Exploring goalkeepers' technical-tactical performances according to match location, team quality and nationality in the English premier league

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Abstract
This study aimed to examine the influence of match location, team quality and players' nationality on technical and tactical performance indicators in elite goalkeepers. The sample was composed by 87 goalkeepers from the English Premier League during five seasons (from 2011/12 to 2015/16). Twenty-four variables were selected in order to characterize offensive, defensive and disciplinary goalkeeper's behavior. Different non-parametric test ($p<0.05$) showed statistically significant differences in all the variables in terms of match location, excepting interceptions, fouls and unsuccesful short distributions. Moreover, statistically significant differences were also found amongst teams' level in terms of successful passes, goals received inside the box and successful long distribution, both in national and foreign goalkeepers. Finally, only national players exhibit a significant increase in goals received outside-box (top level teams), saves inside-box (intermediate level teams) and unsuccessful long distribution regardless teams quality. The data provided in this study might help goalkeepers' coaches to modulate the frequency and number of actions performed by goalkeepers during training sessions, and help managers to make decisions when signing goalkeepers according to their nationality.

Keywords: Team sports; Performance analysis; Competition; Situational variables; Foreign player.

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Introduction

The influence of situational variables on soccer match performance has been widely studied (Gómez, Lago-Peñas, & Pollard, 2013). Specifically, one of the most studied variables is the match location, also known as home advantage (HA). It has a particular interest especially in the competition model with a balanced schedule (same number of games played at home and away). This phenomenon results in teams winning over 50% of total points of their games played at home (Carron et al., 2005). However, some authors suggested that HA effect is not ongoing eliciting that team quality is a weighted variable that may alter somewhat advantage regardless (Lago-Peñas, 2005; Madrigal & James, 1999) and its influence on performance appears to exist at an individual and team level (Tucker, Taylor, & Mellalieu, 2005). Also, performance may be constrained by players' experience and nationality (Seaton & Campos, 2011; Gai, Volossovitch, & Lago-Peñas, 2019) and player's role, especially when analysing goalkeepers' performance (West, 2018). The goalkeeper playing position is considered one of the most peculiar roles amongst all soccer players' positions (West, 2018). In fact, Perez-Arroniz et al. (2022), asummed those goalkeepers represent the most specific profile, which requires a more specific focus on match and training in order to protect the goal (West, 2018). This player has a determinant influence on the own team, as well as a high level of proficiency in offensive and defensive actions, with a high impact on final result of the game (Moreno-Pérez et al., 2019). In contrast with this importance, Jara et al. (2020) identified a lack of observational studies analysing goalkeeper´s performance.

For that reason, key performance indicators need to be identified in their own merit rather than as a comparison with on-field players' positions (Nikolaidis et al., 2015) to identify and explore goalkeepers' performance profilings (West, 2018). In general, most frequently used were the save and clearences (Sainz De Baranda, Ortega, & Palao, 2008), but these results were analyzed in World Cup competition, and Mackenzie and Cushion (2013) highlighted the importance of considering sport specific context as a variable which migh influence performance in football as others like match location. Although higher offensive actions (64.72%) than defensive actiones (35.28%) where exhibit in a regular competition (Muñoz et al., 2016), the performance is influenced by match location. When analysing the effect of playing at home and away on performance, Liu, Gómez and Lago-Peñas (2015) showed that goalkeepers performed more balls lost and clearences when playing away, and more passing accuracy when playing at home in the Spanish soccer league. López-Gajardo et al. (2020), observed that goalkeepers exhibit higher clearences, duels, and perform more distributions. However, the situation in which the goalkeeper performs may change in terms of the team quality (Madrigal & James, 1999). Thus, several performance indicators in score and offensive actions vary in terms of team's ability (Liu et al., 2019). In Women´s Fifa World Cup, goalkeepers from qualified teams show greater offensive actions in contrast with uncalifed teams (Sainz de Baranda et al., 2011) showing than individual performances are considered directly influenced by the team's quality (Liu et al., 2019). Concerning the players' nationality, small to trivial differences in Chinese Super League (Gai et al., 2019) and players from English Premier League (EPL) (Bush et al., 2017) were found. In a continental championship like the UEFA Champions League, foreign players scored more goals away than national ones, which seem to exhibit a stable pattern of scoring regardless the match location (Gai et al., 2019; Poulter, 2009). According to these findings the players' nationality can be considered a player-related constraint that may modify and affect their performance during matches and competitions (Poulter, 2009). Despite the increasing number of research developed around the goalkeeper in last years (García-Angulo & Ortega, 2015), there is still a paucity of knowdlegde that takes into account the effects of situational-related factors (match location, team quality, etc.) and player-related characteristics (nationality) on goalkeepers' performances. In fact, no previous research has been made about these features in EPL. Therefore, the aim of this research was to analyze the influence of match location, team's quality and nationality in elite goalkeepers' technical and tactical performances. These findings might help managers and coaches to attune their decisions while variation in performance may occur as a consequence of contextual- and player-related factors.

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Material and methods

Subjects

Five-seasons performances from EPL goalkeepers were selected during 2011/12 to 2015/16 seasons. In order to minimize the goalkeepers' performance variability (Russell, Rees & Kingsley, 2013) criteria for inclusion was that goalkeepers should have played: i) a minimum of 12 matches; ii) more than 1,080 minutes played per season; and iii) the same number of home and away matches. Hence, a final sample of eighty-seven goalkeepers was finally selected (Table 1).

Table 1. Sample size in terms of team quality and nationality.

Nationality	Team Quality
National (42)	Top teams (10)
	Intermediate teams (16)
	Low teams (16)
Foreign (45)	Top teams (16)
	Intermediate teams (20)
	Low teams (9)

Procedures

A performance analysis system (OPTA Sport, Sports Data Company, London, UK) was used to collect data during the 1,900 matches across the five soccer seasons. The accuracy and inter-operator reliability of Optasport system were verified by Liu et al. (2013) with excellent Kappa values (> 0.86) and ICC coefficients (> 0.88).

