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Section III – Sport, Physical Education & Recreation

Characteristics of Team Leaders Play as exemplified by the European Championships In Basketball

by
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This paper presents a statistical analysis of basketball team leaders performance during a championship status tournament in team sports using the example of the 36th European Championships EuroBasket 2009. The list of player-leaders of particular national teams was developed by means of the expert method, based on the analysis of qualitative and quantitative data. Empirical data gathered were taken from the website of EuroBasket 2009 Poland (www.eurobasket2009.org) and FIBA Europe (www.fiba.com). Formal statistical methods concerning sample description were used. The comparative analysis was conducted by means of various tabular and graphic techniques. The calculations were performed in a STATISTICA spreadsheet. The applied statistical methods allowed a series of conclusions to be drawn concerning the performance of leader-players and their cooperation with other players on the court. The knowledge of particular SGCs (standard game components) realization allows those dispositions of leader-players which are especially significant in the process of cooperation in a basketball team to be improved by coaching.

Key words: sports leader, basketball, individual performance, statistical analysis

Introduction

One of the basic problems in the analysis of a player's performance is the objective evaluation of his or her sports accomplishments. Effective rivalry in team sports game requires constant improvement of the abilities of players (including leaders) in order to achieve the highest performance efficiency. At the professional level, the main objective is to create a team of the best players to take part in international competitions. The national team consists of players who have achieved a desirable playing ability, with the expectation that they will display their skills as effectively as possible in cooperation with their partners (synergy effect). Striving to achieve such an effect creates a necessity for objectified identification of the team members, especially player-leaders, so as to define in the most accurate way the disposition of players for cooperation within a team (Carron et al., 2002; Erčulj, 2008; Lam, 2007; Zhao, 2001).

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Basketball occupies a special place among team sports. It is characterized by dynamic changes of situation carried out by both competing teams. Many of these situations can be objectively quantified which, as a result, leads to determination of various statistics describing players' performance on the court (Trninić et al. 2002). The most frequently accessible numerical specifications concern such game activities of a team leader as: the number of points scored in the game, shooting effectiveness, number of rebounds, turnovers, steals, etc. (Angel et al. 2008; Sampaio et al. 2004; Šeparović, Nuhanović 2008).

Most of these classifications do not take into consideration the direct participation of players in sports achievements of their teams because these categorizations are presented in an unbalanced form. Starting the analysis of basketball match actions (BMA) performed by a team (including a leader) during the rivalry, it may be assumed that they consist of the contribution of five-person line-ups of this team that change constantly during the game. Such line-ups stay on the court for some time, while a team leader may or may not appear in them (Pluta, 2008). As a result, the game may be treated as some dynamic sequence of changing personal line-ups of a team performing in defined periods of time.

This paper gives a complex statistical analysis of team leader's play during the men's basketball tournament of the European Championships which took place in Poland in September 2009. Numerical material comprises data regarding standard game components (SGC), which consist of explicitly defined information resulting from the course of the game and implied by FIBA rules, used to objectify game achievements of particular players. Statistical conversion and processing of the empirical material gathered were done with the use of the STATISTICA program. The data source is the official website of FIBA-http://weblisting. stinnovation.com/eurobasket//?path.

Material and methods

The formal description of line-ups performing during the EuroBasket 2009 tournament is as follows.

Let set I be a 12-element set which is identified with the starting numbers of basketball players. Any given 5-element subset $G = \{i_1, i_2, i_3, i_4, i_5\}$ of the set I is regarded as the line-up of the players participating in the game and performing together in a particular time interval.

It was assumed that q time slots were distinguished, which is expressed by the set $T = \{T_1, T_2, ...T_q\}$, whose elements meet the conditions of disjunction, that is $T_j \cap T_{j'} = \varnothing, \quad j \neq j'$, and overlapping, that is $T_1 \cup T_2 \cup ... \cup T_q = <0, 40>$, while it is assumed that the game was decided within the full time.

