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The Efficiency of Players of Action-Effective Football Teams in One against One Situations

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Abstract

Background: The aim of this study was to identify and compare the efficiency of action-effective football players in one against one situations (1x1). Material/Methods: The game of winning teams' players was observed in four matches and two semi-final meetings of the European Championships tournament in 2004 and 2008. Visual recording was monitored using a freeze-frame function and data about the players' game were recorded on observation sheet by Szwarc. The activity, effectiveness and reliability of individual offensive and defensive actions were estimated. Results: It was found that on average players of the best teams in Europe participated in 216 1x1 battles (from 184 to 273) in one game, with an average reliability of 52%. Conclusions: Furthermore, it was proved that players-champions engaged equally often and with the same effectiveness in both individual defensive measures and offensive actions.

Keywords

football, European Championships, observation, 1x1 play, efficiency of action

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Authors' Contribution:

A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

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Introduction

The efficiency of action¹ in a game is a basic criterion of a player's usefulness for the team. A player is better if in an increasingly challenging environment of competition he effectively achieves the stated objectives of the game. A conscious participant of a team sports game realizes its intentions primarily through action. Player's actions depend on each other to a different extent. Sports praxeology distinguishes between individual actions, relatively dependent on partners' actions, and group activities – cooperation, absolutely dependent on teammates' activities [cf. 1]. Individual player's actions form the basis for the team's success. They define the athlete's perfection, determine the level of his skills in the game and the effective implementation of group tasks [cf. 2].

As a one against one game (1x1 game) Szwarc [2] defines those of an individual player's actions that are performed with the ball against one opponent or the actions of one player who is not holding the ball against the opponent with the ball in situations of relative independence from partners (partners directly do not affect the objectives of the game). In attacking one against one game is the totality of reactions and actions of the player holding the ball taken against one opponent in order to gain a point (goal) or create situations to score it or in an attempt to control the field and / or maintenance of the ball. Player's activities and actions against a player with the ball in order to intercept the ball, terminate his activities or hinder the movement of the ball is a game one against one in defending. The results of actions in one against one situations should be assessed positively or negatively in the aspect of the objectives of the game both in attacking and in defending. By contrast, activities in unexpected situations in fighting for no one's ball should always be viewed positively, regardless of the achieved results. A player's willingness and activity in the battles for no one's ball (after all without an expression of awareness of the choice of objectives and methods of operation) are in fact values in themselves, as they reinforce the synergistic effects of action of the whole team. An identification of the efficiency of the game performance in one against one situations enables gaining knowledge about the regularities ruling it and allows improving activities of the participating athletes. Thus creating so-called models illustrating players' efficiency of action becomes possible.

Praxeological models of sports games include in particular: tabular models, mathematical indicators, graphics models (board or computer) and the simplified real models (small games, parts of games, selecting and tasking games). Simple mathematical models contain core indicators – performance and reliability as well as supporting indicators – activity of operation, activity, movement and loading playing field sectors [1].

The aim of this study is to present tabular simplified models mapping the one against one game in football based on objective observation games of players representing the highest level of playing skills.

The following research questions were formulated:

1. What is the efficiency of offensive and defensive actions in situations of game one against one of the players of teams with the highest skills of games?
2. What is the players' activity of performance in situations of fighting for no one's ball?
3. What are the differences in the activity and the effectiveness of action in one against one game situations between players of effective sports teams – finalists in the European Championships in 2004 and 2008?

¹ The efficiency of action (activity) is defined as the general values of practical action in the game, including primarily: activity (number of actions taken by the player in the game), efficiency (number of positive action for the objectives the game) and reliability (ratio of effective and efficient actions to the number of all activities performed in the match). Additional values of efficient operation of the game are rationality, valuable and economy.

Material and Method

A method of observation was applied in the research. Six matches played at the final tournaments of World and European Championships in the years 2008 and 2010 were used for analysis (Table 1). Game of players from teams winning in the semi-final and final matches of both tournaments were observed. The data about the game was recorded on a special observation sheet, previously validated as regards the reliability and accuracy. The data were obtained by replaying video recordings and using the freeze-frame function. The way and effect of a competitor's performance in the game situation one against one were noted with application of criteria proposed by Szwarc [2]. The activity in fights for no one's ball has always been assessed positively assuming that action in these situations is the benefit *per se* for the team due to the synergistic effect of strengthening collective action. No activities of the goalkeeper were registered in one against one situation within their penalty area.