A total of 24 performance indicators related to offensive, defensive and disciplinary variables were considered according to the definitions settled by Optasport (Liu et al., 2013) considering literature available (Wests, 2018; Liu, Gómez & Lago-Peñas, 2015):

A) Goalkeeper offensive actions

- Total Passes (TP): sum of foot-passes delivered, with or without success, during the game preceeded by a teammate delivery.
- Successful Passes (SP): number of foot-passes delivered with success to a teammate, preceeded by a teammate delivery.
- Unsuccessful Passes (UP): number of foot-passes delivered without success to a teammate preceeded by a teammate delivery.
- Successful Long Distribution (SLD): number of passes delivered with success to a teammate positioned over 18 meters catching previously the ball with the hands.
- Unsuccessful Long Distribution (ULD): number of passes unsuccessfully delivered to a teammate positioned over 18 meters catching previously the ball with the hands.
- Successful Short Distribution (SSD): number of passes that are successfully delivered to a teammate positioned up to 18 meters catching previously the ball with the hands.
- Unsuccessful Short Distribution (USD): number of passes unsuccessfully delivered to a teammate positioned up to 18 meters catching previously the ball with the hands.
- Touches (T): number of contacts with the ball.

B) Goalkeeper offensive actions

- Passes received (PR): number of actions in which the goalkeeper receives the ball.
- Clearances (CL): number of actions in which the ball is cleared away from danger.
- Interceptions (I): number of balls recovered by the goalkeeper whose team has not ball possession.
- Recoveries (R): The goalkeeper recovers the ball possesion from the opponents open play or lost balls.
- Catches (C): number of actions in which the goalkeeper catches a cross or a ball played into the area while an opponent player exerts a pressure on him.
- Punches (P): number of high balls that are cleared (punched) by the goalkeeper.
- Shots Blocked (SB): Sum of shots blocked.
- Blocks (B): The goalkeeper blocks (hits the ball) a cross or a ball played into the area when there is a pressure from an opposition player asserted on him.
- Saves (S): Sum of shots saved by the goalkeeper.
- Saves Inside (SI): number of saves from inside-box shots.
- Saves Outside (SO): number of saves from outside-box shots.
- Goals Received (GR): number of goals scored by the opponent team.
- Goals Received Inside (GRI): number of goals scored by the opponent team into the inside-box.
- Goals Received Outside (GRO): number of goals scored by the opponent team out the outside-box.

C) Disciplinary variables

- Fouls (F): number of fouls committed by the goalkeeper.

- Yellow Cards (YC): when the goalkeeper is sanctioned by the referee due to an infringement of the playing rules.

Concerning to the team quality, a *K*-means cluster analysis (Schwartz's Bayesian) was used to classify the teams based on the end-season ranking variable. Three groups were obtained as follows: top level teams (from 1st to 6th position), intermediate level teams (from 7th to 14th position) and low level teams (from 15th to 20th position). Finally, national (born in the United Kingdom) and foreign players (players that were born outside of the UK) were considered in order to classify players' nationality.

Statistical Analysis

Firstly, the data were normalized dividing the total score of each performance indicator by the total minutes played by each player (Hughes & Barlett, 2002; O´Donoghue, 2005; Mackenzie & Cushion, 2013). Then, a descriptive analysis followed by a normality test (Kolmogorov-Smirnov) was performed. General home and away performance comparisons were assessed using the Wilcoxon signed-rank test. Then, in order to examine performances according to player nationality and team quality, delta values (mean differences between home and away performances) were calculated in accordance with Poulters' recommendations (Poulter, 2009). In this regard a negative value (i.e: -0,02) indicated that goalkeepers performed more actions away than at home while a positive value (i.e: 0,02) lead to goalkeepers to show more actions at home. When delta value was close to "zero" (i.e: 0,00) implies a more stable pattern with home-away similar performance values. The U-Mann Whitney test was used when comparing differences according to players' nationality and the Kruskall-Wallis Test was applied to identify the differences among players from different team quality. All statistical analyses were performed using the statistical software IBM SPSS for Windows version 25.0 (Armonk, NY: IBM Corp.) and significance was set at $p < 0.05$.

Results

The mean HA effect was 61.77% (Table 2). Considering team quality, low and intermediate teams exhibit a greater mean HA value than top teams.

Home and away descriptive and inferential results according to nationality and team quality (Table 3), showed that goalkeepers from top and intermediante teams exhibit the majority of differences, specifically, foreign goalkeepers displayed more differences than national goalkeepers. The variables that best differentiated home and away performances, regardless of the nationality and team quality, were TP, UP, CL, T, GR, GRI and S, being every performance indicator significanty higher away than at home. Only two performance indicators with significant higher results at home: passes received and successful short distributions. Finally, fouls, interceptions and unsuccessful short distributions showed no significant differences.

Concerning team quality (Table 4), the results showed a common pattern in three performance indicators (SP, GRI and SLD) regardless the nationality of players. The goalkeepers from top level teams showed more SP at home than those from low and intermediate teams. On the other hand, the goalkeepers from low and intermediate teams receiving significantly more goals inside-box (GRI) away than at home. Additionally, goalkeepers from top teams received the same goals at home than away, and performed more SLD away than at home, regardless of the nationality.

The differences according to nationality (Table 5) exhibit that goalkeepers from top teams were the most influenced by nationality. Thus, foreign goalkeepers from top, intermediate and low-level teams performed more ULD away than national players at home. In addition, national goalkeepers from top teams exhibit more GRO when playing away than foreign ones, which achieved the same results at home than away. Besides, foreigns goalkeepers from intermediate team performed more SI away than national goalkeepers, while goalkeepers from low teams exhibit less influence of nationality on performance indicators when comparing home and away performances.

Table 2. Home Advantage (HA) outcome according to team quality.

	Top teams (%)	Intermediate teams (%)	Low teams (%)	Total HA (%)
Season 1	62.36	64.56	61.41	61.80
Season 2	58.89	67.89	71.66	60.38
Season 3	50.22	67.86	62.34	59.06
Season 4	55.70	61.70	70.33	64.66
Season 5	60.47	61.71	66.17	62.97

Table 3. Standardized median scores (interquartile range) comparisons in terms of match location (home/away).