Each of the set T elements is a closed interval $T_j = < t^{p}_{j} ; t^{k}_{j} >$, where t^{p}_{j} and t^{k}_{j} respectively

denote the initial and final time moment *j* of this time interval. Each such interval has an assigned defined line-up of players G_j, which leads to a fixed pair (T_j, G_j) for $j = 1, 2, ..., q$, while the second elements of these pairs may be repeated. This means that a given line-up of players appears many times. The configuration of all the pairs mentioned creates the set $Z = \{(T_j, G_j); j = 1, 2, ... q\}$. The line-up of players *G* appearing on the court carry out different match actions, with or without the participation of a leader. It is assumed that *a* types of such actions were distinguished. The collected data regarding the ensuing actions performed by a given line-up of players in a defined time interval in a global view, permitted of creation a two-dimensional table *A [1:q, 1:2a].*

Complete information relating to subsequent playing line-ups in defined time intervals and their basketball accomplishments is called *a set of basketball information capacities for a team and leader.* It can undergo diversified statistical analyses, including the ones referring to the team leader, players in the game or the remaining players (interval analysis, cumulative analysis, and intersectional analysis) and to the frequency of playing line-ups (analysis of combinations of playing line-ups, series of playing line-ups, frequency of match actions for particular playing line-ups).

Teams participating in the EuroBasket 2009 tournament (q = 16) were divided in the preliminary round into four groups A–D. Particular groups included respectively:

Gr. A: Greece (GRE), Croatia (CRO), Macedonia (MAC), Israel (ISR);

Gr. B : Russia (RUS), Latvia (LAT), Germany (GER), France (FRA);

Gr. C : Slovenia (SLO), Serbia (SER), Spain (SPA), Great Britain (GBR);

Gr. D : Poland (POL), Bulgaria (BUL), Turkey (TUR), Lithuania (LIT).

For the second phase of the tournament (qualifying round) three teams from groups A to D qualified, with accepted results of the preliminary round. Teams from groups A and B created group E, while teams from groups C and D created group F. At this phase, each team played three games. For the quarter-final phase (final round) the four best teams from groups E and F qualified. This part of the tournament was conducted according to the knock-out system, which is presented in the following scheme:

Gr. E: E1, E2, E3, E4, E5, E6

(B2, A2), (B3, A1), (B1, A3), (A3, B3), (A1, B2), (A2, B1), (B2, A3), (B3, A2), (B1, A1)

Gr. F: F1, F2, F3, F4, F5, F6

(D2, C2), (D3, C1), (D1, C3), (D3, C3), (D1, C2), (D2, C1), (D2, C3), (D3, C2), (D1, C1)

1-8: 1-(E1, F4), 2-(E2, F3), 3-(E3, F2), 4-(E4, F1)

(W1, P1) (W2, P2) (W3, P3) (W4, P4)

1-4: 1-(W1,W3), 2-(W2,W4) 5-8: 1-(P1,P3), 2-(P2,P4)

(W1',P1') (W2',P2') (W1'',P1'') (W2'',P2'')

1-2: (W1′,W2′), 3-4: (P1′,P2′), 5-6: (W1″,W2″), 7-8: (P1″,P2″).

As follows from the specification given, the total number of matches played in the tournament equals to m = 54, where $m = m_w + m_k + m_f$, while m_w is the number of matches in the preliminary round, m_k is the number of matches in the qualifying round, and m_f is the number of matches in the final round.

The following figures (1-3) present the distribution of 222 basketball players who entered the tournament according to elimination groups, position on the court, (1-point guard (play-maker); 2-shooting guard; 3-small forward, 4-power forward; 5-centre) and club membership (1-national league, 2-NBA, 3-Italian league, 4-Spanish league, 5-Greek league, 6-other leagues). It is worth noticing that the greatest number of tournament participants playing in national leagues were from the team representing Russia (100%), the next position was occupied by Israel and Turkey (85.7% each), while the smallest numbers were from Great Britain (6.3%) and Slovenia (7.1%). Among the Poles, 38.5% played in the national league. When considering all athletes who entered the tournament, the highest percentages of players performing abroad was observed in the Spanish league, with 29 players (13.1%), and the Italian league, with 22 (9.9%).

