MATCH ACTIVITY OF PLAYERS IN SELECTED POSITIONS IN UEFA YOUTH LEAGUE AND U19 SLOVAK FIRST DIVISION

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Abstract
The aim of the study was to quantify and compare selected indicators of players' match activity (n = 24) in the UEFA Youth League (UEFAYL) and in the U19 Slovak First Division (1. LSDS). The playing positions of the players were as follows: central defender (CD), central midfielder (CM), and forwards (F). The study focused on assessment and comparison of the selected indicators of match activity: the number of successful match activities (HCJ+), the number of unsuccessful match activities (HCJ-), the total number of the match activities (HCJ∑), the percentage of the successful match activities (SUC); the points awarded (Points) and the quality category of a player (Cat). Regarding all indicators, the statistical analysis showed no significant differences in the match activity between the players in the UEFAYL and in the 1. LSDS.

Key words: *central defender, central midfielder, forward, INSTAT® SCOUT.*

Introduction

The work of any coach participating in the development of young players should include observing and analysing games in high-profile youth leagues (including the UEFA Youth League and national leagues), the FIFA World Cup and the UEFA European Championship. Through this activity, a coach can acquire valuable knowledge about the current trends in modern football applied by top teams both in the world and his own country. Implementing the knowledge successfully and adequately into the training process may result in nurturing new elite players such as Ronaldo, Messi, Hamšík, Škriniar and the like. According to the studies of Reilly (1997), Psotta et al. (2006), Orendurff et al. (2010), when players' movement is taken into account, football is an intermittent activity. Very short intervals of high or maximum-intensity activities lasting between 1 and 5 seconds are followed by intervals of lower-intensity activities lasting from 5 to 10 seconds, or periods of inaction. The studies of Bangsbo, Mohr & Krustrup (2006), Bangsbo, Iaia & Krustrup (2007) state that there are from 150 to 250 periods of short high-intensity activities per game in the case of top players. According to Bangsbo (1994), an elite player performs approximately 1100 movement changes within each game. Jovanovic et al. (2011) use the distance covered during the periods of high-intensity activities as the criterion to divide players into the elite level and the lower performance level. Bunc & Psotta (2001) note that physiological qualities and abilities are necessary preconditions for success at the highest level. Besides movement abilities, it is also essential to develop technical skills and tactical awareness of players. We agree with Reilly, Bangsbo & Franks (2000), that considering the areas of physical performance, players may not excel in any of those areas, but rather must possess an adequate level within all of them. Among the objectives of adult football is to achieve a victory, gain crucial points or to win a competition.

In our opinion, in the case of youth football it is more important to focus on the improvement of selected attributes of the team's performance and principally on the quality of the players' performance. Development of young players consists of multiple stages during which human ontogenesis is being taken into account. The stages are adapted to the players' age and each represents gradual increase of demands on young players. The development of technical skills and tactical awareness, as well as the fitness of footballers should culminate during the specific stage of preparation (players aged 15 – 18). We distinguish different roles for players depending on their position on the pitch. On one hand the roles are specific to the player's position; on the other hand they share many common features. Some roles are typical for a certain position and they are also often performed by the respective players during a game. Analysing and evaluating the quality of the performance of players' roles required in a certain playing position is becoming a more and more important tool for the improvement of the training process. In football, the analyses are focused particularly on the evaluation of both team's (HVD) and individual players' (IHV) performance. The quality and quantity of IHV (individual player performance) can be quantified on the basis of players' workload. Football as a team sport is not a science, but science can help football significantly (Hipp, 2007). According to Psotta et al. (2006), the average time a player spends with the ball during a game (90 minutes) is approximately three minutes. Kumor's (2010) research among adult footballers at top level focusing on various roles of players shows, that there are minimal or no differences in players' match activity between footballers in the same playing position. However, in the case of different playing positions, the variance is considerable. Analysing the performance of an individual player, Spišiak (2013) found that a centre forward (Robin

van Persie) performed a total number of 563 match activities in ten Premier League games, from which 437 (77.6%) were completed successfully. He completed 231 passes and his passing accuracy percentage was 73.2%. The right midfielder in the Slovak First Division performed 673 match activities in ten games, from which 502 (74.6%) were successful. In the same competition, the central midfielder performed 100 attempts to dribble past an opponent and his success rate was 82% (Rejdovian, 2013).