	Top level teams				Intermediate level teams				Low level teams			
	National		Foreign		National		Foreign		National		Foreign	
	Home	Away	Home	Away	Home	Away	Home	Away	Home	Away	Home	Away
TP	32.0(21.1)	33.9(8.1)*	33.0(19.0)	35.3(17.6) *	33.3(40.1)	35.5(14.1) *	33.9(15.7)	35.5(21.4) *	35.3(15.0)	37.3(23.0)*	33.2(8.8)	35.5(10.3)*
SP	17.1(11.6)	16.4(3.8)	21.6(15.2)	19.7(13.2) *	18.1(15.3)	16.7(12.7) *	18.5(11.5)	17.9(11.0)	16.8(10.2)	17.1(6.4)	16.9(4.8)	16.3(3.9)
UP	16.7(11.1)	18.0(6.1)*	11.0(11.7)	14.7(11.1) *	17.0(25.3)	18.6(11.1) *	16.6(12.8)	18.9(17.2) *	18.5(12.3)	19.4(16.8) *	17.0(10.0)	19.3(10.8)*
SLD	9.9(3.7)	11.0(2.0)	8.5(7.1)	10.6(7.0) *	9.4(15.0)	11.2(4.1)	10.3(8.1)	12.1(9.8) *	11.3(5.0)	11.9(6.3) *	9.1(5.8)	11.3(3.5)
ULD	4.6(2.7)	4.3(1.5)	5.2(4.8)	5.0(4.3)	5.0(6.1)	5.0(3.7)	5.2(3.9)	4.8(4.4) *	5.2(3.4)	5.3(2.2)	4.8(3.1)	4.6(3.5)
SSD	4.1(4.3)	3.2(3.0)	5.9(6.4)	5.0(6.8) *	3.3(5.9)	2.7(5.2)*	3.0(6.1)	2.2(5.5) *	2.4(3.7)	2.3(5.5)	2.0(4.8)	1.8(4.5)
USD	0.2(0.2)	0.1(0.2)	0.1(0.3)	0.1(0.3)	0.1(0.2)	0.1(0.3)	0.1(0.3)	0.1(0.5)	0.1(0.2)	0.1(0.4)	0.1(0.2)	0.1(0.3)
T	37.2(27.8)	40.2(7.5)*	38.2(24.9)	43.2(24.4) *	42.1(55.7)	47.2(23.1) *	41.9(28.5)	45.1(35.7) *	42.7(23.2)	47.2(32.0) *	40.0(14.4)	46.1(22.5)*
PR	10.1(8.7)	9.4(3.8)	10.9(11.8)	8.6(12.1) *	9.7(10.4)	8.7(7.3) *	9.8(6.2)	8.5(6.5) *	9.4(10.7)	8.5(8.0)	8.6(2.8)	8.7(4.8)
CL	1.1(1.2)	1.4(0.6) *	1.0(1.4)	1.4(1.8) *	1.0(1.8)	1.4(1.6) *	1.0(2.2)	1.5(1.5) *	1.0(2.0)	1.3(1.4) *	1.0(1.2)	1.5(0.8) *
I	0.0(0.0)	0.0(0.1)	0.0(0.2)	0.1(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.2)	0.0(0.3)	0.1(0.2)	0.0(0.1)
R	8.6(14.1)	10.0(11.6)*	11.2(17.1)	11.9(15.3)	10.5(17.6)	11.0(11.7)	11.4(12.7)	11.8(12.4)	10.4(12.3)	11.4(13.7)	9.7(10.6)	12.4(13.2)
C	1.6(2.0)	1.1(1.2)	1.0(2.5)	1.4(3.5) *	1.0(2.3)	1.3(3.0) *	1.1(2.7)	1.6(5.7) *	1.0(4.5)	1.3(3.0)	1.0(8.0)	1.5(3.7)
P	0.6(0.6)	0.6(0.7)	0.5(1.1)	0.8(1.5) *	0.6(1.2)	0.8(0.9)	0.6(0.7)	0.9(1.2) *	0.5(1.5)	0.7(1.3) *	0.6(0.5)	0.8(0.7)
SB	3.2(0.5)	4.2(0.9)	2.6(4.2)	3.5(4.6) *	3.0(6.3)	4.0(3.3)	3.2(3.2)	4.0(6.3) *	3.5(2.5)	4.5(3.4)	2.8(1.9)	3.5(2.2)
B	1.2(1.0)	1.1(1.3) *	1.4(2.8)	1.5(3.3)	1.4(2.3)	1.5(1.7)	1.3(2.1)	1.7(1.8) *	1.4(1.2)	1.3(1.3)	1.1(0.4)	1.5(2.5)
S	2.4(2.0)	2.8(0.2) *	2.3(2.4)	2.8(2.8) *	3.1(5.0)	3.4(2.3) *	2.9(2.8)	3.4(3.9) *	3.0(2.3)	3.7(2.6) *	2.9(1.3)	4.1(3.1) *
SI	1.4(1.2)	1.7(0.5)	1.2(0.9)	1.5(1.7) *	1.6(4.1)	1.8(1.5)	1.6(2.0)	2.1(2.3) *	1.8(1.3)	2.1(1.3) *	1.7(1.2)	2.3(2.2) *
SO	1.1(0.8)	1.2(0.5)	1.2(1.6)	1.3(1.5) *	1.3(1.6)	1.4(1.3) *	1.4(1.4)	1.5(2.1)	1.2(1.6)	1.5(1.4) *	1.3(0.7)	1.4(1.6)
GR	1.0(0.9)	1.4(0.6) *	0.7(0.8)	0.9(1.1) *	1.0(1.4)	1.4(0.8) *	1.0(1.1)	1.3(1.3) *	1.2(0.8)	1.9(1.3) *	1.1(0.9)	1.9(1.5) *
GRO	0.1(0.1)	0.3(0.6)	0.1(0.3)	0.2(0.3)	0.1(0.7)	0.2(0.4) *	0.2(0.4)	0.2(0.3)	0.2(0.5)	0.2(0.3)	0.1(0.3)	0.2(0.2)
GRI	0.9(0.9)	1.1(0.0) *	0.6(0.7)	0.8(0.9) *	0.9(1.0)	1.3(0.5) *	0.9(0.9)	1.2(1.3) *	1.1(0.9)	1.7(1.2) *	0.9(1.0)	1.6(1.3) *
YC	0.0(0.2)	0.0(0.1) *	0.0(0.1)	0.0(0.3)	0.0(0.1)	0.0(0.2)	0.0(0.1)	0.0(0.2) *	0.0(0.1)	0.0(0.2) *	0.0(0.1)	0.1(0.1)
F	0.0(0.1)	0.0(0.0)	0.0(0.2)	0.0(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.2)	0.0(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)

