

Long-term analysis of the physical and technical performance of players in Russian Premier Liga football matches from 2015 to 2022

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Abstract:

Problem statement: While extensive research exists on the physical and technical performance of players in the world's top football leagues, there is a considerable lack of comprehensive studies on professional players from lower-ranking leagues. Conducting new research on performance in these less-studied leagues across various countries will not only help determine their relative performance levels but also allow us to assess the evolution of global football. **Purpose:** In the absence of previous comprehensive research on the Russian Premier Liga (RPL), this study aims to analyze the physical and technical performance of players in RPL matches over seven consecutive seasons (2015–2022). It considers various influencing factors and assesses similarities with performance trends in major international football leagues. **Methods:** Data from 24,549 original observations, collected using tracking technologies during live football matches, were used to analyze the performance of players in different positions: central defenders, full defenders, central midfielders, wide midfielders, and forwards. Multivariate analysis of variance with post-hoc tests and linear regression analysis were used to assess the data. **Results:** Significant differences in the effect size of various factors were revealed and measured using partial eta-squared (η^2_p). The playing position factor had an effect size of $\eta^2_p \leq 34\%$, the season factor less than 5%, the team level factor less than 4%, and the match result and field factors each less than 1%. Seasonal analysis indicated significant differences with moderate effect sizes ($0.6 < ES < 0.84$) for distances covered by walking, high-speed running, and sprinting without possession. Positional roles had very large effect sizes ($2 < ES < 2.2$) on both the number of successful duels and aerial duels. Linear regression analysis, used to assess changes in parameters over time for each player position, revealed an increasing trend in walking, sprinting, and total distance covered for all positions and a decreasing trend in the number of duels, with forwards contributing the most to this trend. **Conclusion:** From 2015 to 2022, all positional roles demonstrated an increase in sprint distances and accuracy in technical actions, mirroring performance trends in other international football leagues. The results of our study provide valuable insights into role-specific performance patterns in the RPL, which coaches and practitioners can use to enhance training and competition strategies.

Keywords: professional soccer; performance analysis; position analysis; physical and technical activity; match analysis

Introduction

Football is one of the most popular sports on the planet, which is characterized by an intermittent activity in the presence of physical, tactical and technical challenges. The complex nature of football activity and physiological demands on players, requires holistic approach to planning and training to embrace all facets of modern game. The continuous improvement of tracking technologies gives opportunities to derive new sets of data, thus enabling multi-dimensional performance analysis of a match play. Therefore, modern researchers can study the combination of physical, technical and tactical parameters, and assess the impact of multiple factors on team's performance (Ruano, 2018).

As was demonstrated by numerous studies, the seasonal factor may cause significant differences in the underlying performance among all football leagues worldwide. It is manifested in the evolution of players' motor and technical activity from season to season, or during the period of several seasons (Allen et al., 2023; Barnes et al., 2014; Errekagorri et al., 2022; Konefał et al., 2019; Peñas et al., 2022; Pons et al., 2021; Yi et al., 2020). Further, it was recognized in several studies, that match status (winning, drawing or losing), match location, level of teams and environmental factors can also significantly alter the intensity of physical activity during the match (Andrzejewski et al., 2017; Aquino et al., 2020; Peñas, 2012; Taylor et al., 2008). Tactical formation is yet another factor, which has an impact on both the players' performance and the result of the game (Forcher, Forcher, Wäsche, et al., 2022), and altering the tactical formations is leading to different physical outputs for all positional groups (Calder & Gabbett, 2022). It was revealed, that teams who employ the counter-attacking style cover more high-intensity and sprint distances in possession, whereas teams focused on ball

possession are exposed to higher physical demand throughout the whole match-play (Forcher et al., 2023). The majority of contemporary research argues that player's performance shall be analysed in relation to playing position, as the following positions have been proved to have significant effect on physical and technical performance of a player: central defenders (CD), full defenders (FD), central midfielders (CM), wide midfielders (WM) and forwards (F) (Bush et al., 2015; Dellal et al., 2011; Modric et al., 2019; Peñas et al., 2022). Moreover, it would be more rational to assess the performance of players based on «the positional role», which corresponds to a playing position in a respective tactical formation (Forcher, Forcher, Härtel, et al., 2022). Finally, (Plakias et al., 2023) made the conclusion about «heterogeneous nature of football playing styles that are influenced by a range of factors, from national culture to coaching philosophies».

