thus minimising errors when applying statistical tests. Re-sampling was achieved using the stratified function in the R package "devtools" (R Development Core Team) using the procedures of Wickham & Chang (2013), the complete breakdown of the sample is shown in Barnes et al. (2014). Positions were categorised as central defenders

(*n*=3792), full backs (*n*=3420), central midfielders (*n*=3200), wide midfielders (*n*=2136) and attackers (*n*=2152).

2.2 Match Performance Parameters

Activities were coded into: standing (0-0.6 km·h^{-1}), walking (0.7-7.1 km·h^{-1}), jogging (7.2-14.3 km·h^{-1}), running (14.4-19.7 km·h^{-1}), high-speed running (19.8-25.1 km·h^{-1}) and sprinting (>25.1 km·h^{-1}). Total distance represented the summation of distances in all categories. High-intensity running consisted of the combined distance in high-speed running and sprinting (≥19.8 km·h^{-1}) and was separated into three subsets based on the teams' possession status: with (WP) or without ball possession (WOP) and when the ball was out of play (BOP). Sprinting was divided into two subsets: explosive (entry into sprint category with no incursion into the high-speed category in the previous 0.5 s) and leading sprints (entry into sprint category immediately after an incursion into the high-speed category for 0.5 s or more; Di Salvo et al., 2010). Coding of technical events according to playing position was also conducted (Di Salvo et al., 2007). All positions included match events of passing variables (number of passes, passes received, pass distance and pass success) and possession won/lost. Pass distance referred to the overall length of pass, split into short (<10 m), medium (11-24 m) and long (>25 m).

2.3. Statistical Analysis

One-way independent-measures analysis of variance tests were used to compare each season with Dunnet's *post hoc* tests used to verify localised differences. Statistical significance was set at $p<0.05$. The effect size (ES) was calculated to determine the meaningfulness of the difference with magnitudes classified as trivial (<0.2), small (>0.2-0.6), moderate (>0.6-1.2) and large (>1.2-2.0), (Batterham & Hopkins, 2006). All analyses were conducted using

statistical software (R Development Core Team) and data visualisation was carried out using the “ggplot2” package accessed via the Deducer Interface for the R statistical programming language.

3. Results

3.1. Physical Parameters

Total distance covered during matches showed small changes between 2006-07 and 2012-13 seasons, increasing for central midfielders and defenders only (Fig. 1A; ~200-300 m, $p<0.05$, ES: 0.3 and 0.5 respectively). Full backs showed the greatest change in high-intensity running distance (Fig. 1B; 35% increase, $p<0.001$, ES: 1.3), nevertheless all positions demonstrated moderate increases in high-intensity running distance over the seven seasons (central defenders: 33%; wide midfielders: 27%; central midfielders: 30%; attackers: 24%, $p<0.05$, ES: 1.1, 1.1, 1.0 and 0.9).

Central defenders, full backs and wide midfielders demonstrated moderate increases in high-intensity running distance covered WP (central defenders: 114±61 vs. 193±86 m, $p<0.001$, ES: 1.1; full backs: 355±159 vs. 503±181 m, $p<0.001$, ES: 0.9; wide midfielders: 591±178 vs. 710±171 m, $p<0.01$, ES: 0.8). In contrast, central midfielders and attackers showed small increases ($p<0.05$, ES: 0.5 and 0.6). All positions showed moderate increases in high-intensity distance covered WOP between 2006-07 and 2012-13 seasons, central defenders increased from 438±120 to 533±138 m ($p<0.001$, ES: 0.7), full backs increased from 498±133 to 657±150 m ($p<0.001$, ES: 1.1), central midfielders increased from 519±166 to 697±213 m ($p<0.001$, ES: 0.9), wide midfielders increased from 480±168 to 624±200 m ($p<0.001$, ES: 0.8) and attackers increased from 278±124 to 386±148 m ($p<0.05$, ES: 0.8).

Sprint distances covered by full backs (62%, ES: 1.3) showed a greater increase compared to wide midfielders (53%, ES: 1.3), central positions (~53%, ES: 1.1) and attackers

(Fig. 1C; 36%, ES: 0.8). The number of high-intensity runs and sprints performed increased for each position between 2006-07 and 2012-13 (Fig. 2A and 2B; ES: 0.8-1.3, 1.6-2.0, respectively). For both parameters, attackers exhibited the smallest increases whereas wide positions exhibited the greatest.

The number of explosive sprints increased by very large magnitudes ($p<0.001$) for all positions (central defenders: 7±5 vs. 19±8, ES: 1.8; full backs: 11±6 vs. 28±10, ES: 2.1; central midfielders: 11±7 vs. 29±10, ES: 2.1; wide midfielders: 14±7 vs. 33±11, ES: 2.1; attackers: 12±6 vs. 27±9, ES: 2.0). Leading sprints showed moderate-large increases for all positions (central defenders: 13±5 vs. 20±7, full backs: 22±8 vs. 35±10, central midfielders: 20±9 vs. 30±10, wide midfielders: 27±9 vs. 41±11, $p<0.001$), whereas attackers showed the smallest increase ($p<0.01$) from 23±9 to 32±11 (ES: 1.2, 1.4, 1.1, 1.4 and 0.9, respectively).