Note. TP= Total Passes; SP= Successful Passes; UP= Unsuccessful Passes; SLD= Successful Long Distribution; ULD= Unsuccessful Long Distribution; SSD= Successful Short Distribution; USD= Unsuccessful Short Distribution;T= Touches; PR= Passes received; CL= Clearances; I= Interceptions; R= Recoveries; C=Catches; P=Punches; SB= Shots Blocked; B= Blocks; S= Saves;= SI= Saves from Inside Box; SO= Saves from Outside Box; GR= Goals Received; GRI= Goals Received Inside the box; GRO= Goals Received Outside the Box; YC= Yellow Cards; F= Fouls.
* Statistical significant differences (p<.05) in terms of match location

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Table 4. Median (interquartile range) of delta values comparison in terms of team quality.

	National					Foreign				
	Top level	Intermediate level	Low level	X^2	p	Top level	Intermediate level	Low level	X^2	p
TP	-1.1(17.0)	-0.4(36.2)	1.6(10.7)	1.9	0.38	-1.8(8.7)	-1.6(9.4)	-0.9(11.7)	0.2	0.89
SP	1.6(9.5)	0.8(15.7)	0.5(6.1)	7.0	0.03*	1.8(9.1)	0.5(6.1)	0.2(6.4)	6.0	0.04*
UP	-2.4(8.0)	-0.9(23.7)	-1.1(9.5)	0.1	0.95	-3.7(7.3)	-2.2(7.9)	-1.5(12.4)	3.4	0.18
SLD	-1.8(4.8)	-1.1(14.2)	-0.7(4.0)	0.3	0.04*	-1.5(3.9)	-0.7(4.4)	-0.3(4.6)	0.2	0.04*
ULD	0.0(3.4)	0.3(6.3)	-0.2(3.0)	2.1	0.35	-0.3(3.8)	-0.8(3.5)	0.1(2.7)	3.3	0.19
SSD	0.4(2.9)	0.5(3.2)	-0.2(3.0)	4.1	0.13	0.7(3.1)	0.5(2.5)	0.4(2.2)	1.8	0.41
USD	0.0(0.3)	0.0(0.3)	0.0(0.5)	0.6	0.75	0.0(0.4)	0.0(0.7)	0.0(0.3)	0.2	0.89
T	-2.8(20.7)	-1.5(47.6)	-2.7(13.2)	1.4	0.50	-3.9(10.2)	-2.9(11.8)	-2.3(14.6)	0.1	0.93
PR	1.0(7.3)	1.3(6.7)	0.4(3.8)	1.8	0.40	0.8(7.0)	1.1(4.9)	-0.6(3.5)	3.9	0.14
CL	0.3(1.4)	-0.2(2.1)	-0.3(1.6)	1.3	0.53	-0.4(1.7)	-0.2(1.4)	0.2(1.8)	2.8	0.25
R	-0.2(4.8)	0.2(9.4)	-0.2(4.5)	1.0	0.61	-0.3(3.9)	-0.4(3.8)	0.0(4.1)	0.3	0.87
C	2.0(2.7)	-1.6(4.0)	0.0(9.2)	1.4	0.62	-0.2(9.0)	-0.3(4.3)	-0.22(2.3)	1.0	0.48
P	0.2(1.1)	-0.1(1.2)	-0.2(1.3)	2.8	0.25	-0.3(1.2)	-0.3(0.9)	-0.1(1.2)	1.1	0.57
SB	-1.1(1.2)	-1.2(5.3)	-0.6(2.6)	0.4	0.83	-1.0(2.7)	-1.1(4.6)	-0.5(2.1)	2.5	0.29
B	-0.1(1.8)	-0.2(2.5)	-0.1(1.5)	0.4	0.82	-0.2(2.0)	0.3(1.5)	-0.3(1.6)	0.4	0.83
S	-0.4(2.0)	-0.4(4.1)	-0.5(2.4)	0.7	0.69	-0.6(1.9)	-0.6(3.1)	0.6(1.8)	0.6	0.74
SI	-0.2(1.2)	-0.2(4.0)	-0.3(1.5)	0.9	0.64	-0.4(1.2)	-0.7(1.8)	-0.2(1.7)	2.1	0.35
SO	-0.1(0.8)	-0.2(1.5)	-0.3(1.4)	1.8	0.40	-0.2(0.9)	-0.2(2.3)	0.2(1.5)	0.9	0.63
GR	-0.5(0.8)	-0.6(1.4)	-0.6(1.2)	3.3	0.19	-0.3(1.2)	-0.3(1.3)	-0.7(1.1)	3.0	0.23
GRI	-0.2(0.9)	-0.3(0.9)	-0.6(1.2)	9.8	0.01*	-0.2(1.2)	-0.3(1.3)	-0.6(1.2)	2.4	0.03*
GRO	-0.2(0.5)	-0.1(1.0)	-0.1(-0.6)	4.4	0.11	0.0(0.3)	0.0(0.3)	0.0(0.4)	0.6	0.74
YC	0.0(0.2)	0.0(0.2)	0.0(0.1)	2.2	0.33	0.0(0.3)	0.0(0.3)	0.0(0.1)	1.3	0.53
F	0.0(0.1)	0.0(0.1)	0.0(0.2)	0.3	0.85	0.0(0.3)	0.0(0.2)	0.0(0.1)	0.3	0.86

Note. TP= Total Passes; SP= Successful Passes; UP= Unsuccessful Passes; SLD= Successful Long Distribution; ULD= Unsuccessful Long Distribution; SSD= Successful Short Distribution; USD= Unsuccessful Short Distribution;T= Touches; PR= Passes received; CL= Clearances; I= Interceptions; R= Recoveries; C=Catches; P=Punches; SB= Shots Blocked; B= Blocks; S= Saves;= SI= Saves from Inside Box; SO= Saves from Outside Box; GR= Goals Received; GRI= Goals Received Inside the box; GRO= Goals Received Outside the Box; YC= Yellow Cards; F= Fouls.
* Statistical significant differences (p<.05) in terms of team quality.