Having reviewed the major research on football published over the last decade, we identified an overall shift towards a holistic and a longer time horizon approach to performance studies of foreign Football clubs and Leagues, which recognises influence of multiple factors over time on individual and team results. At the same time, we could not find similar systematic and comprehensive longitudinal performance study of contemporary RPL plays. Therefore, the aim of this study is to close the existing knowledge gap on Russian football and to describe physical and technical performance of players participating in RPL considering effect of various factors. Hypothesising in our study of Russian professional football to reveal similar performance characteristics and dynamics over time to findings in research on foreign Football Leagues our objectives thus will be: 1) to describe and identify trends in the RPL players' performance parameters over seven consecutive seasons; 2) to examine differences in performance of various playing positions.

Materials & Methods

Participants

The data sampling in this research makes in total 24.549 observations and represents the physical and technical match performance parameters of 987 individuals – top level football players, who took part in RPL's match plays over seven consecutive seasons from 2015-2016 to 2021-2022.) Only outfield players with playing time greater than or equal to 85 minutes were selected for this research, which corresponds to the following number of sampled players in each season: 15.1% of the total number of players in 2015-2016, 14.8% – in 2016-2017, 14.8% – in 2017-2018, 14.9% – in 2018-2019, 14.1% – in 2019-2020, 12.9% – in 2020-2021 and 13.5% – in 2021-2022. 50.2% players played on a home field, the rest – at the opponent's. 37.5% are players of the winning team, 35.6% - of the losing team, and 26.9% of players participated in matches with a draw. Position analysis includes 5 roles with sampling share as follows: central defenders (33.5%), full defenders (14.5%), central midfielders (24.5%), wide midfielders (17.9%) and forwards (9.6%). 30.4% are members of teams placed 1st to 5th in the final standing, 33% - 6th to 10th, 36.6% - 11th to 16th. The sample included players from 27 different teams (0.9% to 6.5%).

Study design and methodology

All data was collected and processed by INSTAT Company (Moscow, Russia) for the Russian Football Union, and the permission to use the data for scientific purposes has been obtained from both. INSTAT installed 2 full HD cameras, capturing 2 halves of the pitch. The collected video materials were processed and checked using INSTAT Fitness System. Automatic algorithms were used to analyze the video and turn it into a 2D model of the match, and manual checking stages are also were used to reach high accuracy. The precision of the INSTAT Fitness tracking data has been confirmed by passing the FIFA performance test (*Instat-Fifa-Epts-Report-Oct-2019.Pdf*, n.d.). Physical performance was analysed using the following parameters: total distance covered (m), walk distance (0 – 2 m/s; m), jog distance (2 – 4 m/s; m), run distance (4 – 5.5 m/s; m), high speed running (HSR) distance (5.5 – 7 m/s; m), sprint distance (from 7 m/s; m), sprint distance in possession (from 7 m/s during own team's ball possession; m), sprint distance without possession (from 7 m/s during opponent team's ball possession; m). Technical parameters were derived as results of a direct actions notation by INSTAT analytics or calculated automatically from direct actions' parameters using special in-house software. The following parameters were used to describe technical performance of players in this study: number of passes and percentage of successful passes, number of duels and percentage of successful duels, number of dribbles, tackles and air duels. To determine the player's position, the game analysis of INSTAT was used, and it was observed, that same players could play in different positions in various matches. All data were anonymized before analysis. This study was conducted in accordance with the principals of the Declaration of Helsinki (2013) and research was approved by the local Ethics Committee of Russian Sports University (SCOLIPE) (Moscow, Russia), report 3453-12-190/293 from 06/02/2023.