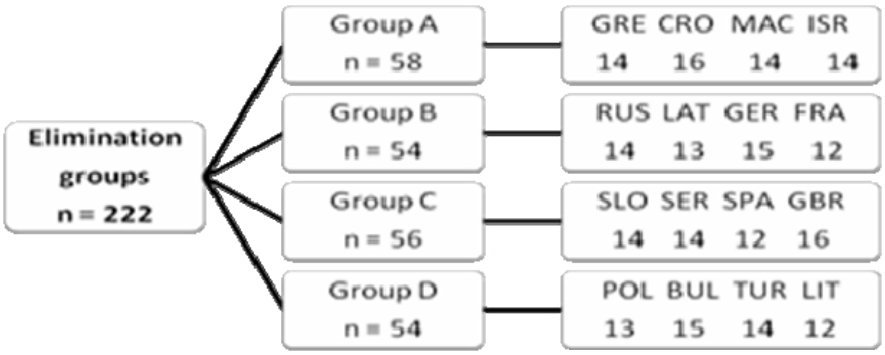

Figure 1

Numerical distribution of basketball players according to qualifying groups

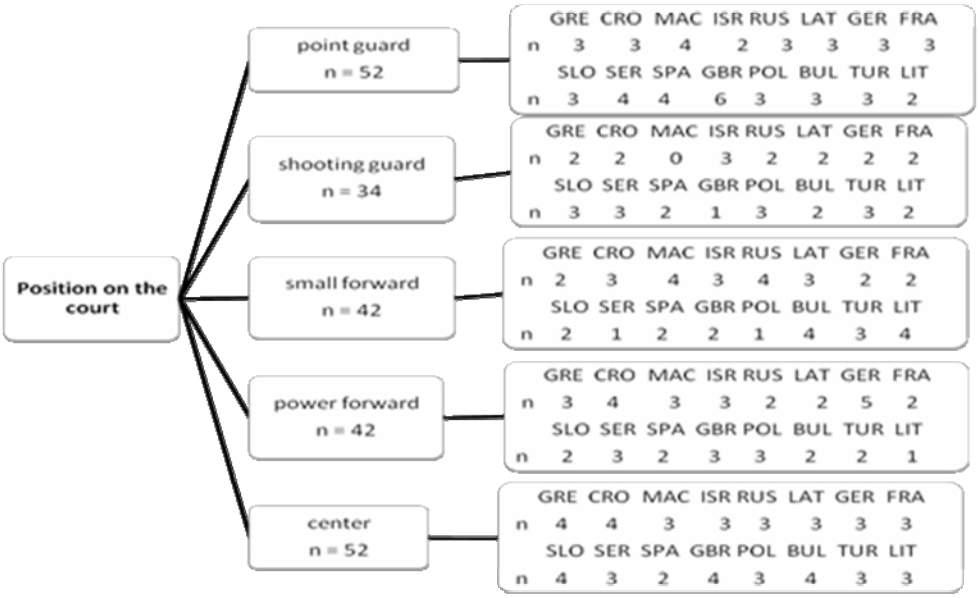

Figure 2

Numerical distribution of basketball players according to position on the court

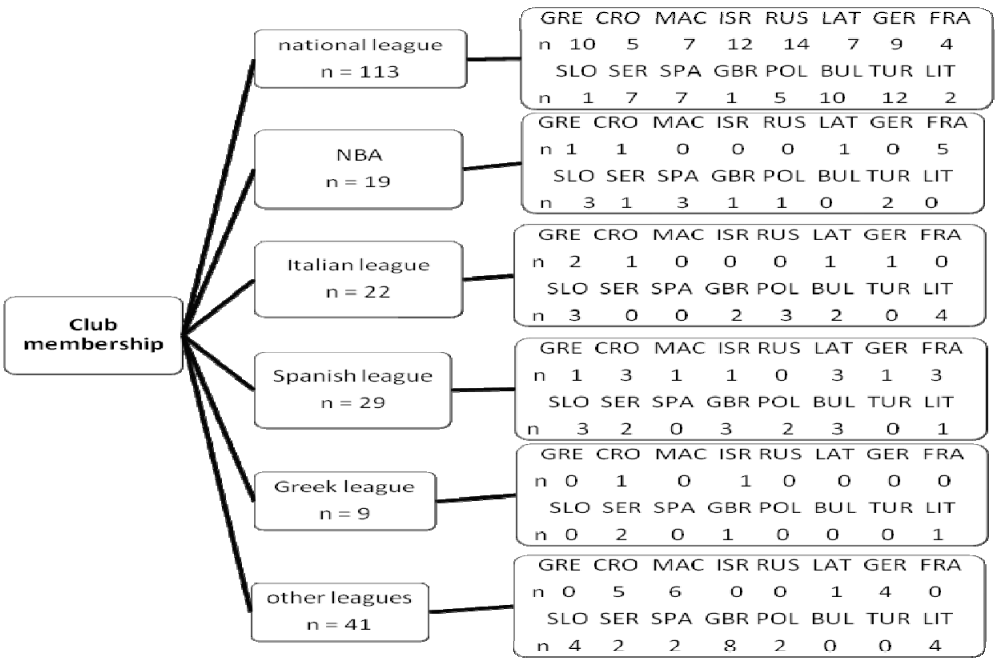

Figure 3

Numerical distribution of basketball players according to club membership

The team representing Spain, the European Champion, was mostly based on athletes playing in the national league (58.3%) and NBA (25%). Apart from the Spanish, the greatest percentages of players performing in the NBA came from the teams representing France (41.7%) and Slovenia (21.4%). Detailed information regarding the teams and players is contained in a relational database, whose module concerning player-leaders of teams is given in Table 1.

The list of player-leaders of particular national teams was developed by means of the expert method, based on the analysis of qualitative and quantitative data. The criteria indicated for expert evaluation included the leader-player actions performed in the game for which the condition is efficient realization of tasks, taking into account each player's individual accomplishments in the championship games of a given basketball federation. One player acting as a leader was appointed in each team.

In the group of 16 player-leaders of the national teams, the players appeared on the court respectively in the following positions: a centre: 31.3% of players; a small forward: 25%; a point guard and a power forward: 18.7% each; and a shooting guard: 6.3%.

Table 1

Database concerning player-leaders of EC 2009 teams

Country	Starting number	Court position	Club membership	Games played in EC	Points scored in EC	Body height	Body mass	Age
1	13	5	2	0	0	213	108	25
2	15	3	2	29	412	208	100	30
3	11	3	5	9	89	203	111	24
4	15	3	1	3	56	198	94	32
5	4	1	6	3	42	188	75	36
6	4	1	2	15	101	195	83	25
7	11	4	4	6	65	206	102	24
8	7	1	1	16	122	193	93	27
9	8	3	1	0	0	201	106	34