Table 5. Median (interquartile range) of delta values comparison in terms of nationality.

	Top Level Teams				Intermediate Level Teams				Low Level Teams			
	National	Foreign	U-Mann.	p	National	Foreign	U-Mann.	p	National	Foreign	U-Mann.	p
TP	-1.1(17.0)	-1.8(8.7)	36.00	0.57	-0.4(36.2)	-1.6(9.4)	115.50	0.32	1.6(10.7)	-0.9(11.7)	44.00	0.77
SP	1.6(9.5)	1.8(9.1)	42.00	0.89	0.8(15.7)	0.0(6.1)	112.00	0.27	0.5(6.1)	0.2(6.4)	36.00	0.38
UP	-2.4(8.0)	-3.7(7.3)	24.50	0.17	-0.9(23.7)	-2.2(7.9)	111.00	0.26	-1.1(9.5)	-1.5(12.4)	39.00	0.51
SLD	-0.8(4.8)	-1.8(3.9)	29.50	0.30	-1.1(14.2)	-1.7(4.4)	99.00	0.12	-0.7(4.0)	-1.3(4.6)	38.50	0.48
ULD	0.0(3.4)	-0.5(3.8)	36.00	0.04*	0.3(6.3)	-0.8(3.5)	79.00	0.03*	0.1(3.0)	-0.3(2.7)	41.00	0.01*
SSD	0.4(2.9)	0.7(3.1)	43.50	0.97	0.5(3.2)	0.5(2.5)	136.00	0.78	-0.2(3.0)	0.4(2.2)	33.00	0.27
USD	0.0(0.3)	0.0(0.4)	35.50	0.54	0.0(0.3)	0.0(0.7)	128.00	0.58	0.0(0.5)	0.0(0.3)	43.00	0.71
T	-2.8(20.7)	-3.9(10.2)	32.50	0.41	-1.5(47.6)	-2.9(11.8)	107.00	0.20	-2.7(13.2)	-2.3(14.6)	46.00	0.88
PR	1.0(7.3)	0.8(7.0)	38.00	0.67	1.3(6.7)	1.1(4.9)	124.00	0.49	0.4(3.8)	-0.6(3.5)	27.00	0.12
CL	0.3(1.4)	-0.4(1.7)	16.50	0.05	-0.2(2.1)	-0.2(1.4)	142.50	0.96	-0.3(1.6)	0.2(1.8)	41.50	0.61
I	0.0(0.1)	0.0(0.3)	43.50	0.97	0.0(0.2)	0.0(0.2)	117.50	0.33	0.0(0.4)	0.0(0.2)	25.50	0.08
R	-0.2(4.8)	-0.3(3.9)	41.00	0.83	0.2(9.4)	-0.4(3.8)	113.50	0.29	-0.2(4.5)	0.0(4.1)	36.00	0.74
C	-2.0(2.7)	-0.2(9.0)	23.50	0.30	-1.6(4.0)	-0.3(4.3)	129.50	0.25	0.0(9.2)	-0.22(2.3)	36.50	0.54
P	0.2(1.1)	-0.3(1.2)	21.00	0.10	-0.1(1.2)	-0.3(0.9)	86.50	0.05	-0.2(1.3)	-0.1(1.2)	39.00	0.51
SB	-1.1(1.2)	-1.0(2.7)	41.00	0.83	-1.2(5.3)	-1.1(4.6)	123.50	0.48	-0.6(2.6)	-0.5(2.1)	40.00	0.56
B	-0.1(1.8)	-0.2(2.0)	40.00	0.78	-0.2(2.5)	0.3(1.5)	119.00	0.39	-0.1(1.5)	-0.3(1.6)	36.00	0.38
S	-0.4(2.0)	-0.6(1.9)	35.00	0.52	-0.4(4.1)	-0.6(3.1)	98.00	0.11	-0.5(2.4)	0.6(1.8)	48.00	1.00
SI	-0.2(1.2)	-0.4(1.2)	33.00	0.43	-0.2(4.0)	-0.7(1.8)	74.50	0.02*	-0.3(1.5)	-0.2(1.7)	44.00	0.77
SO	-0.1(0.8)	-0.2(0.9)	37.50	0.64	-0.2(1.5)	-0.2(2.3)	132.00	0.68	-0.3(1.4)	0.2(1.5)	32.00	0.24
GR	-0.5(0.8)	-0.3(1.2)	38.00	0.67	-0.6(1.4)	-0.3(1.3)	128.00	0.58	-0.6(1.2)	-0.7(1.1)	41.00	0.61
GRI	-0.2(0.9)	-0.2(1.2)	34.50	0.50	-0.3(0.9)	-0.3(1.3)	139.50	0.88	-0.6(1.2)	-0.6(1.2)	45.00	0.83
GRO	-0.2(0.5)	0.0(0.3)	15.00	0.04*	-0.1(1.0)	0.0(0.3)	103.50	0.16	-0.1(-0.6)	0.0(0.4)	42.00	0.66
YC	0.0(0.2)	0.0(0.3)	42.50	0.91	0.0(0.2)	0.0(0.3)	107.00	0.18	0.0(0.1)	0.0(0.1)	37.00	0.39
F	0.0(0.1)	0.0(0.3)	27.50	0.18	0.0(0.1)	0.0(0.2)	122.00	0.39	0.0(0.2)	0.0(0.1)	36.50	0.33