Statistical analysis

Multivariate analysis of variance was used to assess the influence of factors on the analysed parameters. Factors used: game season, playing position, match result (win/defeat/draw), match location (home/out), level of team in final tournament standing (1-5, 6-10, 11-16 places). To assess the impact of the factors, a partial eta-squared (η^2_p) was used as a measure of effect size. To find the differences within the groups, a post hoc tests with the Scheffé correction were conducted. Statistical significance level was set at $p < 0.05$. The practical significance of differences was assessed by calculating Cohen's effect size (ES), and the magnitude of the effect

was classified as trivial (<0.2), small (>0.2–0.6), moderate (>0.6–1.2), large (>1.2–2.0) and very large (>2.0–4.0) (Hopkins et al., 2009). Descriptive statistics are presented as means ± standard deviations. Linear regression analysis was used to identify trends in parameters over the studied period. Data analysis was carried out using Jamovi (version 2.3.28.0) (*Jamovi - Open Statistical Software for the Desktop and Cloud*, n.d.).

Results

Our analysis revealed significant differences for all studied parameters. The detailed assessment of isolated impact of each factor is presented in Table 1 and can be summarized as follows: the effect size of factor of playing position (η^2p) is in the range from 3% to 34%; of season factor - less than 5%; of team level factor – less than 4%; of match location and match result – less than 1% each. The effect size of a complex effect of factors did not exceed 1.5%.

Table 1. Effect size of isolated impact of factors on studied parameters.

	Year	Position	Match result	Team level	Field
	η^2p	η^2p	η^2p	η^2p	η^2p
Total distance, m	0.023	0.263	0	0.004	0
Walk, m	0.048	0.102	0	0.005	0
Jog, m	0.017	0.12	0.001	0.009	0
Run, m	0.003	0.284	0	0.004	0
HSR, m	0.046	0.342	0.001	0.001	0
Sprint, m	0.027	0.177	0	0.002	0
Sprint without possession, m	0.03	0.035	0.006	0.001	0.001
Sprint in possession, m	0.02	0.25	0.005	0.002	0.001
Passes	0.004	0.187	0.003	0.04	0.005
Successful passes, %	0.005	0.117	0	0.019	0.001
Duels	0.021	0.161	0	0.001	0
Successful duels, %	0	0.294	0.003	0	0
Dribbles	0.008	0.222	0.001	0.002	0.002
Tackles	0.004	0.09	0.001	0.003	0.002
Air duels	0.016	0.222	0	0.003	0

Abbreviations: HSR, High speed running;

p > .05 highlighted

Analysis of seasons

The mean values and standard deviations for performance parameters in the matches across seasons (from 2015-2016 through to 2021-2022) are presented in Table 2.

Table 2. The means (M) and standard deviations (SD) of performance parameters in matches between-season.

	2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Total dist., m	10538	868	10475	845	10675	830	10920	984	10789	953	10706	980	10842	903
Walk, m	3402	274	3449	289	3533	311	3584	308	3645	327	3585	317	3593	314
Jog, m	4319	499	4345	504	4493	530	4590	597	4498	608	4440	612	4449	568
Run, m	1870	431	1839	441	1855	457	1897	496	1824	478	1839	482	1901	455
HSR, m	852	232	744	196	694	207	726	259	703	242	720	249	767	240
Sprint, m	98	76	101	74	102	77	125	94	120	89	123	88	135	93
Spr no pos, m	37	34	44	37	48	38	57	46	52	43	59	48	66	50
Spr in pos, m	39	44	41	47	44	54	52	60	50	56	52	60	57	67
Passes	47.4	18	45.9	19	48.9	19	46.7	18	45.6	18	46.1	18	46.6	19
Suc.pass, %	78.7	9.3	80.6	9.7	80.7	8.9	81.1	8.9	81.1	9	80.4	9.5	81	9.4
Duels	18.3	6.8	17.7	6.8	17.3	6.7	16.2	6.5	15.7	6.2	15.7	6.3	15.8	6.3
Suc.duels, %	53.8	16	54.4	17	54.8	18	54.8	18	54.7	18	55.2	18	55.3	18
Dribbles	2.9	3.1	2.6	2.8	2.4	2.6	2.3	2.6	2.2	2.7	2.2	2.8	2.3	2.7
Tackles	3.8	2.6	3.7	2.6	3.5	2.4	3.4	2.4	3.2	2.3	3.2	2.5	3.4	2.5
Air duels	5.9	4.1	5.9	4.3	5.9	4.3	5.1	3.8	5	3.7	5	3.7	4.8	3.6
N	3695		3634		3623		3664		3458		3172		3303	

Abbreviations: Spr no pos, Sprint without possession; Spr in pos, Sprint in possession; HSR, High speed running; Suc.pass, Successful passes; Suc.duels, Successful duels.

