

## SITUATIONAL INDICATORS OF TEAM EFFICACY IN GROUP PHASE OF FOOTBALL CHAMPIONSHIP LEAGUE

Marko Novak, Dario Bašić, Josip Tomaško and Valentin Barišić

Zagreb Faculty of Kinesiology

Original scientific paper

### Abstract

Basic goal of this paper was to establish differences between teams depending on their final rankings in a group phase of competition. 32 teams were analyzed throughout 96 total games in group phase of 2014/2015 Football Championship League. Variables compared were ball passes; ball passes considering field zone, distance, and direction; goal strikes; dribbling; center shots; corners; taking the ball; aerial duels; and fouls. T-testing independent samples showed that teams who were better positioned in the end of group phase had greater values in number of passes, number of passes in the last third of the field, and the number of successful passes in the last third of the field.

**Key words:** football, notation analysis, situational parameters

### Introduction

Football can be analyzed as a complex dynamic system where two teams oppose each other, along with their performance being determined via skill, knowledge, and characteristics the players use in order to get better scores. Using notational systems it is possible to observe tactical features which embetter the placement. Different authors have taken on the subject of studying technical and tactical skills for defense and offence considering the final outcome of the competition (Castellano, Casamichana & Lago, 2012; Muhamad, Norasrudin & Rahmat, 2013; Lago-Penas et al., 2010; Artmas & Yiannakos, 2010; Lago-Penas, Lago-Ballesteros & Rey, 2011; Rampinini & Impelizzeri, 2009). By recognizing certain tactical features coaches can advance the training process in order to pay more attention to details of the planning and programming for better results. Using feedback from the game is of great importance for every modulated process of football training.

### Methods

#### Sampled teams

32 teams competing in the group phase of 2014/2015 Football Championship League were sampled. All games which were played in the group phase were analyzed (96 games in total).

#### Variable samples

Variables used in the analysis are: ball possession (pos), ball pass (dod) (total, successful, percentage of successful passes), ball pass in first third of the field (total, successful, percentage of successful passes), ball pass in second third of the field (total, successful, percentage of successful passes), ball pass in the last third of the field (total, successful, percentage of successful passes), short ball pass (total, successful, percentage of successful passes), long ball pass (total, successful, percentage of successful long passes), forward ball pass (total, successful, percentage of successful forward passes), goal strikes (udar), defended goal strikes

Table 1. T-test results for establishing differences between first and second teams in the group phase

	Mean(1)	St.D. (1)	Mean(2)	St.D. (2)	p
POS	56.94	10.91	52.79	10.98	0.06
DOD	561.52	154.98	501.52	114.50	0.03
DOD +	480.67	159.65	420.17	119.50	0.03
DOD%	0.84	0.07	0.83	0.06	0.32
DOD 1/3	85.98	32.05	83.46	27.77	0.68
DOD 1/3 +	81.75	32.26	78.17	27.24	0.55
DOD 1/3%	0.94	0.04	0.93	0.03	0.18
DOD 2/3	303.65	96.94	274.00	82.22	0.10
DOD 2/3 +	270.25	101.89	239.73	88.32	0.12
DOD 2/3%	0.87	0.08	0.86	0.07	0.39
DOD 3/3	171.90	60.87	146.13	45.59	0.02
DOD 3/3 +	128.77	57.94	102.31	39.20	0.01
DOD 3/3%	0.73	0.09	0.69	0.10	0.07
DOD DU	42.06	12.20	41.35	11.79	0.77
DOD DU +	24.56	8.32	21.81	8.26	0.10
DOD DU %	0.59	0.15	0.53	0.14	0.03
DOD KR	519.88	156.87	460.17	117.21	0.03
DOD KR +	456.10	156.85	398.35	116.63	0.04
DOD KR %	0.86	0.06	0.86	0.05	0.58
DOD NAP	289.88	61.68	264.85	53.02	0.03
DOD NAP +	229.19	68.28	201.52	57.36	0.03
DOD NAP%	0.78	0.09	0.75	0.09	0.15
UDAR	16.06	6.47	13.35	4.72	0.02
PQG	2.25	1.60	1.60	1.55	0.04
UDARUN	6.33	3.01	4.67	2.42	0.00
UDARVAN	6.00	2.99	5.56	2.72	0.45
BLOKED	3.85	3.19	3.19	1.88	0.21
EFF%	0.15	0.10	0.12	0.11	0.19
CENTAR	21.71	8.73	17.96	6.48	0.01
CENTAR +	5.21	3.41	4.00	2.25	0.04
CENTAR %	0.24	0.10	0.22	0.11	0.45
DRIB	24.23	8.92	21.35	7.85	0.09
DRIB +	12.96	6.00	9.85	4.78	0.00
DRIB %	0.53	0.13	0.46	0.13	0.01
KUT	6.02	3.00	4.88	1.82	0.02
KUT +	2.65	2.22	1.92	1.43	0.05
KUT %	0.41	0.22	0.39	0.28	0.63
ODUZ	31.90	9.63	30.27	9.58	0.40
ODUZ +	22.08	6.10	20.15	5.79	0.11
ODUZ %	0.70	0.10	0.68	0.10	0.22
IJBILJ	15.06	4.81	17.83	6.49	0.01
BLOK	2.58	1.70	2.94	1.92	0.34
ZRDUEL	24.92	10.82	25.50	10.62	0.79
ZRDUEL +	13.52	5.95	13.54	6.27	0.98
ZRDUEL %	0.55	0.10	0.53	0.12	0.29
PREKPOČ	11.46	4.17	13.15	3.95	0.04
PREKIZN	12.35	4.63	12.35	3.73	1.00