10	9	2	2	28	424	188	82	27
11	13	5	1	44	385	215	116	34
12	15	5	2	3	45	211	109	23
13	7	4	2	0	0	208	109	26
14	14	4	4	0	0	205	109	23
15	4	5	2	22	445	215	113	29
16	15	5	4	15	105	210	111	25

Legend :
- country : 1 – Poland, 2 – Turkey, 3 – Lithuania, 4 – Bulgaria, 5 – Macedonia, 6 – Croatia, 7 – Israel, 8 – Greece, 9 – Russia, 10 – France, 11 – Germany, 12 – Latvia, 13 – Great Britain, 14 – Serbia, 15 – Spain, 16 – Slovenia.
- court position: 1- point guard, 2 – shooting guard, 3 - small forward, 4 - power forward, 5 – center
- club membership : 1 – national league, 2 - NBA, 3 – Italian league, 4 – Spanish league, 5 – Greek league, 6 – other leagues.

Table 2

Basic statistical description of player-leaders and teams in the EC 2009

features	min	max	R	$\bar{x}$	Me	SD	V
body height [cm]	188.0	215.0	27.0	203.56	205.50	8.95	4.40
body mass [kg]	75.0	116.0	41.0	101.31	107.0	12.41	12.25
age [years]	23.0	36.0	13.0	27.75	26.50	4.25	15.32
body height [cm]	178	218	40	200.79	202.0	9.36	4.66
body mass [kg]	72	140	68	99.13	100.0	12.84	12.95
age [years]	19	39	20	26.16	26.0	3.90	14.91

Nearly half of the leaders (43.8%) currently play in the NBA, while 25% of players in national leagues. The leader of the team representing Germany had played in the biggest number of European Championship games (44) before 2009, while four of the players had never played in previous EC. In the group of player-leaders who were EC participants until 2009, seven of them scored above 100 points and the highest average of points scored was obtained by the leader of the team representing Spain (20.2%), who also became the scoring leader of the EC2009 tournament, with an average of 18.7 points per game. Moreover, this player was chosen as MVP EC. Analysis of the diagnostic features value distribution (body height and body mass) and classification feature (the age of player-leaders of representations) is presented in Table 2, in which the following statistics are given: min, max, R, $\bar{x}$, Me, SD, and V.