Moderate effect size was observed in HSR distance, between season 2015-2016 with the highest value, and seasons from 2017-2018 to 2020-2021 ($0.60 \leq ES \leq 0.84$). Moderate effect size was also found in walking 1780-----

between season 2015-2016 with lowest value and seasons from 2018-2019 to 2021-2022 ($0.60 < ES \leq 0.84$), and between seasons 2016-2017 and 2019-2020 ($ES = 0.66$). Sprint distance without possession has shown the growing trend and had moderate effect size through seasons 2015-2016 to 2021-2022 ($ES = 0.69$). Trivial or small effect was revealed for the following parameters: total distance ($0.03 < ES < 0.55$), jogging ($0.04 < ES < 0.49$), running ($0.01 < ES < 0.21$), sprint ($0.01 < ES < 0.59$) and sprint distance in possession ($0.02 < ES < 0.56$). The percentage of successful passes has shown growing trend with small effect ($0.18 < ES < 0.25$) starting on from the season 2015-2016 onwards. At the same time, we observed a decrease in the number of duels and its components (dribbles, tackles and air duels) over studied period with small effect size ($0 < ES < 0.47$). Trivial effect size was identified both in the number of passes and in the percent of successful duels.

Positions differences analysis

The mean values and standard deviations describing performance parameters of players' positional roles are presented in Table 3.

Table 3. The means (M) and standard deviations (SD) for position analysis.

Positions	CD		FD		CM		WM		F	
	M	SD	M	SD	M	SD	M	SD	M	SD
Total distance, m	10118	836	10779	644	11337	774	11002	742	10461	881
Walk, m	3654	301	3540	257	3380	298	3519	309	3578	330
Jog, m	4285	551	4399	432	4780	514	4449	518	4236	639
Run, m	1565	413	1865	307	2229	415	1981	342	1726	389
HSR, m	545	174	824	186	849	210	888	190	782	192
Sprint, m	71	51	152	94	101	72	167	96	141	87
Sprint without pos, m	49	41	66	50	45	39	61	48	39	36
Sprint in pos., m	11	18	68	60	43	47	86	65	81	59
Passes	49.8	18.5	55.6	15.9	49.3	17.3	42.3	14.3	24.9	9.5
Successful passes, %	83.6	8.5	81.1	7.4	81.5	8.4	76.9	8.8	72.8	10.8
Duels	14.3	5.2	14.8	5.1	17.8	6.2	17.4	6.4	24	8.1
Successful duels, %	66.9	14.8	58.3	14.3	48.8	14.9	47.2	14.7	35.6	11.8
Dribbles	0.7	1.1	2.3	2.1	2.9	2.7	4.4	3.5	3.6	2.7
Tackles	3.1	2.1	4.2	2.5	4.3	2.6	3.7	2.4	1.5	1.5
Air duels	6.2	3.5	3.7	2.4	4.4	3.2	3.8	2.7	10.6	5.9
N	8213		3558		6011		4406		2361	

Abbreviations: HSR, High speed running; Sprint without pos, Sprint without possession; Sprint in pos, Sprint in possession;