by opposing goalie (udarun), strike outside goal (udarvan), blocked goal strike by opposing player (bloked), goal (pog), efficacy of goal strikes (eff), center shot (centar) (total, successful, percentage of successful center shots), dribbling (drib) (total, successful, percentage of successful dribbles), corner strike (total, successful, percentage of successful corner strikes), taking the ball (oduz)

(total, successful, percentage of successful ball taking), slammed ball (izbij), blocked goal strikes (blok), attempted control of no-man's ball in the air (zrduel), successfully controlling no-man's ball in the air, foul (prekpoč) and forced foul (prekizn).

**Methods of measuring**

Data on situational efficacy indicators for teams that competed in the group phase of Football Championship League were collected via webpage „Stats Zone - powered by opta“, on site „http://www.fourfourtwo.com/statszone“. Reliability of „Opta“ system data was confirmed by Liu and co. (2013) who used the same system for their research.

**Methods of data analysis**

Statistica 10.0 (StatSoft, Inc.) was used for data analysis. Statistically relevant differences between teams were established with T-testing independent samples.

**Results and discussion**

Table 2. T-test results for establishing differences between second and third teams in the group phase

	Mean(2)	St.D (2)	Mean(3)	St.D(3)	p
POS	52.79	10.98	49.06	10.70	0.09
DOD	501.52	114.50	453.63	114.01	0.04
DOD +	420.17	119.50	372.31	116.66	0.05
DOD%	0.83	0.06	0.81	0.06	0.21
DOD 1/3	83.46	27.77	75.85	22.30	0.14
DOD 1/3 +	78.17	27.24	70.67	22.39	0.14
DOD 1/3%	0.93	0.03	0.93	0.04	0.48
DOD 2/3	274.00	82.22	259.88	79.57	0.39
DOD 2/3 +	239.73	88.32	220.60	83.12	0.27
DOD 2/3%	0.86	0.07	0.84	0.07	0.12
DOD 3/3	146.13	45.59	117.90	35.77	0.00
DOD 3/3 +	102.31	39.20	81.04	30.54	0.00
DOD 3/3%	0.69	0.10	0.68	0.09	0.49
DOD DU	41.35	11.79	38.92	9.90	0.27
DOD DU +	21.81	8.26	19.90	7.11	0.22
DOD DU %	0.53	0.14	0.51	0.13	0.44
DOD KR	460.17	117.21	414.71	115.72	0.05
DOD KR +	398.35	116.63	352.42	115.07	0.05
DOD KR %	0.86	0.05	0.84	0.05	0.13
DOD NAP	264.85	53.02	246.42	50.54	0.08
DOD NAP +	201.52	57.36	182.21	51.73	0.08
DOD NAP%	0.75	0.09	0.73	0.08	0.31
UDAR	13.35	4.72	12.31	5.69	0.33
POG	1.60	1.55	1.23	1.22	0.19
UDARUN	4.67	2.42	4.25	2.76	0.43
UDARVAN	5.56	2.72	4.67	2.47	0.09
BLOKED	3.19	1.88	3.46	2.32	0.53
EFF%	0.12	0.11	0.10	0.09	0.24
CENTAR	17.96	6.48	18.46	8.03	0.73
CENTAR +	4.00	2.25	4.15	2.81	0.77
CENTAR %	0.22	0.11	0.22	0.11	0.99
DRIB	21.35	7.85	24.17	7.20	0.07
DRIB +	9.85	4.78	11.23	4.60	0.15
DRIB %	0.46	0.13	0.46	0.13	0.90
KUT	4.88	1.82	4.02	2.10	0.03
KUT +	1.92	1.43	1.48	1.22	0.10
KUT %	0.39	0.28	0.38	0.30	0.89
ODUZ	30.27	9.58	29.42	7.19	0.62
ODUZ +	20.15	5.79	20.25	4.48	0.92
ODUZ %	0.68	0.10	0.70	0.09	0.29
IZBIJ	17.83	6.49	16.69	5.82	0.36
BLOK	2.94	1.92	3.44	2.40	0.26
ZRDUJEL	25.50	10.62	25.63	9.98	0.95
ZRDUJEL +	13.54	6.27	12.81	6.59	0.57
ZRDUJEL %	0.53	0.12	0.50	0.14	0.22
PREKPOČ	13.15	3.95	14.15	4.52	0.25
PREKIZN	12.35	3.73	12.08	3.85	0.72