Tab.1. The list of matches in which the game of players of winning teams were analyzed

No	Phase of the tournament	Match	Result of the meeting (halftime score)
1.	semi-final	Portugal – the Netherlands	2:1 (1:0)
2.	semi-final	Greece – the Czech Republic	0:0 (0:0) pd** 1:0
3.	final	Greece – Portugal	1:0 (0:0)
4.	semi-final	Germany – Turkey	3:2 (1:1)
5.	semi-final	Spain – Russia	3:0 (0:0)
6.	final	Spain – Germany	1:0 (1:0)

*positions 1-3 Euro 2004 matches; positions 4-6 Euro 2008 matches

** p.d. – after extra-time

Results

From the information included in Table 2 it appears that the players of teams with the highest skills of games fought a total 1,294 battles in one against one games situations (on average 216 battles in a meeting with 52% reliability). Players of the Portuguese team showed the highest activity of operation in one against one situations in the match against the Netherlands, but with the lowest reliability of their activities (46%), and Spanish players showed the lowest activity in the match against Germany. The highest reliability of activity in one against one situation was revealed by the players of Spain in a match against Russia (59%).

Tab. 2. The efficiency of action in one against one situations for winning teams in the regular time of play

Match \ Values of action	Activity	Effectiveness	Reliability
Portugal – the Netherlands	248	114	0.46
Greece – the Czech Republic	231	121	0.52
Greece – Portugal	222	114	0.51
Germany – Turkey	202	111	0.54
Spain – Russia	205	120	0.59
Spain – Germany	184	93	0.51
In total	1,294	673	0.52

The detailed results included in Tab. 3 show that the players of the observed teams used 561 duels in the defensive and 530 offensive individual battles. Moreover, 180 head duels were completed (92 in attack, 88 in defense), and 23 times there were fights for no one's ball. On average, in the observed matches 88 individual battles for the ball were undertaken in attack, and 93 fights in defense. The highest reliability (73%) was achieved in defensive head duels in Euro 2008 matches, and the lowest one (36%) in offensive head fights in tournament matches in 2004. In total, players showed a higher reliability in defense than in attack (59% and 46% respectively).

Tab. 3. The efficiency of different types of actions of players' winning teams in one against one situations in the European Championship matches in 2004 and 2008

Values of action Type of action	Activity*		Effectiveness*		Reliability*		Average number of actions in a match *	
offensive	256	274	121	160	0.47	0.58	85.3	91.3
head offensive	67	25	24	11	0.36	0.44	22.3	8.3
defensive	310	251	157	117	0.51	0.47	103.3	83.6
head defensive	62	26	41	19	0.66	0.73	20.6	8.6
fights for no one's ball	6	17	6	17	1.00	1.00	2.0	5.6

* values in the left column refer to Euro 2004 matches and in the right column – to Euro 2008 matches

Comparing the activity and effectiveness in one against one game situations between the actions implemented by the tested players in matches of Euro 2004 and 2008 (Table 4), it follows that players participating in the European Championship final tournament in 2004 had a significantly higher activity of action in comparison to the examined finalists of the 2008 Championships ($p < 0.05$). Yet there were no statistically significant differences in effectiveness between the examined players participating in both tournaments.

Tab. 4. Test of differences between the two mean values for the activity and effectiveness in 1x1 situation games performed in the European Championship matches in 2004 and 2008

Values of efficiency of action Statistical indicators	Activity*		Effectiveness*	
Number of actions	701	593	349	324
Average	233.66	197.66	116.33	108.00
Standard deviation	13.20	11.85	4.04	13.75
Level of significance	0.0123		0.1855	

* values in the left column refer to Euro 2004 matches and in the right column – to Euro 2008 matches

In turn, an illustration of the results of the types of performed actions shows (Figure 1) that the participants of the Euro 2004 tournament applied offensive and defensive head duels more often than respondents from the tournament in 2008 (respectively 10%, 9% and 4%, 5% of all the implemented actions), and less often one against one play in attack (36% and 46% respectively). The activity of action in one against one gamesituations in defense was similar in the examined players participating in both tournaments finals. Participants of the finals matches in 2008 also showed higher activity in duels for no one's ball in comparison to the observed players in Euro 2004 (on average 6 and 2 fights in one game respectively).