The highest value in total distance was demonstrated by CM and which gave the following effect sizes versus other positions: small effect vs WM ($ES = 0.46$), moderate vs F ($ES = 1.18$) and FD ($ES = 0.73$), and large vs CD ($ES = 1.65$). The lowest walking distance parameter had CM with moderate effect size differences to CD ($ES = 0.97$) and F ($ES = 0.71$), and small or trivial to others. Between CM and all others, moderate effect size was found in jog distance ($0.68 < ES < 1.08$) and large and moderate in running ($0.66 < ES < 1.78$). The large effect size was noted between CD with lowest value and others ($1.3 < ES < 1.92$) in HSR distance. WM has shown the highest value in sprint distance and large effect size of difference against CD ($ES = 1.3$). The moderate difference effect in sprint distance was also observed between CD and FD, CD and F, FD and CM and CM and WM ($0.71 < ES < 1.12$). Very large effect size of differences between football players' positions has been found in technical performance parameters. In particular, F had the lowest number of passes among all positions, with very large effect size versus FD ($ES = 2.03$) and large versus CD and CM ($0.88 < ES < 1.15$). The highest percentage of successful passes was shown by CD and the lowest – by F with large effect size of $ES = 1.29$. The leader for the number of duels is F, who showed large effect size difference to CD ($ES = 1.68$) and FD ($ES = 1.63$). Very large effect size between CD with highest value and F ($ES = 2.19$), and large effect size between CD and CM, CD and WM and FD and F ($1.27 < ES < 1.58$), was demonstrated for successful duels percentage. The analysis of the components of duels indicates, that F has shown the highest number of air duels with very large and large effect size ($1.29 < ES < 2.09$) in relation to other positional roles. In number of tackles large effect size was determined between F, with lowest value, and CM ($ES = 1.2$). For dribbles, the lowest value was recorded for CD, with large effect size against WM ($ES = 1.61$).

Position analysis between seasons

The dynamics of means of studied parameters for different players' positions are presented in Fig. 1 (physical performance) and in Fig. 2 (technical performance).

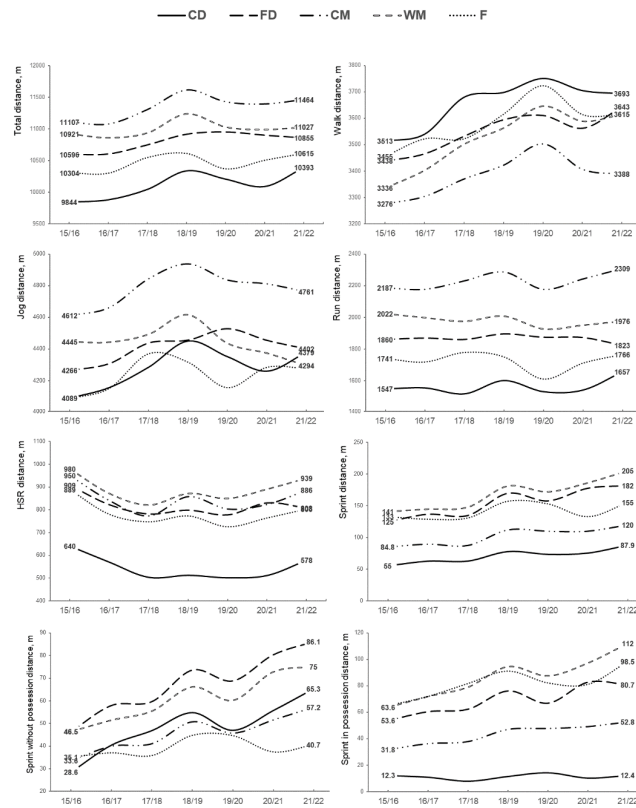


Figure 1. Changes in physical performance parameters (mean) for different football players positions.