3.2. Technical Parameters

Moderate-large magnitude increases were observed for central players (central defenders and midfielders) in the total number of passes performed between 2006-07 and 2012-13 compared to wide players (full backs and wide midfielders) and attackers who showed small increases (Fig. 3). Central defenders increased the number of passes by ~70%, central midfielders increased ~50% ($p<0.001$, ES: 0.9). Full backs, wide midfielders and attackers showed similar increases (~25%) in the number of passes over the seven seasons ($p<0.001$, ES: 0.5). Although wide players showed small increases in the number of passes over the seven seasons, similar increases in the pass success rate compared to central players were observed (all positions increased by ~7%, $p<0.01$, ES: 0.7-0.9). No differences were identified for the pass success rate for attackers ($p>0.05$, ES: 0.3).

Central midfielders and full backs performed 4 more short distance passes between 2006-07 and 2012-13 ($p<0.001$, ES: 0.9). Central defenders and wide midfielders also

showed small-moderate increases in the number of short distance passes (central defenders: 2.6±2.5 vs. 4.5±3.3; wide midfielders: 8.6±4.5 vs. 12±6.5, $p<0.05$, ES: 0.6). Central midfielders performed 10 more medium distance passes in 2012-13 compared to 2006-07 ($p<0.001$, ES: 0.9), whilst central defenders performed 8 more medium distance passes ($p<0.001$, ES: 0.8) and full backs performed 5 more medium distance passes in 2012-13 ($p<0.001$, ES: 0.6). Central defenders performed more long distance passes in 2012-13 ($p<0.001$, ES: 0.6), whereas full backs and wide midfielders performed fewer long distance passes over the seven seasons ($p<0.05$, ES: 0.4). Attackers showed trivial-small changes in the number of short, medium and long distance passes performed over the seven seasons ($p>0.05$, ES: 0.6, 0.5 and 0.04, respectively).

All positions showed a decrease in the number of possessions lost between 2006-07 and 2012-13 (central defenders: 20±6 vs. 16±6, $p<0.001$, ES: 0.6; full backs: 23±7 vs. 20±7, $p<0.001$, ES: 0.4; central midfielders: 21±6 vs. 19±6, $p<0.05$, ES: 0.4; wide midfielders: 26±6 vs. 22±6, $p<0.05$, ES: 0.7; attackers: 23±7 vs. 21±6, $p<0.05$, ES: 0.5). Small decreases in the number of final third entries were identified for full backs and wide midfielders between 2006-07 and 2012-13 (9±5 vs. 7±4, $p<0.001$, ES: 0.5; 5±3 vs. 4±3, $p<0.05$, ES: 0.3, respectively). No changes were evident for any position for the number of tackles or tackled events over the seven seasons.

4. Discussion

This study investigated the position-specific evolution of physical and technical parameters in the EPL. Previous large-scale studies have not controlled for seasonal, tactical and contextual factors (Di Salvo, Pigozzi, González-Haro, Laughlin, & De Witt, 2013; Gregson et al., 2010). These factors have been found to influence the physical and technical performances of elite players and thus should be accounted for in the study design (Bradley et al., 2009; Castellano

et al., 2012; Di Salvo et al., 2009; Lago et al., 2010). This study is the first to re-sample data using a randomised stratification algorithm to account for these factors. Thus, this analytical approach will allow more appropriate generalisations to be made regarding the longitudinal performance characteristics of various playing positions.

Our research group recently reported that total distance covered in EPL matches had increased by ~2% across seven seasons (Barnes et al., 2014), although position-specific trends were not reported. The current study identified an increase in total distance covered for central players only (central defenders and midfielders), with wide players (full backs and wide midfielders) and attackers demonstrating negligible changes. These observed changes were, however, within the inherent match-to-match variability for total distance covered by all positions in the EPL (Gregson et al., 2010) and as such should be treated with care. It has been reported that the distance covered at high-intensity seems a superior, more sensitive indicator of performance than total distance covered as it correlates strongly with physical capacity (Bradley et al., 2011; Krustrup, Mohr, Ellingsgaard, & Bangsbo, 2005) and is a distinguishing variable between competitive standard and gender (Andersson, Randers, Heiner-Møller, Krustrup, & Mohr, 2010; Bradley et al., 2013; Mohr, Krustrup, Andersson, Kirkendal, & Bangsbo, 2008; Mohr et al., 2003). Our findings revealed pronounced increases for high-intensity running distance for all positions (24-36%), the magnitude of these changes were greater than the inherent match-to-match variability previously reported for this variable (Gregson et al., 2010). This could suggest that the elevation in high-intensity running over the seven seasons is due to evolving game patterns as opposed to natural variability.

The present findings suggest that the physical requirements of modern soccer match-play, particularly for high-intensity running, have evolved more for defenders (central defenders and full backs) and central midfielders (30-36%) than for attacking players (wide midfielders and attackers, 24-27%). This trend in physical performance could potentially be

attributed to improvements in the players' physical capacity through enhanced physical preparation, or via an influx of players into the EPL with innately higher levels of physical fitness. Evidence would suggest VO_{2max} of elite players has stayed relatively stable over the last two decades (Tønnessen, Hem, Leirstein, Haugen, & Seiler, 2013) although this may not be the most appropriate measure of physical capacity in elite team sports, with intermittent exercise capacity identified as a more sensitive measure than VO_{2max} (Iaia, Rampinini, & Bangsbo, 2009; Krustrup & Bangsbo, 2001). Data from our laboratory indicates that the average distance covered by elite soccer players during the Yo-Yo Intermittent Endurance Level 2 Test has increased minimally (Bradley et al., 2011, 2013) in contrast to the substantial increases in high-intensity running distances in EPL matches across a similar time period (Barnes et al., 2014). Thus, if the physical capacity of EPL players has remained stable across this time then these findings could be the result of players working at a higher proportion of their physical capacity in games. In support of this notion, Bradley et al. (2013) reported no differences in the intermittent exercise capacity of players in the top three tiers of the English game but found that lower tier players covered more distance at high-intensity in matches compared with top tier players.