The aim of the study was to quantify and compare the selected indicators of players' match activity among the footballers in the UEFA Youth League and in the 1. LSDS (U19 Slovak First Division).

Methods

Participants
48 players participated in the study, 24 from the UEFA Youth League (UEFAYL), and the same number from the U19 Slovak First Division (1. LSDS) in three different positions: central defender (CD), central midfielder (CM) and forward (F).

Organizing
The observation of recordings from 21 games during the 2014/2015 season (thirteen UEFAYL games and eight 1. LSDS games) was chosen as the key method.

Measurement
The match activity (MA) was evaluated by using the InStat® Scout football Scouting and Analysis Software in accordance with the criteria set by Peráček (2013). The activities evaluated were as follows: passing, dribbling past opponent, duels (during the attacking phase), heading, aerial battles, shooting (including shooting a ball with head), recovering the ball, duels (during the defensive phase).

The player's activity was evaluated every five minutes during a game. The quality and quantity of the player's activities were recorded and points were subsequently awarded according to the quality of the activity.

Eventually the players were categorized into a six-level scale for rating quality (1 as the best, 6 as the worst). The indicators evaluated and compared (in the sample of the players from UEFAYL and 1. LSDS) were as follows: HCJ+ = the number of successful activities; HCJ- = the number of unsuccessful activities; HCJ∑ = the total number of activities; SUC = the successful activities percentage; Points = the points awarded; Cat = the quality category of the player

Data analysis
We chose the following descriptive statistics characteristics – for the measurements of central tendency we used the arithmetic mean (x) and for measures of variability the standard deviation (SD). The Shapiro-Wilk test for normality was used in all statistical analysis. The probability of type I error (alpha) was set at 0.05 in all statistical analyses.The Independent-Samples T Test (in case of failure, the Mann-Whitney U test) was used to find out the significancy of differences between the indicators of match activity (HCJ+, HCJ-, HCJ∑, SUC, Points, Cat) among the players from the UEFAYL and the 1. LSDS.

The Cohen's coefficient – "d", used in case of Independent-Samples T Test, was interpreted as follows: d = 0.20 – small effect, d = 0.50 – medium effect, d = 0.80 – large effect (Cohen, 1988). The coefficient effect size "r", used in case of Mann-Whitney U test, was interpreted as follows: r = 0.10 – small effect, r = 0.30 – medium effect, r = 0.50 – large effect (Cohen, 1988). Statistical analysis was performed through software IBM® SPSS® Statistics V24 (Statistical Package for the Social Sciences).

Results

The evaluation of the match activity of footballers from the UEFA Youth League
It was found that from the quality of match activity point of view (Table 1), four players achieved more than 30 points which was the necessary condition to be classified in the first category. The maximum number of points awarded was 36. Three players were classified in both the second and third category. Twelve footballers were classified in the sixth category. Only one point was awarded to three players. The footballer with 24 points (thus classified in the second category) achieved the highest percentage of successful match activities (88.14%).

The total number of MA was 1308 with 64.83% success rate. The players were awarded a total number of 354 points, which represents 14.75±11.01 point per player on average. The most frequent MA was passing (56.23%), followed by recovering the ball (16.03%). The least frequent MA was shooting (4.54%).

The evaluation of the match activity of footballers from the U19 Slovak First Division
Only one player (with 36 points awarded) was classified in the first category (Table 2).

One player was classified in both the second and third category. Fourteen footballers were classified in the sixth category. One player achieved negative result with -1 point awarded. The footballer with 21 points (thus classified in the third category) achieved the highest percentage of the successful match activities (82.00%). The total number of MA was 1220 with 64.59% success rate. The players were awarded a total number of 317 points, which represents 13.21±8.30 point per player on average. The most frequent MA was passing (53.82%), followed by heading (17.05%). The least frequent PA was shooting (5.25%).

Table 1. The match activity of footballers from the UEFAYL (n = 24).