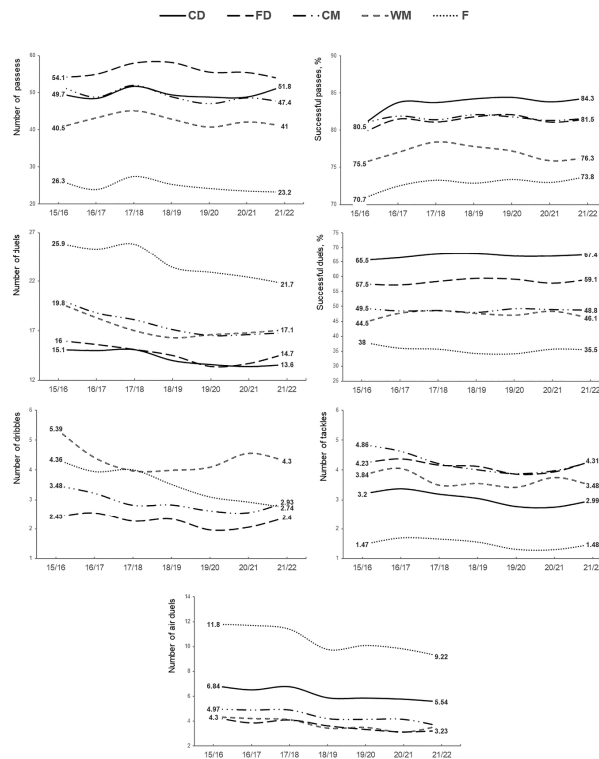


Figure 2. Changes in technical performance parameters (mean) for different football players positions.

R-squared and slope coefficients (as change in a year) for regression models are presented in Table 4.

The analysis showed, that among all playing positions, a general growing tendency is exemplified for the total (25<b1<80), walk (25<b1<49) and sprint distance (3<b1<11) covered, and downward trend – for HSR distance (-13<b1<-2). For all positions analysed, we revealed a decreasing tendency in number of duels (-0.8<b1<-0.3). Similar downward trend was identified for number of dribbles, tackles and air duels, where the greatest contribution was made by F (air duels (b1=-0.5), dribbles (b1=-0.3). The differences for passes, successful passes and successful duels were trivial and in several cases were not statistically significant.

Table 4. Regression model coefficients for between-season positional analysis.

		CD	FD	CM	WM	F
Total distance, m	B	80.4	58	67.2	25.4	42
	R2	0.036	0.035	0.03	0.005	0.009
Walk, m	B	33.2	32.5	25.3	49.1	31.8
	R2	0.048	0.068	0.028	0.098	0.036
Jog, m	B	40.8	31.5	28.4	-22	22.4
	R2	0.022	0.023	0.012	0.007	0.005
Run, m	B	11.7	-2.54	15.6	-9.97	-4.51
	R2	0.003	0	0.006	0.003	0.001
Hsr, m	B	-10.1	-13	-8.29	-2.41	-11.2
	R2	0.013	0.021	0.006	0.001	0.013
Sprint, m	B	4.83	9.77	6.1	10.8	3.46
	R2	0.035	0.046	0.028	0.048	0.006
Sprint without possession, m	B	5	6.25	3.54	4.72	0.983
	R2	0.06	0.066	0.033	0.038	0.003
Sprint in possession, m	B	0.21	4.7	3.56	7.29	4.22
	R2	0.001	0.026	0.023	0.049	0.02
Passes	B	0.167	-0.018	-0.701	-0.19	-0.45
	R2	0	0	0.006	0.001	0.009
Successful passes, %	B	0.42	0.27	0.075	-0.018	0.37
	R2	0.01	0.006	0	0	0.004
Duels	B	-0.326	-0.346	-0.6	-0.431	-0.77
	R2	0.016	0.02	0.037	0.018	0.035
Successful duels, %	B	0.197	0.248	-0.02	0.17	-0.347
	R2	0.001	0.001	0	0.001	0.003
Dribbles	B	-0.004	-0.052	-0.116	-0.109	-0.279
	R2	0	0.003	0.007	0.004	0.041
Tackles	B	-0.08	-0.035	-0.125	-0.065	-0.042
	R2	0.006	0.001	0.009	0.003	0.003
Air duels	B	-0.225	-0.197	-0.231	-0.172	-0.453
	R2	0.016	0.029	0.021	0.016	0.023

Abbreviations: B, slope coefficient; R2, coefficient of determination; HSR, High speed running; p > .05 highlighted

Discussion

The key objectives underlying the aim of our study were as follows: to describe physical and technical performance and its trends over seven consecutive seasons for players participating in RPL matches; and to examine playing positions differences and dynamics over time. Preliminary analysis of variance has shown that such factors as game location, match status and team level had influence on studied parameters with an effect less than 2%. Although we did not study these factors in detail, they are considered as important and require further investigation, since they affect both physical activity and technical actions (Taylor et al., 2010; Zhou et al., 2018).