Between first and second teams there are 19 out of 47 statistically important variable differences (Table 1) – ball pass, successful ball pass, ball pass in the last third of the field, successful ball pass in the last third of the field, successful long ball pass percentage, short ball pass, successful short ball pass, forward ball pass, successful forward ball

pass, goal strike, defended goal strike, successful goal shot, center shot, successful center shot, successful dribbling, percentage of successful dribbles, corner strike, ball taken, fouls. First teams had a larger number of passes and greater success rate, and a greater success rate in long passes. There are only 4 out of 47 statistically important variable differences between second and third teams (Table 2) – ball passes, ball passes in the last third of the field, successful ball passes in the last third of the field, and corner strikes.

There are 27 variables that are statistically valuable for distinction between third and last placed teams (Table 3). Three variables are present in all three cases which shows they are excellent for distinguishing the placement of teams. Variables mentioned are number of passes, number of passes in the last third of the field, and number of successful passes in the last third of the field.

Teams that held on to the ball and pointed precise passes in the final period of offence proved to be more successful, with better placements inside the group rankings. Lago-Peñas, Lago-Ballesteros and Rey (2011) researched 3 competitive seasons of Football Championship League and also proved that more successful teams have a larger number of passes and successful passes.

Table 3. T-test results for establishing differences between third and last teams in the group phase

	Mean(3)	St.D (3)	Mean(4)	St.D (4)	p
POS	49.06	10.70	41.21	10.38	0.00
DOD	453.63	114.01	381.02	85.86	0.00
DOD +	372.31	116.66	299.48	88.02	0.00
DOD%	0.81	0.06	0.78	0.07	0.00
DOD 1/3	75.85	22.30	70.90	20.04	0.25
DOD 1/3 +	70.67	22.39	64.10	19.54	0.12
DOD 1/3%	0.93	0.04	0.90	0.06	0.01
DOD 2/3	259.88	79.57	206.48	53.89	0.00
DOD 2/3 +	220.60	83.12	168.69	56.46	0.00
DOD 2/3%	0.84	0.07	0.80	0.08	0.04
DOD 3/3	117.90	35.77	103.65	34.45	0.04
DOD 3/3 +	81.04	30.54	66.69	31.92	0.02
DOD 3/3%	0.68	0.09	0.62	0.10	0.00
DOD DU	38.92	9.90	37.54	8.82	0.47
DOD DU +	19.90	7.11	16.96	6.01	0.03
DOD DU %	0.51	0.13	0.45	0.12	0.02
DOD KR	414.71	115.72	343.48	88.51	0.00
DOD KR +	352.42	115.07	282.52	87.49	0.00
DOD KR %	0.84	0.05	0.81	0.06	0.01
DOD NAP	246.42	50.54	211.83	43.46	0.00
DOD NAP +	182.21	51.73	151.38	46.59	0.00
DOD NAP%	0.73	0.08	0.71	0.16	0.36
UDAR	12.31	5.69	11.00	6.09	0.27
POG	1.23	1.22	0.56	0.71	0.00
UDARUN	4.25	2.76	3.08	2.06	0.02
UDARVAN	4.67	2.47	4.79	3.09	0.82
BLOKED	3.46	2.32	3.23	2.30	0.62
EFF%	0.10	0.09	0.05	0.07	0.00
CENTAR	18.46	8.03	15.73	8.44	0.10
CENTAR +	4.15	2.81	3.31	2.16	0.10
CENTAR %	0.22	0.11	0.20	0.10	0.43
DRIB	24.17	7.20	19.85	8.55	0.00
DRIB +	11.23	4.60	8.08	4.57	0.00
DRIB %	0.46	0.13	0.41	0.13	0.04
KUT	4.02	2.10	4.44	2.76	0.40
KUT +	1.48	1.22	1.67	1.33	0.47
KUT %	0.38	0.30	0.39	0.24	0.83
ODUZ	29.42	7.19	32.40	9.12	0.07
ODUZ +	20.25	4.48	19.38	5.48	0.39
ODUZ %	0.70	0.09	0.60	0.11	0.00
IZBIJ	16.69	5.82	16.15	6.08	0.65
BLOK	3.44	2.40	4.27	2.89	0.12
ZRDUJEL	25.63	9.98	25.33	10.30	0.88
ZRDUJEL +	12.81	6.59	10.81	5.31	0.10
ZRDUJEL %	0.50	0.14	0.42	0.11	0.00
PREKPOČ	14.15	4.52	12.19	4.20	0.03
PREKIZN	12.08	3.85	11.46	4.49	0.46