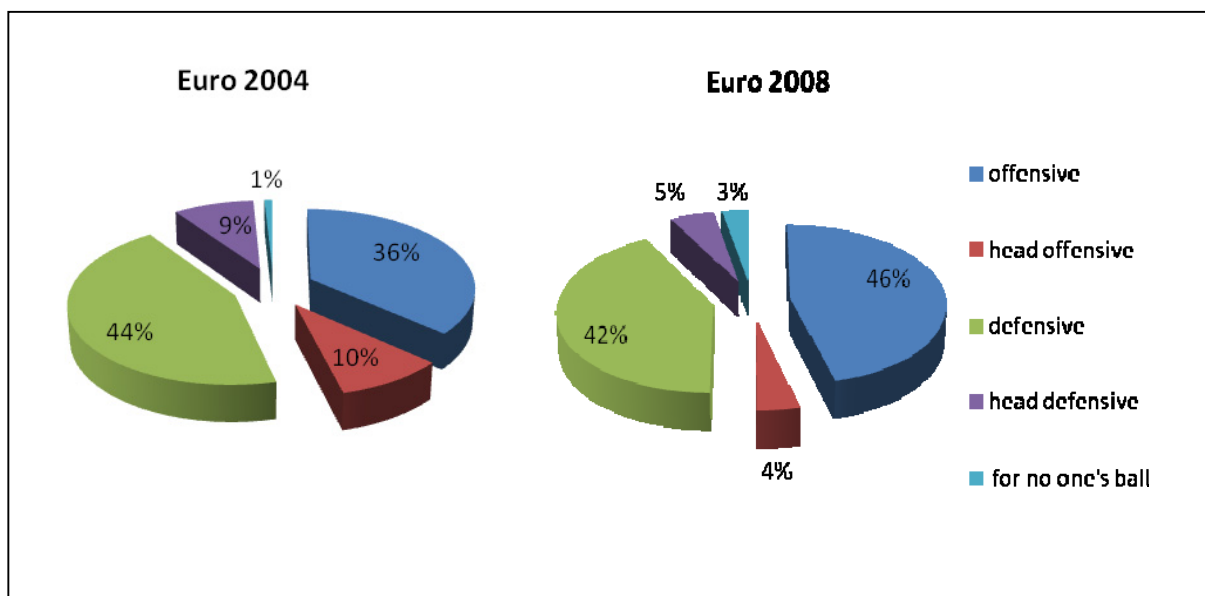


Fig. 1. The percentage of individual types of action performed by the players in one against one situations in matches of Euro 2004 and 2008

Discussion

It was found that the activity and effectiveness of the examined players in one against one situations (an average of 216 duels in one meeting with 52% reliability, 59% in defending and 46% in attacking) confirmed previous reports by other researchers. For example, Szwarc [3] obtained very similar results of observations.

On the basis of studies of the Champions League and the Polish League it was proved that on average players perform 215 one against one situations in one match and they are also more effective in defense than in attack (63% and 50% respectively). The research by Schäfer [4] showed that in the 13 meetings of the European Championship tournament in 1992, players took an average of 218 duels in one match with the total reliability of 52% (the same as in our study). Loy [5] proved that the participants of the World Cup in 1994 performed an average of 205 actions in one against one situations in one game and players of the World Cup team – Brazilians achieved 53% reliability (63% in defense and 35% in attack). Our study also proved that players of teams with the highest skills of the game show a higher reliability in defensive actions than in attack (59% and 46% respectively).

Our findings also correspond with reports by Gerisch and Reichelt [6], Bauer [7], Loya [8] and Stoles [9], Szwarc [10], Szwarc and Kromke [11] who, on the basis of their own research, concluded that players of masterclasses teams considered as masters perform from 200 to 250 battles in one against one situations in a match with a total reliability of over 50% and they are significantly more effective in defensive duels than in attack while the battle for no one's ball happens occasionally; on average players perform it from a few to several times in a match [cf. 11, 12].

On the other hand, observations of Loya [8] and Szwarc [10], who argued that the number of individual actions performed on average in one match increases in subsequent meetings of the World Cup, were not confirmed in this study. It was found that analyzed players of 2004 World Cup demonstrated a higher, statistically significantly different activity of action in one against one game situations in comparison with analyzed players 2008 World Cup. It is difficult to clearly interpret this fact. One can assume that it follows from differences presented in the game by analyzing teams, especially team of Spain. Additionally, research on the efficiency of actions in one against one situations of Spanish players – World Champions in 2010 – did not confirm conclusions of a higher reliability of defensive actions in comparison to offensive ones found by most researchers. The players of Spain showed 60% reliability of individual offensive actions and only 50% reliability of defensive actions and the number of duels taken by them does not differ from the standard indicators

(127 and 99 respectively). However, what should be clearly emphasized is that the game of Spanish players differs significantly from the canons of competing performed by players of other teams.

Conclusion

Based on the results of our research and previous research, it should be noted that football players of teams with the highest skills of game demonstrate various activity of actions in the case of one against one situations, which is primarily dependent on their way of playing the game. In addition, players of effective sports teams are slightly more often engaged in individual defensive fights and they are more efficient than in offensive one against one situations.

Different from the other teams of the highest level of sport proficiency strategy of "the offensive attacking" (domination in a game, scoring points, creating a situation for scoring points and gaining game field with a ball – cf. 1) found in a play of the World and European Champions – footballers of Spain – indicates a new direction for the development of modern football, which is characterized by high efficiency of offensive individual actions. A completely different problem is the answer to the question whether level of skills of Spanish players are available for players of other teams?

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