Analysis of seasons

The seven-season analysis did not reveal any firm upward or downward tendency for low-intensity running and total distances, whereas we observed clear increasing trend in sprint and walking distance. Sprint distance showed an overall increase throughout seven seasons except for 2019-2020. The observed increase in sprint corresponds to the study of La Liga during period from 2015-2016 to 2018-2019 (Pons et al., 2021) and English Premier League (EPL) across seasons from 2014-2015 to 2018-2019 (Allen et al., 2023). Although such parameter as walking is rarely considered by authors, we have reviewed it and found out that walking distance showed upward trend. We believe this may be related to the increase in sprinting in so far that walking can be an element of recovery after performing high-intensity activities.

The Covid 19 pandemic, which broke out in December 2019 and spread worldwide in early 2020, had an influence on world football leagues and championships in the season of 2019–2020 (Garcia et al., 2021; Rampinini et al., 2021). Therefore, evaluating results of the study it would be correct to divide the analyzed period into two parts – before the 2019-2020 season and after, i.e. post-pandemic. The season 2018-2019 marked the peak values for sprint, jog, run and total distances across the whole period of observation, after which we observed their decline. Our analysis of RPL data pre- and post-Covid-19 pandemic largely matches the results of Morgans et al. study for the same period (Morgans et al., 2022). Limited ability to restore normal training process and incidences of Covid-19 among athletes, leading to various changes in the cardiovascular and respiratory system, could explain the decrease in intensity of physical activity in the "pandemic seasons". Likewise, during absence of top players, substitute players had more playing time, even if they had lower physical abilities. For example, in one of the summer games of the 2019-2020 season, the youth team of «Rostov» club (17-19 years old) played in the match «Sochi»-«Rostov» for the main «Rostov» team, when the whole main team and its coaching staff were put into quarantine. Considering that impact of Covid-19 on sports performance in professional football is not studied in detail or was examined with regard to only a handful of international leagues, our study of RPL will contribute to narrowing the knowledge gap and provide new insights into this topic.

With regard to technical parameters, no significant effect was determined in the number of passes, apart from 2017-2018 season when it increased. At the same time, small increase was found in passes percentage from the season 2015-2016 onwards. The same tendency was discovered for number of passes in La Liga (Errekagorri et al., 2022), where authors concluded, that teams displayed a style of play based on possession, «represented by a similar number of pass and width». Returning to our research, a significant decrease with small effect size was demonstrated for number of duels, including an overall downward trend for dribbles, tackles and air duels. Decreasing number of duels in RPL may indicate a change in the style of players when they avoid contact in duels by running around the opponent at high speed, and which also corresponds to the revealed upward trend in the sprint distance. In the study of Bundesliga (Konefał et al., 2019) authors supposed, that decline in numbers of duels without impacting the efficiency of the game and larger number of passes implies, that football is heading further in the direction of joint action, as opposed to individual play.

Positions differences analysis

Differences in the parameters of physical and technical performance for various playing positions is one of the most widely discussed topic by many researchers. Such interest can be explained by continuous football evolution over years, when styles of play were changing (Zhou et al., 2021) and the game was evolving to accommodate new features (Konefał et al., 2019). As such, the study of position specific characteristics shall long stay relevant and of practical interest for coaches and specialists.

Central defenders

Our study showed, that CD performs less sprint and high-intensity running and, at the same time, more walking than other positions considered. This implies that motor activity demands of CD are associated with relatively low energy consumption. CD performs a large amount of passes, efficiency of which tend to be the highest (Ermidis et al., 2019). Technical skills are perhaps even more important as errors in the CD's area of responsibility would most often lead to missed balls (Moore, 2021). A low number of duels has also been observed in some studies (Dellal et al., 2010; Ermidis et al., 2019). At the same time, we found, that CD is characterized by the highest percentage of successful duels (66.9%), which suggests that CDs usually competently assess their chances for success.