## Conclusion

Variables that differentiate teams based on group placing are number of passes, number of passes in the last third of the field, and number of successful

passes in the last third of the field. Results of this paper show the elements that differentiate teams based on technical and tactical preparations, which points to applying the methods that will embetter successful passes depending on field segments.

## References

- Armatas, V., & Yiannakos, A. (2010). Analysis and evaluation of POGs scored in 2006 World Cup. *Journal of Sport and Health Research*, 2(2), 119-126.
- Castellano, J., Casamichana, D., & Lago, C. (2012). The Use of Match Statistics that Discriminate Between Successful and Unsuccessful Soccer Teams. *Journal of Human Kinetics volume*, 31, 139-147.
- Lago-Peñas, C., Lago-Ballesteros, J., & Rey, E. (2011). Differences in performance indicators between winning and losing teams in the UEFA Champions League. *J of Human Kinetics volume*, 27, 135-146.
- Lago-Peñas, C., Lago-Ballesteros, J., Dellal, A., & Gómez, M. (2010). Game-Related Statistics that Discriminated Winning, Drawing and Losing Teams from the Spanish Soccer League. *J Sports Sci Med*, 9(2), 288-293.
- Liu, H., Yi, Q., Giménez, J.V., Gómez, M.A., & Lago - Peñas, C. (2015). Performance profiles of football teams in the UEFA Champions League considering situational efficiency. *International Journal of Performance Analysis in Sport*, 15, 371-390.
- Muhamad, S., Norasrudin, S., & Rahmat, A. (2013). Differences in POG Scoring and Doding Sequences between Winning and Losing Team in UEFA-EURO Championship 2012. *International Journal of Social, Behavioral, Educational, Economic and Management Engineering*, 7(2), 332-337.
- Rampinini, E., & Impellizzeri, F. (2009). Technical performance during soccer matches of the Italian Serie A league: Effect of fatigue and competitive level. *Journal of Science and Medicine in Sport*, 12, 227-233.

## SITUACIJSKI POKAZATELJI MOMČADSKJE UČINKOVITOST U GRUPNOJ FAZI NOGOMETNE CHAMPIONSHIP LIGE

### Sažetak

Temeljni cilj ovoga rada je bio utvrditi razlike između ekipa ovisno o završnim pozicijama u grupnoj fazi natjecanja. Analizirane su 32 ekipe koje su odigrale ukupno 96 utakmica grupne faze nogometne Lige prvaka sezone 2014/2015. Varijable koje su uspoređivane su: dodavanja lopte, dodavanja lopte s obzirom na zonu igrališta, daljina i smjer, udarci na vrata, dribbling, centaršut, udarac iz kuta, oduzimanja i izbijanja lopte, zračni dueli i prekršaji. Primjenom T-testa za nezavisne uzorke rezultati su pokazali da su ekipe koje imaju bolju poziciju na kraju grupne faze natjecanja imaju veće vrijednosti u varijablama: broj dodavanja, broj dodavanja u 3. trećini igrališta i broj dodavanja u 3. trećini igrališta uspješno.

**Ključne riječi:** nogomet, notacijska analiza, situacijski parametri

Received: August 17, 2015

Accepted: December 5, 2015

Correspondence to:

Dario Bašić

Faculty of kinesiology

University of Zagreb

Horvaćanski zavoj 15, 10000 Zagreb, Croatia

Tel.: +385 (1) 3658 666

E-mail: dariobasic@yahoo.com