Note. TP= Total Passes; SP= Successful Passes; UP= Unsuccessful Passes; SLD= Successful Long Distribution; ULD= Unsuccessful Long Distribution; SSD= Successful Short Distribution; USD= Unsuccessful Short Distribution;T= Touches; PR= Passes received; CL= Clearances; I= Interceptions; R= Recoveries; C=Catches; P=Punches; SB= Shots Blocked; B= Blocks; S= Saves;= SI= Saves from Inside Box; SO= Saves from Outside Box; GR= Goals Received; GRI= Goals Received Inside the box; GRO= Goals Received Outside the Box; YC= Yellow Cards; F= Fouls.
* Statistical significant differences (p<.05) in terms of nationality

Discussion

The aim of this study was to analyze the influence of match location, team's quality and nationality in elite goalkeepers' performance across five seasons in the EPL. Match location shows higher number of differences while few differences were shown when analysing home-away performances according to team quality and nationality. Home advantage values were calculated with a mean of 61,77% which is in agreement with values established in previous studies (Pollard & Gómez, 2009; 2014). Analysing match location, a vast array of performane indicators exhibit differences while only three performances did not show statistical differences (USD, F and I). Seven were the variables (TP, UP, CL, T, GR, GRI and S) which better differentiated home-away performance with higher values away than at home. The performance indicators which better differentiate home-away goalkeepers' performance in Spanish "La Liga" were lost balls (LB) away while successful long distribution (SLD) and successful passes (SP) exhibit higher values home across one season (Liu et al., 2015). In the present studys, only two performance indicators displayed higher values at home successful short distributions and successful passes (SSD and SP), showing the same trend when analysing successful passes at home. Moreover, coaches tend to reinforce attack when playing at home (Staufenbiel, Lobinger & Strauss, 2015).

In fact, more cooperative actions are performed at home (Szwarc Lipinska & Chamera, 2010) which may explain that goalkeepers from EPL performed more successful short distributions when playing at home, while Spanish goalkeepers were more accurate at home when performing long pass. It might be hipothesized that as EPL is more based on a direct style (González-Ródenas et al. 2019; Mitrotasios et al., 2019; Sarmento et al., 2013) where the opponent team let to re-start the game and defend in their half pitch easing goalkeepers' short distribution. As long as the style is more combinative, goalkeepers would tend to perform successful long passes as the rival leave free spaces in their own half easing goalkeepers to perform a successful long distribution. In order to contextualize, further research should analyse and differentiate passes and distributions as two different performance indicators.

In contrast, higher values away were observed in the vast array of variables, and a similar trend was observed in Spanish goalkeepers when analysing lost balls, ball touches, clearances, yellow cards and saves (Liu et al., 2015). Goalkeepers tended to perform diverse actions in a goal defensive situation (Szwarc et al., 2019) and little information about the details of a key performane indicator as saves (Hughes et al. 2012; West, 2018). Depicting the specific areas, differences were shown in saves from inside the box playing away, while only national goalkeepers from intermediate level received more goals from outside the box playing away.

The analysis of other situational variables is needed for a better understanding of soccer players' performances. In this sense, team quality has a strong influence on home advantage effect (Lago-Peñas, 2009; Lago-Peñas & Lago-Ballesteros, 2011; Taylor et al., 2008). This study showed that SLD, SP and GRI were highly influenced by team quality. The higher the goalkeepers' team level the higher the value of SLD and GRI away, while the higher the goalkeepers' team level the higher the value of SP at home. Both, SLD and SP exhibited higher values at home in Spanish competition context. In that sense, it might be expected that more SLD were performed at home as was displayed in Spanish goalkeepers (Liu et al., 2015). Moreover, goalkepers from top level exhibit higher values of shots from inside box show than intermediate and low level. Indeed, this is the most common type of shot performed by goalkeeper (West, 2018). This may be explained because of the higher the goalkeepers' level the higher the number of goals received away (Armatas & Pollard, 2014).

When considering players' nationality, only one performance indicator was associated with nationality. The lack of influence of nationality on performance is in line with some previous research which analysed on-field players' performances exhibited differences in few performance indicators in the UEFA Champions League, and small to trivial differences in EPL (Liu, García-De-Alcaraz & Zhang, 2019) and Chinese Superleague (Gai et al., 2019). In this study, foreign players performed more unsuccessful long distribution away than at home, while national goalkeepers exhibit a stable pattern (same number of unsuccessful long distribution). This could be related with more confident at home in foreign

players (Poulter, 2009) or they might not concede importance to this performance indicator. Regarding the distribution in EPL, it might be a key performance indicator (West, 2018) as it has been tagged as a "*Kick and Rush*" competition (Crolley, Hand & Jeutter, 2000) which requires a direct style of play (Sarmento et al., 2013; González-Ródenas et al. 2019; Mitrotasios et al., 2019). In fact, 70% of attack sequences are fast attack and direct attacks (González-Ródenas et al. 2019; Mitrotasios et al., 2019) and 69,4% of the offensive actions are preceded by a distribution (West, 2018). To our knowledge no studies have analysed a large amount of goalkeepers' performance indicators across a long period comparing home-away performance.

To best of our knowledge no previous study has been carried out in order to establish long period normative data in a large amount of goalkeepers' performance which is necessary to analyse trend in performance analysis (Carling et al., 2014; Mackenzie & Cushion, 2013). However, some caution is recommended when collecting data from different time periods or when extrapolating findings from one period to another due to potentially differing effects of situation variables upon performance (Taylor et al., 2010). In that sense, some limitations should be addressed in the study and further research should consider some goalkeepers' characteristics (experience, physical, injuries, etc.) as different emotional responses may affect in a particular way to foreign or national players (Hernández et al. 2007). Additionally, another situational variable (i.e: match status) and positional-related variables in defense and attack (i.e. style of play) were not taken into consideration. Long-term performance data collection of goalkeepers is needed in order to assess performance evolution and develop a suitable training programme (West, 2018; Mackenzie & Cushion, 2013). Indeed, coaches used to decide to line-up a goalkeeper as their perceptions or believes, while information of match location performance might help coaches to determine which goalkeeper is more appropriate to play at home or away. Besides, data of the present study might help goalkeepers' coaches to determine the technical-tactical contents (shots from inside-box or distributions) and train some performance indicators either successful or unsucessful according to their manifestation at home or away, as many of the match demands tend to focus on shots on target, goals scored and distribution (West, 2018). Finally, managers may use this information in order to decide whether to sign foreign or national goalkeepers according to their team's specific needs.