Full defenders

FD have the highest value in sprint without a ball and large number of tackles, which corresponds to the one of the task of FD – to interrupt wingers' attacks. Value of sprint distance in possession is also high. It is logical, that when the team is in possession, it becomes possible to use free zones on the flanks, and in many tactical formations FD are switching to attacking actions. At the same time, if team loses the ball, they have to return as quickly as possible. We found also, that FD have the highest number of passes with high accuracy (Dellal et al., 2010). Interestingly, it was noted, that the «number of passes performed by FD from the Spanish league was significantly higher than the number of passes performed by their counterparts from the Italian and Russian leagues» (Konefał et al., 2015). Authors further concluded, that it could be connected with an offensive playing style preferred by Spanish teams or due to their chosen match strategy.

Central midfielders

Many authors agree, that the role of CM is associated with overcoming the greatest total distance, as well as running and jogging (Andrzejewski et al., 2015; Di Salvo et al., 2007; Mallo et al., 2015; Modric et al., 2019). While our findings in this research confirm this provision, we observed at the same time, that distances covered by sprint with and without the ball are about the same. This may indicate that the key task of the CM players is to switch from attacking to defensive actions and vice versa. Our analysis also showed that the number of passes and their accuracy is quite high relative to other positions (Ermidis et al., 2019). It should be noted, that the position of the central midfielder entails a more role-specific division.

Wide midfielders

The results of our study of RPL's WM correspond to findings obtained from the world's best leagues, who reported WM players as having the highest value of distances covered by sprint and high-intensity running along with the high number of dribbles (Di Salvo et al., 2007; Mallo et al., 2015; Modric et al., 2019). Considering that one of the main task of WM is the intensification of the game in attack, such WM performance can be attributed to available field space, which allows players to effectively move the ball at high speed and win duel against an opponent.

Forwards

The main task of F is to create and realize a goal scoring opportunity, thus F would naturally make the smallest number of passes (Ermidis et al., 2019), which was also observed in our study. Pass execution is associated with intensification of the attack and is performed in a zone of accumulation of players, which may explain low accuracy of the passes (72.8%). At the same time F has a choice of making a pass, shot on goal or make a dribbling, where the latter tactics carries risk of losing the ball. However, similar to research on F from world's top leagues (Dellal et al., 2010), we observed that forwards often take this risk. Low efficiency of duels (35.6%) could be explained by active defenders' actions, who are usually more successful in such situations. The high number of air duels for F may indicate higher levels of their strength and high-speed strength abilities, but also their anthropometric characteristics (taller and more powerful players).

Position analysis between seasons

The seven-season period study of physical activity in RPL revealed an upward trend for sprint, walk and total distances for all playing positions, which is largely consistent with the results of studies of La Liga and EPL (Allen et al., 2023; Peñas et al., 2022). In our study, the biggest increase in the sprint distance was demonstrated for WM and FD, and in the total distance –for CD. Notably, the increase in sprinting was primarily due to FD acting in defence and WM in attack, that is, the players increased their performance indicators for their area of responsibility. The number of duels decreased for all positions, with forwards exhibiting the greatest decline.

Conclusion

Our longitudinal study of football players of the RPL during matches over seven-season period from 2015-2016 to 2021-2022 revealed two major trends: 1) the increase in sprint distance covered by players during match-plays; and 2) the improvement of accuracy in performing technical actions for all playing positions. These findings are, in general, consistent with major development trajectories in other international football leagues and thus confirm our initial hypothesis.

Considering that impact of Covid-19 on sports performance in professional football is not studied in detail or was examined with regard to only a handful of international leagues, our study of RPL will contribute to narrowing the knowledge gap and provide new insights into this topic.

Our study can be used as a reference source to inform coaches and practitioners in the RPL about evolutionary trends in real professional practice in national football. However, the development of performance profiles and metrics not only in relation to different players positions, but also for a specific positional role depending on the tactical formation, can help to evaluate individual contribution, facilitate tactical team formation and guide the individualized training and development programs.

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