The average values of body height and body mass for player-leaders were greater than for the teams. The average age of player-leaders was also higher

Results

Empirical data gathered were taken from the website of EuroBasket 2009 Poland (www.eurobasket2009.org) and FIBA Europe (www.fiba.com), as well as from the official championships program. By means of a STATISTICA spreadsheet, they were put together in a specially prepared database. This database comprises a two-dimensional table in which the subsequent rows indicating its records concern the accomplishments of particular basketball players, whereas the columns are separate areas containing information relating to average values of standard game components (SGC) in EC 2009. The base consists of 38 fields of identical information

content for all player-leaders. One part of a database prepared for two basketball players, the

leaders of the Polish and Spanish national teams, is presented in Table 3.

Analyzing the data concerning the SGC of national leaders, attention is drawn to the fact that on the average, point guards stayed on the court for the longest period of time (229.67 min.), which seems natural, while power forwards remained on the court for the shortest time period (138 min.). The average numbers of points scored by the leaders depending on the position on the court were: 27.78 pts (power forward), 28.16 pts (center), 29.38 pts (small forward), 29.62 pts (point guard), and 31.01 pts (shooting guard). The highest shooting effectiveness from the field was observed in case of centers, (56.6%), whereas the lowest effectiveness was registered by the leaders who appeared as small forwards (37.75%). Individually, the best player in this category proved to be the Spanish leader (64% shooting from the field). The opposite situation took place in case of free throw shooting, which was performed best by leaders appearing as small forwards (82.5%) and worst by leaders appearing as centers (52.8%).

In case of the remaining SGC values, the highest effectiveness was presented by the leaders as follows:

- rebounds: offensive (2.47), defensive (5.97), total (8.42) – centers,
- assists: shooting guard (one player only) (4.38), point guard (3.66),
- turnovers: point guard (2.39),
- steals: shooting guard (1.75), point guard (1.48),
- blocks: centre (1.89),
- fouls: centre (2.71).

The given structure seems to be in conformity with general tendencies in professional basketball in which the positioning of players in the game and appropriate attributes assigned to them due to it, determine the degree of specific game actions' realization.

Moreover, the player-leaders' effectiveness is clearly demonstrated by their achievements in the final leaders classification of the EC 2009 tournament. The obtained rank sums allowed to develop the ranking of basketball players in which the highest positions were occupied by the players who achieved the highest positions for particular SGCs. Table 4 presents the results obtained by the analyzed player-leaders in the respective, additive rankings, the so-called "Player Leaders" of the tournament.

As follows from the information contained in Table 4, not all the leaders appear on the list of the 10 best players for particular SGCs. None of the classifications mention the LIT, BUL, ISR, LAT, GBR, or SER representation leaders. Moreover, in the rankings of successful three-point shots and the number of fouls committed, the previously indicated leaders occupied further positions. The achieved average sums of ranks allowed the ranking of basketball player-leaders

who gained the highest positions for particular SGCs to be developed.

Table 3

Part of database of SGC of player-leaders in EC 2009

No	Country	Initial	Number	Cort position	Games played	Minutes played		Points			
						Total	Per game	Total	Per game		
1	POL	M.G.	13	5	6	208	34.35	86	14.3		
2	SPA	P.G.	4	5	9	231	25.39	168	18.7		
Shots											
Made field golas	Attepmts	%	Made -2	Attepmts -2	%	Made -3	Attepmts -3	%	Made -1	Attepmts -1	%
40	73	55	40	71	56	0	0	0	6	11	55
65	101	64	61	92	66	4	9	44	34	61	56
Rebounds											
Offensive	Per game	Defensive	Per game	Total	Per game						
19	3.17	46	7.67	65	10.83						
20	2.22	55	6.11	75	8.33						
Assists		Fouls		Turnovers		Steals		Blocked shots			
Total	Per game	Total	Per game	Total	Per game	Total	Per game	Total	Per game		
10	1.67	16	2.67	8	1.33	1	0.17	12	2		
11	1.22	12	1.33	17	1.89	1	0.11	20	2.22		