Conclusions

The current study allows to establish some conclusions from the results obtained: (i) goalkeepers' performances of unsuccessful short distributions, interceptions and fouls were not influenced by match location, while a vast majority of performanes exhibit greater values away than at home (total passes, unsuccessful pases, clearences, touches, goals received, goals received from inside-box, ans saves); (ii) goalkeepers' successful passes at home and succesful long distribution and goals received away were the three performance indicators associated to team quality; and (iii) quite few differences were shown when analysing goalkeepers' nationality with a common trend performing foreign goalkeepers more unsuccesful long distributions away.

Practical applications

Any goalkeeper coach should focus the training depending on the period. In pre-season period the training program may be based on general offensive and defensive actions, whereas in season training program should be based on offensive actions when playing at home, and defensive actions when playing away, except when considering short distributions, interceptions and fouls because they are not influenced by location. Particularly, in English Premier League, goalkeepers should improve the efficacy of offensive actions as distributions when playing away and reinforce determinant inside-box defensive actions.

When signing players, it seem that performance is not influenced by nationality which means that scouters might look for goalkeepers indendent of nationality. Finally, successful passes and long distributions are important when playing away for teams which exibit greater positions in the final ranking, so scouters might consider these variables when playing away as a key performance indicator.

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References

Armatas, V., & Pollard, R. (2014). Home advantage in Greek football. *European Journal of Sport Science, 14*(2), 116-122. https://doi.org/10.1080/17461391.2012.736537

BLOG Opta's Event Definitions (2016, Sept 2). http://www.optasports.com/news-area/blog-optas-event-definitions.aspx.

Bush, M., Archer, D. T., Barnes, C., Hogg, B., & Bradley, P. S. (2017). Longitudinal match performance characteristics of UK and non-UK players in the English Premier League. *Science and Medicine in Football, 1*(1), 2-9. https://doi.org/10.1080/02640414.2016.1233347

Carling, C., Wright, C., Nelson, L. J., & Bradley, P. S. (2014). Comment on Performance analysis in football: A critical review and implications for future research. *Journal of Sports Sciences, 32*(1), 2-7. https://doi.org/10.1080/02640414.2013.807352

Carron, A., Loughhead T., & Bray S. (2005). The home advantage in sport competitions: Courneya and Carron's (1992) conceptual framework a decade later. *Journal of Sports Science, 23*(4); 395-407. https://doi.org/10.1080/02640410400021542

Crolley, L., Hand, D., & Jeutter, R. (2000). Playing the identity card: Stereotypes in European football. *Soccer & Society, 1*(2), 107-128. https://doi.org/10.1080/14660970008721267

Gai, Y., Volossovitch, A., Lago, C., & Gómez, M. Á. (2019). Technical and tactical performance differences according to player's nationality and playing position in the Chinese football super league. *International Journal of Performance Analysis in Sport, 19*(4), 632-645. https://doi.org/10.1080/24748668.2019.1644804

García-Angulo, A., y Ortega, E. (2015). Análisis bibliométrico de la producción científica sobre el portero en fútbol. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte, 10*(2), 205-214. https://www.redalyc.org/articulo.oa?id=311137747005

Gómez-Ruano, M.A., Lago-Peñas, C., & Pollard, R. (2013). Situational Variables. En T. Mc Garry, P. O´Donoghue, & J. Sampaio (Eds), *Handbook of Sport Performance Analysis* (pp. 259-260).

González-Rodenas, J., Aranda-Malaves, R., Tudela-Desantes, A., Nieto, F., Usó, F., & Aranda, R. (2020). Playing tactics, contextual variables and offensive effectiveness in English Premier League soccer matches. A multilevel analysis. *PLoS ONE, 15*(2): e0226978. https://doi.org/10.1371/journal.pone.0226978

Hernández, B., Hidalgo, M. C., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology, 27*(4), 310-319. https://doi.org/10.1016/j.jenvp.2007.06.003

Hughes, M. D., & Bartlett, R. M. (2002). The use of performance indicators in performance analysis. *Journal of Sports Sciences, 20*(10), 739-754.

Hughes, M., Caudrelier, T., James, N., Redwood-Brown, A., Donnelly, I., Kirkbride, A., & Duschesne, C. (2012). Moneyball and soccer- an analysis of the key performance indicators of elite male soccer players by position. *Journal of Human Sport and Exercise, 7*(2), 402-412. https://doi.org/10.4100/jhse.2012.72.06

Jara, D., Gomez, M. A., Ortega, E., & Sainz de Baranda, P. (2020). Design, validation, and reliability of an observational notational instrument for the football goalkeeper's defensive and offensive technical-tactical actions. *Kinesiology, 52*(2), 250-257. https://doi.org/10.26582/k.52.2.14

Lago-Peñas, C. (2009). The influence of match location, quality of opposition, and match status on possession strategies in professional association football. *Journal of Sports Sciences, 27*(13), 1463-1469. https://doi.org/10.1080/02640410903131681

Lago-Peñas, C., & Lago-Ballesteros, J. (2011). Game location and team quality effects on performance profiles in professional soccer. *Journal of Sports Science & Medicine, 10*(3), 465-471. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3737821/

Lago-Peñas, C. (2012). The role of situational variables in analysing physical performance in soccer. *Journal of Human Kinetics, 35*, 89-95. https://doi.org/10.2478/v10078-012-0082-9

Liu, H., Hopkins, W., Gómez, A. M., & Molinuevo, S. J. (2013). Inter-operator reliability of live football match statistics from OPTA Sportsdata. *International Journal of Performance Analysis in Sport, 13*(3), 803-821. https://doi.org/10.1080/24748668.2013.11868690

Liu, H., Gómez, M. A., & Lago-Peñas, C. (2015). Match performance profiles of goalkeepers of elite football teams. *International Journal of Sports Science & Coaching, 10*(4), 669-682. https://doi.org/10.1260/1747-9541.10.4.669

Liu, T., García-De-Alcaraz, A., Zhang, L., & Zhang, Y. (2019). Exploring home advantage and quality of opposition interactions in the Chinese Football Super League. *International Journal of Performance Analysis in Sport, 19*(3), 289-301. https://doi.org/10.1080/24748668.2019.1600907

López-Gajardo, M. A., González-Ponce, I., Pulido, J. J., García-Calvo, T., y Leo, F. M. (2020). Análisis de las acciones técnico-tácticas del portero de fútbol en competición. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte, 20*(80), 577-594. https://doi.org/10.15366/rimcafd2020.80.008

Mackenzie, R., & Cushion, C. (2013). Performance analysis in football: A critical review and implications for future research. *Journal of Sports Sciences, 31*(6), 639-676. https://doi.org/10.1080/02640414.2012.746720

Madrigal, R., & James, J. (1999). Team Quality and the Home Advantage. *Journal of Sport Behavior, 22*(3), 381-398.