Overall sprint distances increased by ~50% between 2006-07 and 2012-13, however when analysed by position interesting differences were observed. The greatest increases in sprint distances were observed in full backs (63%), followed by central defenders, central midfielders and wide midfielders (all 54%) and attackers (36%). In 2012-13, players in wide (full backs and wide midfielders) and attacking positions covered a higher percentage of total distance by sprinting (3.5-4.2%) than central defenders or midfielders (2.3-2.9%). These findings have implications in terms of the physical preparation of players. This could be achieved through individual drills for each position or ideally during drills that simulate intense periods of match-play were all positions are working in tandem whereby tactical and

technical aspects are merged with the unique physical demands of each position (e.g. full backs sprint whilst creating overlaps with wide midfielders followed by recovery runs).

The observed changes in the physical performance in the EPL may possibly be driven by changes in tactics and playing systems. For example, when in possession, modern tactics often require wide midfielders to play in more central positions attracting defenders inside and creating space for full backs to move into, thus introducing more players into attacking positions (Bangsbo & Peitersen, 2004; Tipping, 2007). When possession is lost, players must quickly recover from attacking positions into defensive areas, increasing the number of defensive players behind the ball and therefore reducing the space for attacking play (Bangsbo & Peitersen, 2002; Wallace & Norton, 2014). These tactical changes support the finding that full backs demonstrated the most pronounced increases in high-intensity running and sprinting across the seven seasons. This tactical change has arisen from changes in the traditional rigid playing systems (4-4-2, 4-3-3 and 4-5-1) to more dynamic contemporary systems (4-2-3-1, 4-1-4-1). Although is it difficult to discuss the impact of playing formations on physical performance as limited studies exist, the increasing popularity of the compact 4-2-3-1 system in the EPL could be one potential reason why full backs now cover more high-intensity and sprinting distances, but more research needs to be undertaken to verify this.

Previous research has reported that the absolute number of explosive and leading sprints is dependent on playing position (Di Salvo et al., 2009). Across the timeframe of this study, all positions in this study showed increases in the number of leading (39-59%) and explosive sprints (125-171%). For both types of sprints, attackers showed the smallest relative change whilst full backs and central defenders demonstrated the greatest. Although differences were observed in the absolute number of leading and explosive sprints completed, the proportions of explosive sprints are comparable amongst all positions (44-49%). The increase in the number and proportion of sprints in match-play has been proposed as one

causative factor for increased injury rates, in particular groin and hamstring strains (Ekstrand, Hägglund, & Waldén, 2011). Research has highlighted an injury rate of 26 per 1000 hours of match play in 2011-12, lower than the 30 injuries per 1000 hours observed in 2006-07 (Ekstrand, Hägglund, Kristenson, Magnusson, & Waldén, 2013). Nevertheless these results were based on a small sample across European leagues, and not purely on the EPL, in order to understand the effects of sprint and high-intensity evolution on injury rates a contemporary injury analysis is required for the EPL. The aetiology of muscle injuries in soccer is complex, however there is currently widespread use of preventative programmes to reduce injury risk (Daly, 2013; Opar, Williams, & Shield, 2012). The absolute numbers of leading and explosive sprints as well as the distance covered at high-intensity and maximal speeds in 2012-13 were greater than previous studies conducted on players competing in the UEFA Champions League, Spanish La Liga and EPL (Bradley et al., 2009; Di Salvo et al., 2007; Lago et al., 2010), therefore supporting the general perception that the EPL has evolved into one of the most physically demanding leagues in soccer.

Soccer is based on a combination of physical, technical and tactical aspects of match play. Although the physical and tactical aspects are central to performance (Bradley et al., 2013; Lago-Ballesteros et al., 2012), a teams technical ability has been identified as the best indicator of success (Castellano et al., 2012; Collet, 2013; Rampinini, Impellizzeri, Castagna, Coutts, & Wisløff, 2009). The number of passes performed in World Cup final matches has been shown to have increased by ~40% over four decades (Wallace & Norton, 2014), a similar increase to that observed over a seven year period in the EPL (Barnes et al., 2014). When broken down by position, the present data set illustrates that the number of passes performed increased by a greater extent for central defenders (~66%) and central midfielders (44%), compared to full backs, wide midfielders and attackers (all ~25%). This increase in the number of passes is comprised primarily from increased short and medium distance