The best result was attained by the leader of the team representing Spain (2.29), and the second position was achieved by the leaders of TUR (3) and POL (3.33). The Polish team leader was the only one in this group of players to dominate four individual classifications concerning the block of defensive plays (rebounds) and so-called double/double achievements (where two statistical results for points, assists, rebounds, steals, and blocks were expressed in the form of double-digit numbers), which has a direct relationship with his position on the court. Analyzing the plays of the team (including the leader), in the course of the tournament rivalry, it might be assumed that they were carried out by five-person line-ups of this team, which changed constantly during the game. Generally, such line-ups stay on the court for some period of time, and the team leader may or may not appear in them (Pluta, 2008). From the point of view of training, the important thing is to analyze the cooperation of players currently appearing on the court, especially in the context of achieving better than average results (so-called added values) by those line-ups, that is, a synergist effect. The example of defining analysis used to determine the set of basketball information capacities for a team and its leader is given for the combination of a line-up of players and leaders in a game between POL and SPA (European Champion) teams. During the basketball tournament of EC 2009, these players

played respectively six and nine matches. On the basis of empirical material gathered, it became possible to give the models of the line-ups of five basketball players (including a team leader) distinguishing themselves by the longest appearance on the court and the influence on the number of points scored or lost (Figure 4 and 5).

Table 4

Positions occupied by player-leaders in the final ranking of EC 2009

Country	Court position	Minutes played	Pts (total)	1 point	2 point	Rebounds (total)	Offensive rebounds	Defensive rebounds	Asssists	Blocks	Steals	Turnovers	Double/double	Average sum of ranks
1	5	2	6	0	6	1	1	1	0	2	0	0	1	3.33
2	3	0	0	0	0	0	0	0	0	0	0	3	0	3
5	1	8	0	0	0	0	0	0	0	0	8	0	0	8
6	1	0	0	0	0	0	0	0	9	0	7	0	0	8
8	1	5	7	4	0	0	0	0	6	0	0	1	0	4.6
9	3	4	0	0	0	0	0	7	0	0	5	0	0	5.33
10	2	7	2	0	0	0	0	0	4	0	2	6	9	5
11	5	0	0	0	0	0	0	0	0	10	0	0	0	10
15	5	0	1	0	3	2	5	2	0	1	0	0	2	2.29
16	5	6	3	9	8	3	5	5	0	0	0	0	4	5.38

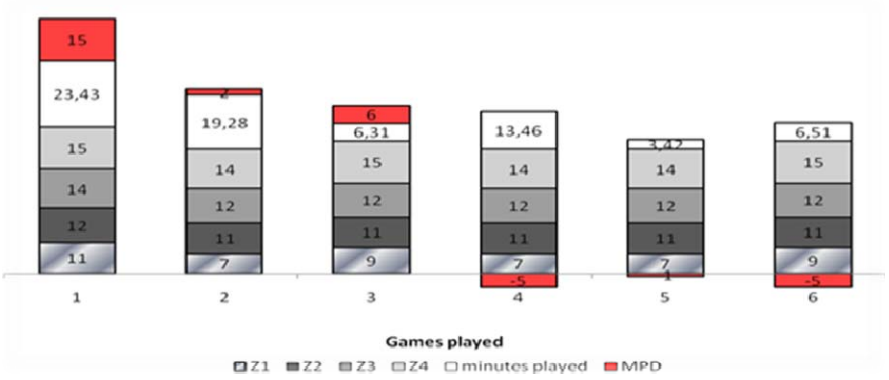

Figure 4

Specification of Polish players and the leader (nr 13) line-ups playing for the longest time in subsequent games of the EC 2009 tournament

As far as the leader of Poland is concerned, the realization of game plays was carried out in the arrangement with six players, most frequently with the numbers 11 and 12. In the first game of

the team representing POL, the cooperation of players staying on the court for the longest time turned out to be most effective. The MPD (match point difference) value in all the games ran in the range (–5; 15). On average, the line-up of performing players and leader stayed on the court at the longest for 12.09 minutes. In case of Poland during the basketball tournament of EC 2009, the starting line-up (11, 12, 13 -leader, 14, and 15) was the one most frequently appearing on the court. The leader of the Spanish team stayed on the court for the longest period of time with the players with starting numbers 6 and 7. The MPD value for the longest playing line-ups of players in seven games was positive.