PP	Match	HCJ+	HCJ-	HCJ∑	SUC	Points	Cat
CD	Real Madrid – Liverpool	43	21	64	67%	1	6
CD	Real Madrid – Liverpool	31	14	45	69%	5	6
CD	Man. City – Bayern	68	25	93	73%	4	6
CD	Man. City – Bayern	52	7	59	88%	24	2
CD	Real Madrid – Porto	44	16	60	73%	9	6
CD	Real Madrid – Porto	45	10	55	82%	9	6
CD	Zenit – Benfica	34	19	53	64%	17	4
CD	Roma – Man. City	28	19	47	60%	1	6
CM	Bayern – Roma	48	22	70	69%	36	1
CM (73´)	Man. City – Bayern	30	7	37	81%	14	5
CM	Real Madrid – Liverpool	39	28	67	58%	23	3
CM	Real Madrid – Liverpool	23	23	46	50%	8	6
CM	Leverkusen – Monaco	35	32	67	52%	12	6
CM	Benfica – Leverkusen	46	21	67	69%	31	1
CM	Real Madrid – Liverpool	40	30	70	57%	32	1
CM	Olympiacos – Malmö	26	23	49	53%	21	3
F (76´)	Roma – Man. City	33	14	47	70%	16	4
F	Man. City – Bayern	16	13	29	55%	21	3
F	Roma – Man. City	19	16	35	54%	10	6
F	Chelsea – Schalke	46	25	71	65%	34	1
F	Shakhtar Donetsk – Atlético	22	17	39	56%	6	6
F	Chelsea – Atlético	24	21	45	53%	17	4
F	Chelsea – Atlético	22	23	45	49%	2	6
F	Barcelona – Arsenal	34	14	48	71%	1	6

PP = playing position; HCJ+ = successful match activity; HCJ- = unsuccessful match activity; HCJ∑ = the total number
of activities; SUC = the successful activities percentage; Cat = the quality category of the player CD = central defender
CM = central midfielder F = forward; x = arithmetic mean; SD = standard deviation

Table 2.The match activity of footballers from 1. LSDS (n = 24).

PP	Match	HCJ+	HCJ-	HCJ∑	SUC	Points	Cat
CD	Slovan – Košice	37	27	64	58%	8	6
CD	Slovan – Košice	39	23	62	63%	16	5
CD	Nitra – Slovan	39	13	52	75%	11	6
CD	Nitra – Slovan	31	15	46	67%	18	4
CD	Žilina – Slovan	47	13	60	78%	15	4
CD	Žilina – Slovan	45	13	58	78%	13	6
CD	Senica – Slovan	21	15	36	58%	3	6
CD	Senica – Slovan	41	9	50	82%	21	3
CM	Slovan – Košice	36	12	48	75%	24	2
CM	Slovan – Trnava	21	18	39	54%	8	6
CM	Slovan – Trnava	39	17	56	70%	19	4
CM	Nitra – Slovan	27	19	46	59%	-1	6
CM	Ružomberok – Slovan	22	18	40	55%	9	6
CM	Senica – Slovan	38	21	59	64%	11	6
CM	Senica – Slovan	28	12	40	70%	8	6
CM	Senica – Slovan	22	21	43	51%	6	6
F	Slovan – Košice	27	22	49	55%	10	6
F	Slovan – Trnava	48	19	67	72%	36	1
F	Nitra – Slovan	38	16	54	70%	19	4
F	Nitra – Slovan	31	18	49	63%	22	3
F	Žilina – Slovan	30	18	48	63%	6	6
F	Ružomberok – Slovan	24	29	53	45%	9	6
F	Senica – Slovan	18	23	41	44%	4	6
F	Slovan – Podbrezová	39	21	60	65%	22	3

PP = playing position; HCJ+ = successful match activity; HCJ- = unsuccessful match activity; HCJ∑ = the total number
of activities; SUC = the successful activities percentage; Cat = the quality category of the player CD = central defender
CM = central midfielder F = forward; x = arithmetic mean; SD = standard deviation

The statistical analysis (Table 3) indicated no significant differences ($p > 0.05$) in any of the evaluated activities between the players in the UEFAYL and the U19 Slovak First Division (1. LSDS).

Table 3. The statistical evaluation of differences between the players in the UEFA Youth League (n = 24) and the 1. LSDS (n = 24) showing evaluated indicators of match activity.