passes (30-72%), whilst there was no increase in the number of long distance passes across all positions. Previous research has identified an increase in passing tempo across a longitudinal period (Wallace & Norton, 2014). Although this study did not directly analyse the number of passes per minute, the observed increase in passes over the course of a match, coupled with previous findings demonstrating increases in match stoppage time (Wallace & Norton, 2014) would suggest an increase in passing tempo. The greater relative increases in the number of passes by central players may be as a result of modifications to positional duties. Previously, central defenders were used purely in a defensive role, and although this primary duty is unchanged (no differences in the number of tackles and interceptions), their offensive contribution has evolved. The increase in the number of passes could indicate an evolution of positional tactics, with many teams now focussing on possession based strategies (notion supported by the reduction in the number of possessions won and lost over the seven seasons), awaiting opportunities to exploit gaps in the oppositions defence. Teams use short to medium distance passes to increase the likelihood of pass success, essential for maintaining possession in areas of increased player density whilst still attempting to find weakness in the opposition defence (Bangsbo & Peitersen, 2004; Tipping, 2007). As a consequence, central defenders, provide extra passing options when in possession (Bangsbo & Peitersen, 2004; Tipping, 2007). This is further supported by recent findings by Prozone (2014) who noted an increase in the number of passes per shot since 2006-07, suggesting more patient build up play by teams, probing the opposition defence before finding weaknesses which may lead to a shot on goal. Further evidence can be seen in the number of passes received with central defenders (109%) and central midfielders (70%) showing greater increases than other positions. The technical findings of this study have implications for player recruitment, it is now important to identify players who are able to fit the system and style of play of the recruiting club. Thus, possession based teams need to search for central

defenders who are not only accomplished defenders but also comfortable on the ball with excellent passing ability.

5. Conclusions

This study demonstrates that players in wide and attacking positions have increased the distance covered at high-intensity and sprinting to a greater extent than central defenders and central midfielders between 2006-07 and 2012-13. In contrast, central players were found to have increased the number of passes and pass completion rates over the same period. These evolutionary trends could be attributed to tactical modifications. These findings provide benchmark requirements of modern EPL players in each position and can therefore assist in player recruitment and development of position-specific training.

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Figure Legends:

Fig. 1: Plots for distances covered in (A) total, (B) high-intensity running and (C) sprinting across seven seasons of the EPL. Each plot is split to represent each of the five positions analysed. Data represent mean and standard deviations.

Fig. 2: Plots for number of (A) high-intensity actions, (B) sprints across seven seasons of the EPL. Each plot is split to represent each of the five positions analysed. Data represent mean and standard deviations.

Fig. 3: Two-dimensional kernel density plots representing the number of passes and the pass success rate of central (central defenders and central midfielders) and wide players in the EPL (full backs and wide midfielders). The plot displays a similar number of passes performed by wide players, while central players increase the number of passes over the seven seasons (plot width). Nevertheless both wide and central players increased the success rate of passes (plot length).

Fig. 1A:

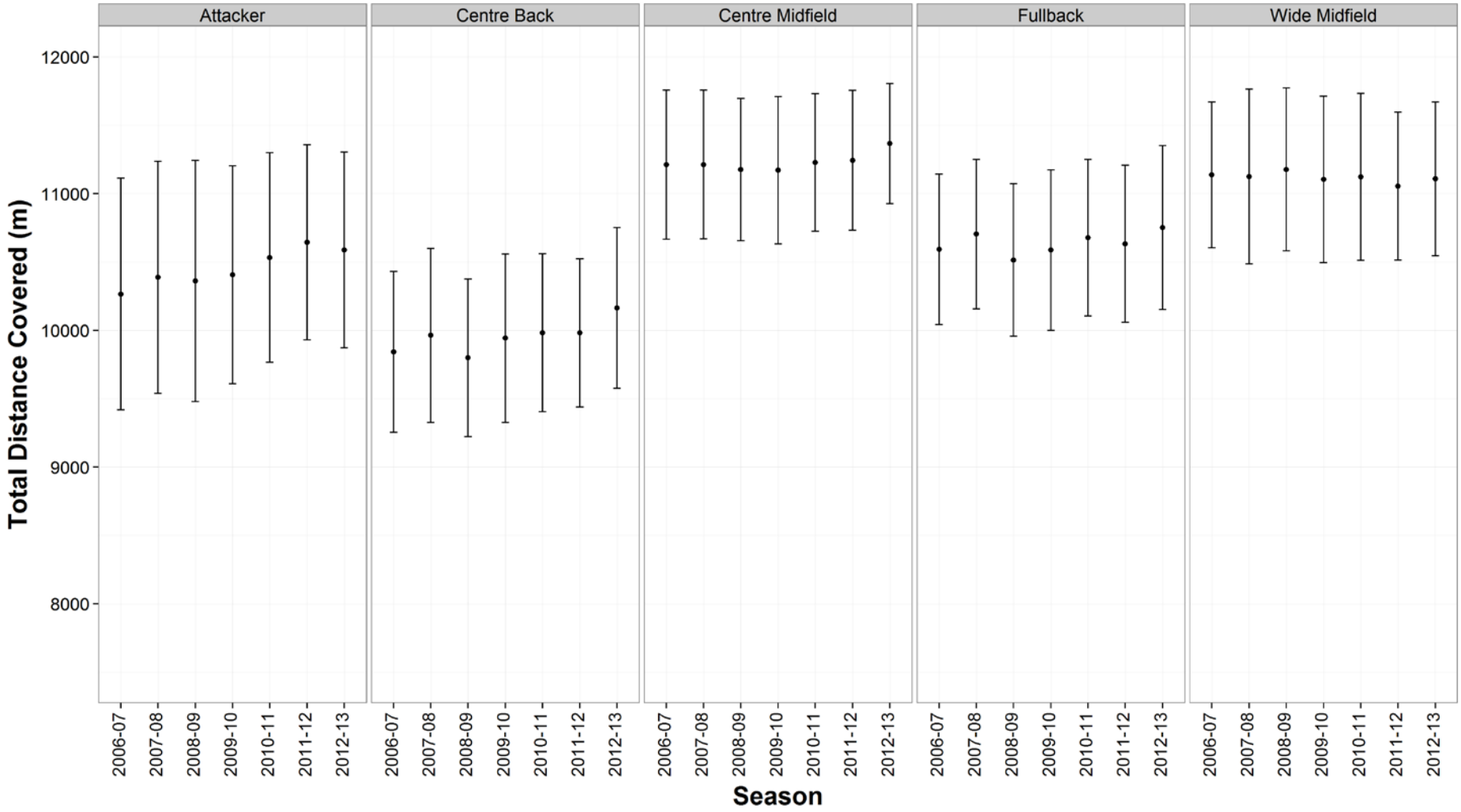

Attacker
Centre Back
Centre Midfield
Fullback
Wide Midfield
Total Distance Covered (m)
12000
11000
10000
9000
8000
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Season

Fig. 1B:

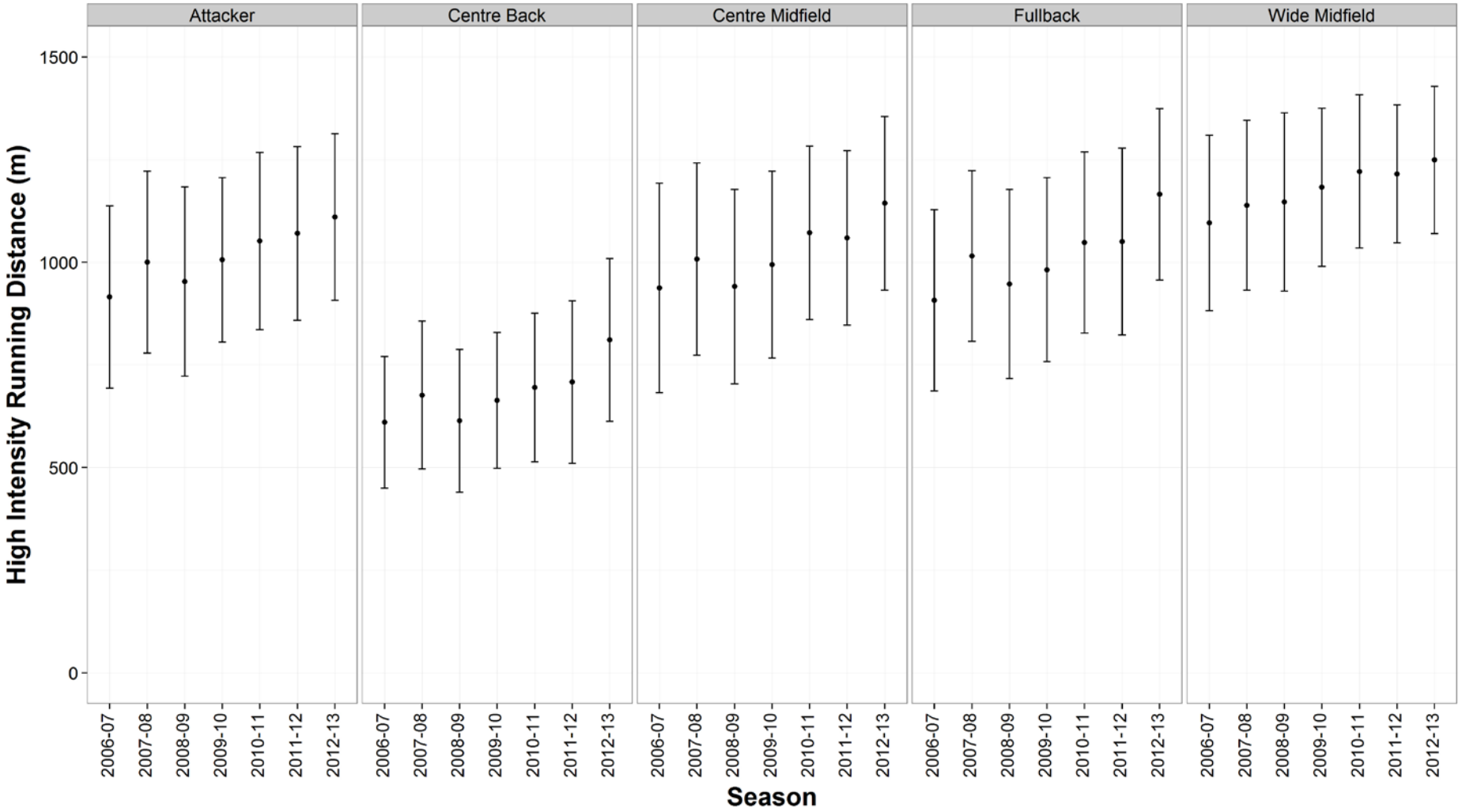

Attacker
Centre Back
Centre Midfield
Fullback
Wide Midfield
High Intensity Running Distance (m)
1500
1000
500
0
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Season

Fig. 1C:

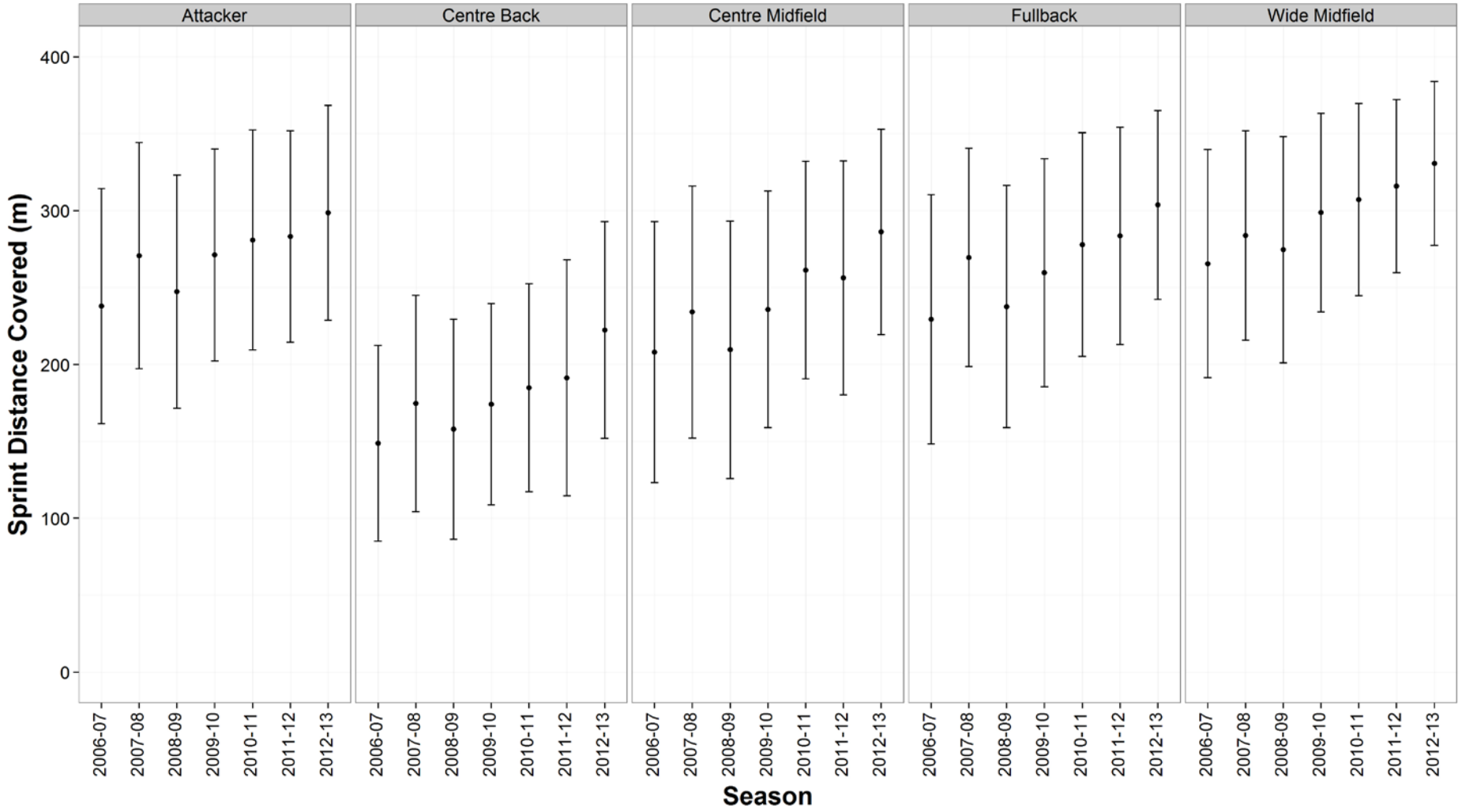

Attacker
Centre Back
Centre Midfield
Fullback
Wide Midfield
Sprint Distance Covered (m)
400
300
200
100
0
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Season

Fig. 2A:

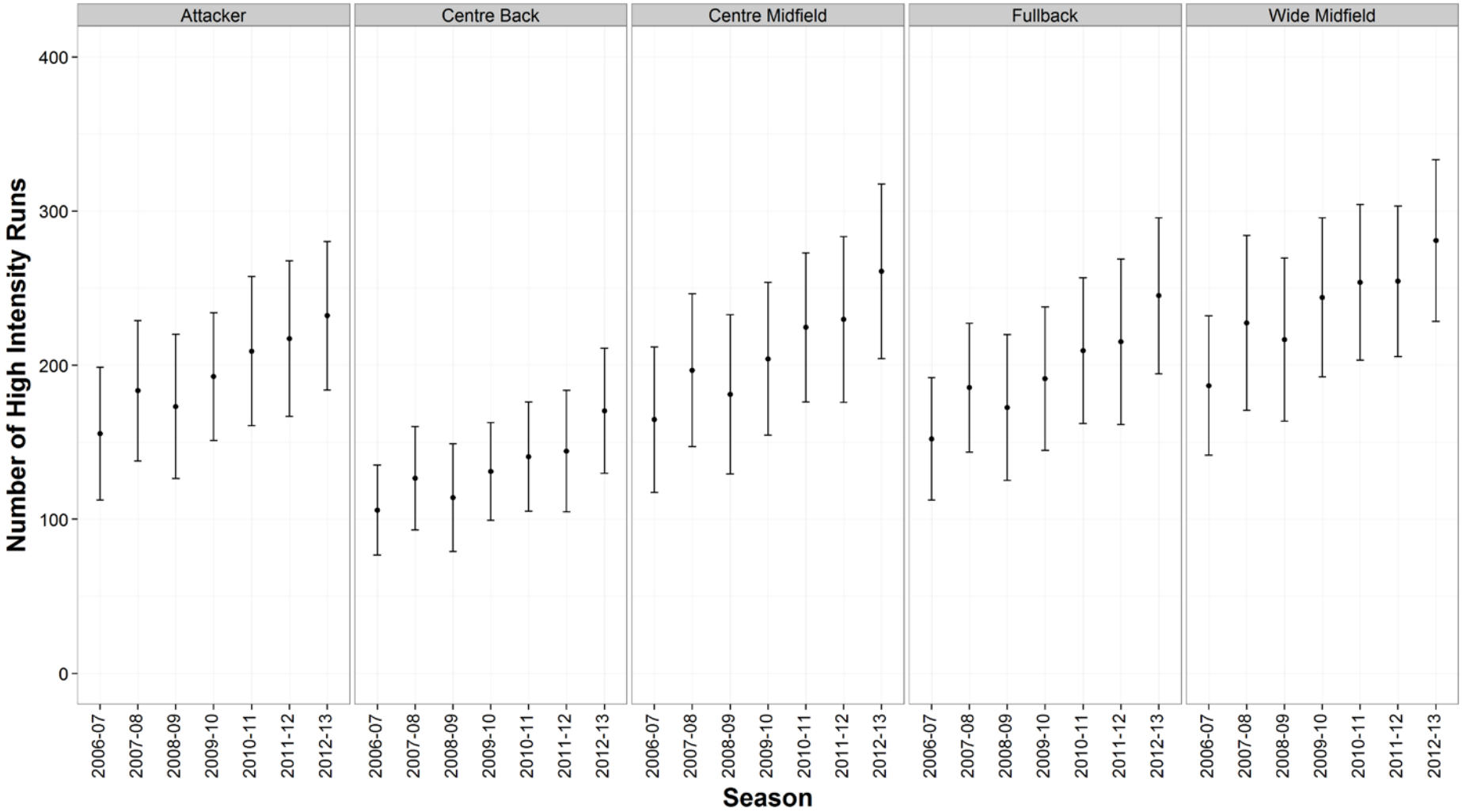

Attacker
Centre Back
Centre Midfield
Fullback
Wide Midfield
Number of High Intensity Runs
400
300
200
100
0
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Season

Fig. 2B:

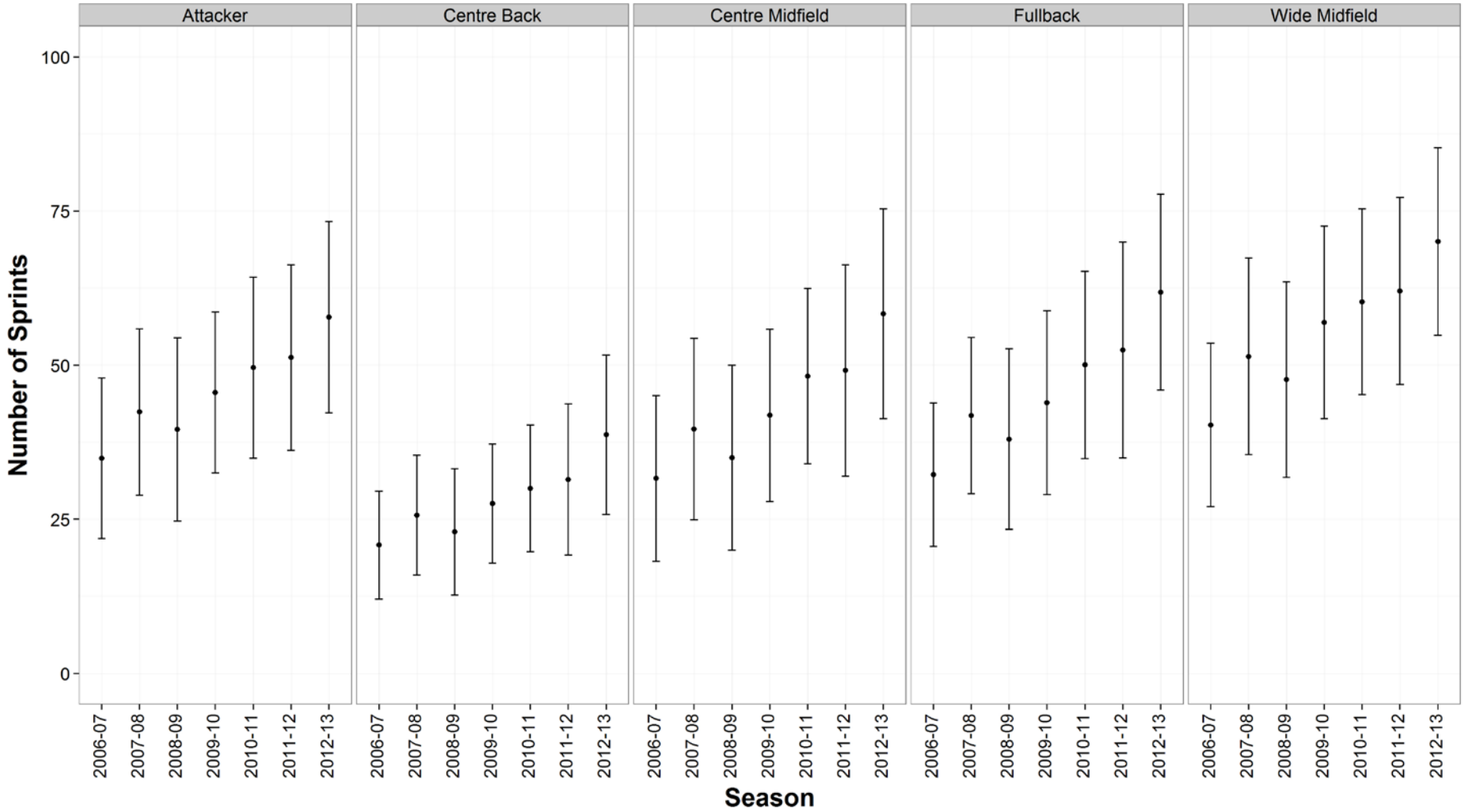
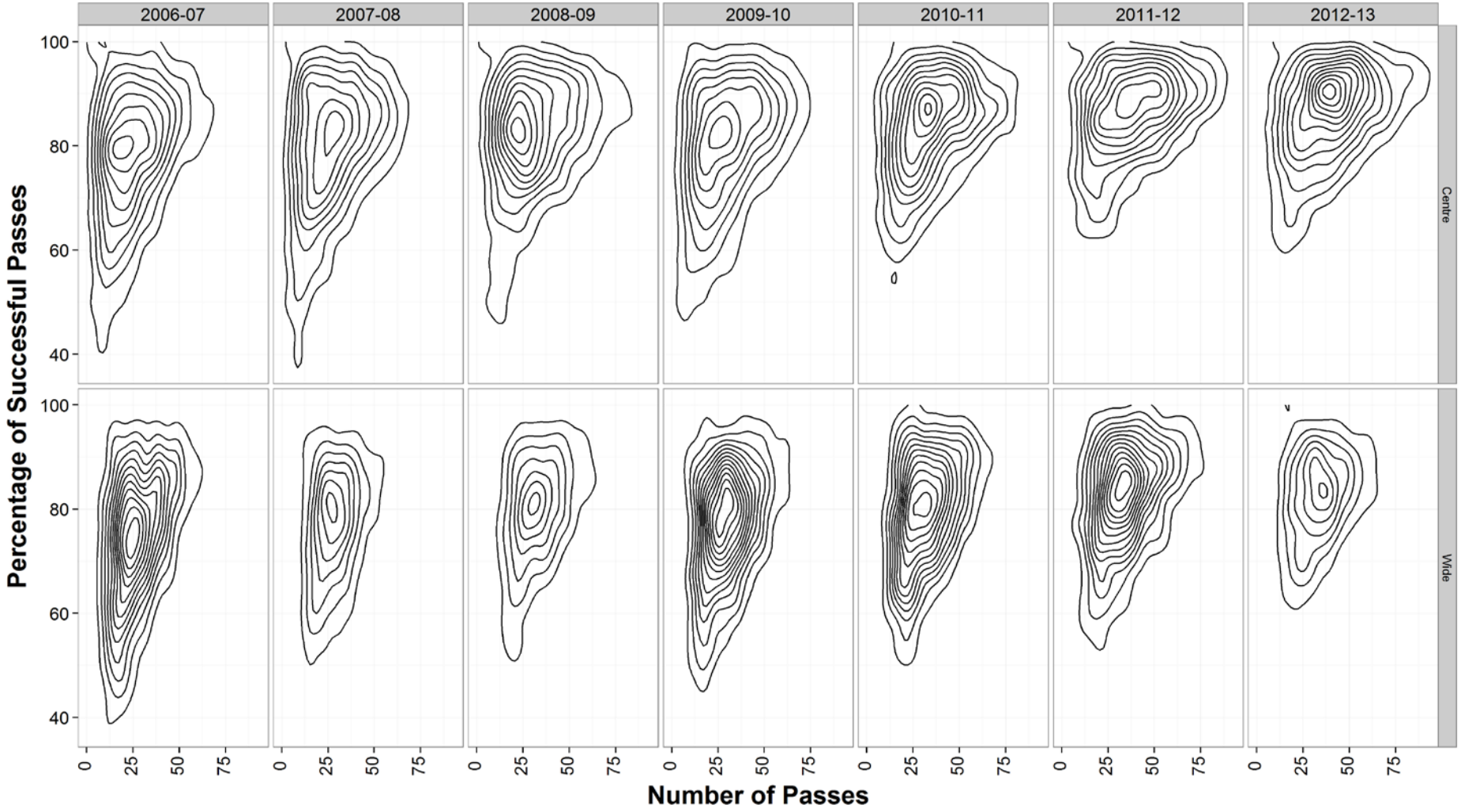

Attacker
Centre Back
Centre Midfield
Fullback
Wide Midfield
Number of Sprints
100
75
50
25
0
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Season

Fig. 3:


2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
Centre
Wide
Percentage of Successful Passes
100
80
60
40
0
25
50
75
Number of Passes