Mitrotasios, M., Gonzalez-Rodenas, J., Armatas, V., & Aranda, R. (2019). The creation of goal scoring opportunities in professional soccer. Tactical differences between Spanish La Liga, English Premier League, German Bundesliga and Italian Serie A. *International Journal of Performance Analysis in Sport, 19*(3), 452-465. https://doi.org/10.1080/24748668.2019.1618568

Moreno-Pérez, V., Malone, S., Sala-Pérez, L., Lapuente-Sagarra, M., Campos-Vazquez, M. A., & Del Coso, J. (2019). Activity monitoring in professional soccer goalkeepers during training and match play. *International Journal of Performance Analysis in Sport, 20*(1), 1-12. https://doi.org/1080/24748668.2019.1699386.

Muñoz, S. P., Muñoz, R. D., Cayetano, A. R., García, S. L., & Muñoz, A. S. (2016). Estudio de las acciones técnicas del portero de fútbol profesional a lo largo de una temporada: Implicaciones para el entrenamiento. *EmásF: Revista digital de educación física,* (42), 22-37.

Nikolaidis, P., Ziv, G., Arnon, M. & Lidor, R. (2015). Physical and physiological attributes of soccer goalkeepers – should we rely only on means and standard deviations?. *Journal of Human Sport Exercise, 10*(2),602-614. https://doi.org/10.14198/jhse.2015.102.07

O'Donoghue, P. (2005). Normative profiles of sports performance. International *Journal of Performance Analysis in Sport, 5*(1), 104-119. https://doi.org/10.1080/24748668.2005.11868319

Perez-Arroniz, M., Calleja-González, J., Zabala-Lili, J., & Zubillaga, A. (2022). The soccer goalkeeper profile: bibliographic review. *The Physician and Sports Medicine*, 1-10. https://doi.org/10.1080/00913847.2022.2040889

Pollard, R., & Gómez, M. A. (2014). Comparison of home advantage in men's and women's football leagues in Europe. *European Journal of Sport Science, 14*(sup1), S77-S83. https://doi.org/10.1080/17461391.2011.651490

Pollard, R., & Gómez, M. A. (2009). Home advantage in football in South-West Europe: Long-term trends, regional variation, and team differences. *European Journal of Sport Science, 9*(6), 341-352. https://doi.org/10.1080/17461390903009133

Poulter, D. R. (2009). Home advantage and player nationality in international club football. *Journal of Sports Sciences, 27*(8), 797-805. https://doi.org/10.1080/02640410902893364

Russell, M., Rees, G., & Kingsley, M. I. (2013). Technical demands of soccer match play in the English championship. *Journal of Strength & Conditioning Research, 27*(10), 2869-2873. https://doi.org/10.1519/JSC.0b013e318280cc13

Sarmento, H., Pereira, A., Matos, N., Campaniço, J., Anguera, T. M., & Leitão, J. (2013). English premier league, spaiṅs la liga and italýs seriés a–What's different?. *International Journal of Performance Analysis in Sport, 13*(3), 773-789. https://doi.org/10.1080/24748668.2013.11868688

Sainz De Baranda, P., Ortega, E., & Palao, J. M. (2008). Analysis of goalkeepers' defence in the World Cup in Korea and Japan in 2002. *European Journal of Sport Science, 8*(3), 127-134. https://doi.org/10.1080/17461390801919045

Sainz de Baranda, P., Adán, L., García-Angulo, A., Gómez-López, M., Nikolic, B., Ortega-Toro, E (2019). Differences in the Offensive and Defensive Actions of the Goalkeepers at Women's FIFA World Cup 2011. *Frontiers Psychology, 10*, 1-10. https://doi.org/10.3389/fpsyg.2019.00223

Seaton, M., & Campos, J. (2011). Distribution competence of a football clubs goalkeepers. *International Journal of Performance Analysis in Sport, 11*(2), 314-324. https://doi.org/10.1080/24748668.2011.11868551

Staufenbiel, K., Lobinger, B., & Strauss, B. (2015). Home advantage in soccer–A matter of expectations, goal setting and tactical decisions of coaches?. *Journal of Sports Sciences, 33*(18), 1932-1941. https://doi.org/10.1080/02640414.2015.1018929

Szwarc, A., Jaszczur-Nowicki, J., Aschenbrenner, P., Zasada, M., Padulo, J., & Lipinska, P. (2019). Motion analysis of elite Polish soccer goalkeepers throughout a season. *Biology of Sport, 36*(4), 357-363. https://doi.org/10.5114/biolsport.2019.88758

Taylor, J. B., Mellalieu, S. D., James, N., & Shearer, D. A. (2008). The influence of match location, quality of opposition, and match status on technical performance in professional association football. *Journal of Sports Sciences, 26*(9), 885-895. https://doi.org/10.1080/02640410701836887

Tucker, W., Mellalieu, D. S., James, N., & Taylor, B. J. (2005). Game location effects in professional soccer: A case study. *International Journal of Performance Analysis in Sport, 5*(2), 23-35. https://doi.org/10.1080/24748668.2005.11868325

West, J. (2018). A review of the key demands for a football goalkeeper. *International Journal of Sports Science & Coaching, 13*(6), 1215-1222. https://doi.org/10.1177/1747954118787493