Parameter	Playing activity		Statistical analysis		
	UEFAYL	1. LSDS	Independent-Samples T Test and Mann-Whitney U test	Effect size (ES)	
	x±SD	x±SD		ES value	ES level
HCJ+	35.33±12.28	32.83±8.84	$t = 0.809$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.12	small
HCJ-	19.17±6.64	18.00±4.88	$t = 0.694$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.10	small
HCJ∑	54.50±14.67	50.83±8.63	$t = 1.055$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.15	small
SUC	64.08±10.78	63.92±10.28	$t = 0.055$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.01	small
Points	14.75±11.01	13.21±8.30	$t = 0.548$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.08	small
Cat	4.33±1.97	4.88±1.54	$U = 248.5$, $Z = -0.891$, $n_1 = 24$, $n_2 = 24$, $p > 0.05$	0.13	small

HCJ+ = successful match activity; HCJ- = unsuccessful match activity; HCJ∑ = the total number of activities; SUC = the successful activities percentage; Cat = the quality category of the player; x = arithmetic mean; SD = standard deviation

Discussion

The analysis of both individual players' and team's performance is a significant indicator for a coach not only to prepare an effective training process (including the work load of players), but also to plan its further progress (Süss, 2006). The crucial factor for a coach is (Carling, 2001) to pick out the appropriate information in the process of observing and analysing the performance of either his or any other team. Subsequently, it is necessary to utilize the knowledge in the training process.

Kumor (2010), using the same research methodology as we did, recorded during the World Cup 2006 an average of 46.5 contacts with the ball for a single player at the adult level. This represents a lesser number than we recorded either in the 1. LSDS (50.8 contacts) or in the UEFAYL (54.5 contacts). According to Šimáček (2009) and Kumor (2010), during the European Championship in 2008, players performed an average of 59 match activities per game.

This number represents a rising trend. Psotta (2003) states that the number of performed match activities by adult elite players ranges from 57 MA to 193 MA (125 MA on average) per game. This number is significantly higher compared to our findings, where the maximum was 93 MA (performed by a player from the EUFAYL). However, it is necessary to add, that Psotta (2003) analysed two more match activities (receiving the ball and ball control).

Kumor (2010) recorded an average of 44.8 MA per game with a high success rate of 82.9% which proves the quality of adult players. In our research, the successful match activities percentage among U19 players was 72% (UEFAYL) and almost 70% (1. LSDS).

Compared to 61% (achieved by the players during the U17 World Cup) and 62% (U17 European Championship), we can conclude, that the successful match activities percentage rises with both age and experience of players. Passing (classified as an offensive MA) is definitely the most frequent MA.

The fact that the highest average numbers were recorded during the games of higher quality can be considered as interesting information. Kochan (2014) states 38 and 37 passes per match, where the corresponding number in our UEFAYL games was 37.9. Compared to Kumor's (2010) 30 passes per match (World Cup 2010), our research recorded 29.9 passes per game in the 1. LSDS, while Šimáček's (2009) corresponding number was only 23. In his analysis of John Terry's (English Premier League) performance, Štefanik (2012) recorded an average number of 42 passes. One of the main trends in modern football is to find balanced players who possess both attacking and defensive skills. Therefore we focus also on the number of defensive MA (recovering the ball). The highest figure in this case was achieved by the UEFAYL players (13.1x), while the corresponding number in the 1. LSDS was 9.4x. The least number in this case (7.9x) was recorded by Kumor (2010).

One of the limits of this study was a relatively low number of players in both groups. On the other hand, use of the method of inductive statistics allows us to generalize the outcomes. Inclusion of a higher number of players and positions creates room for a more detailed analysis of match activities in youth football in future.

Conclusion

The aim of the study was to quantify and compare the selected indicators of players' match activities among the footballers in the UEFA Youth League and in the U19 Slovak First Division. The outcomes showed no significant differences between the two groups of evaluated players (UEFAYL and 1. LSDS) regarding the number of both successful and unsuccessful match activities, the successful match activities percentage, the points awarded, and the quality categories of the players. The most frequent MA was passing, followed by recovering the ball. Our recommendation is to include the practice of match situations typical for the positions and roles of the players in the training sessions of this category (specific stage of players' development, players aged 15 – 18), and also integrate the demands typical for the particular playing positions into the training process.

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