Only in the first match did the line-up of players stay on the court for less than 10 minutes. The optimal model for the Spanish team line-up in the EC 2009 tournament included players with starting numbers (4-leader, 5, 6, 7, and 15).

A sample analysis of the time chronology presenting a combination of players is given for two chosen games played by the Polish and the Spanish national teams. Additionally, the value of the index regarding individual shooting effectiveness for a leader and the playing line-up of basketball players was worked out. Its volume informs about the shooting effectiveness of a player or a playing line-up in a set time sequence (1 min). In the examples presented in Table 5, the leaders of the Polish and Spanish national teams in the game analyzed scored on average 0–0.99 points (POL) and 9–1.8 points (SPA) in each minute of the game, fewer than the remaining line-up of players, who scored 0–3.98 (POL) and 0–4.84 (SPA). This confirms the poor realization of shooting actions, especially of the Polish leader in a given game. Playing line-ups achieved the highest value of the individual shooting effectiveness index in the ranges T_{10} (POL) and T_4 (SPA), substantially exceeding the average value in this game (1.18 pts/min for POL and 1.90 pts/min for SPA. The examination of data collected during the whole EC 2009 tournament allowed to trace the dynamics of changes of this game variable in all national team leaders.

Moreover, in the time intervals T_1 T_2, T_3, T_5, T_7, and T_{11} in the game of the Polish team, the so-called interval point negative condition was noted, which in the final game occurred only in the intervals T_5 and T_7.

Proceeding with analyzing the statistics of the Polish and Spanish national team leaders in consecutive games of the EC 2009 tournament, we may examine the data regarding the values of chosen standard game components (SGC), which is presented according to their offensive and defensive plays (Fig.6). Considering the fact that the leaders of Polish and Spanish teams appeared at the same position (center), the number of components was restricted to those attributes which are mainly designated to players appearing in the position of a center: points scored, rebounds, and blocks. Additionally, the total playing time in each game was given.

Comparing the game accomplishments of Polish and Spanish leaders, it is worth noticing that the player of the European Champion's team had better shooting effectiveness from the field and a higher number of blocks.

The Polish team leader prevailed in the remaining elements. Moreover, there is a distinct difference in the average playing time of the Polish player, which was nearly 10 minutes longer than the one of the Spanish leader, and also the longest in relation to the remaining player-leaders of EC 2009.

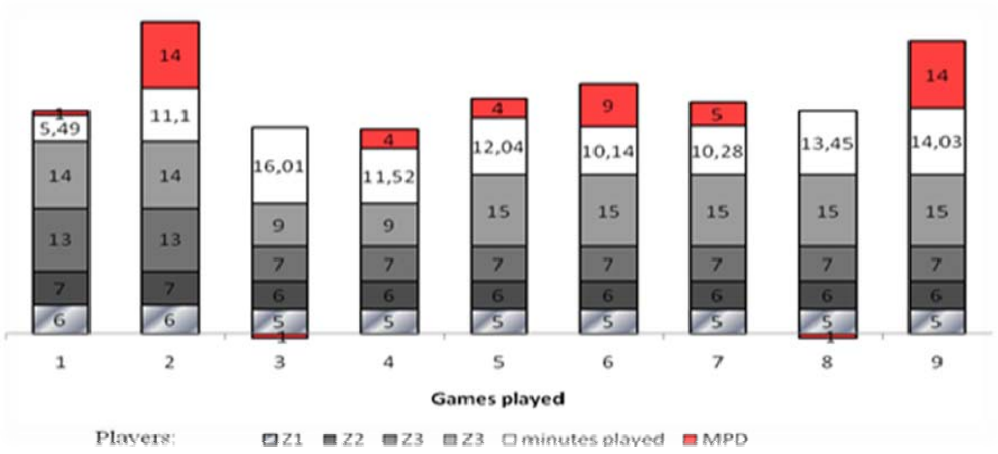

Figure 5.

Specification of Spanish players and the leader (nr 4) line-ups playing for the longest time in subsequent games of the EC 2009 tournament

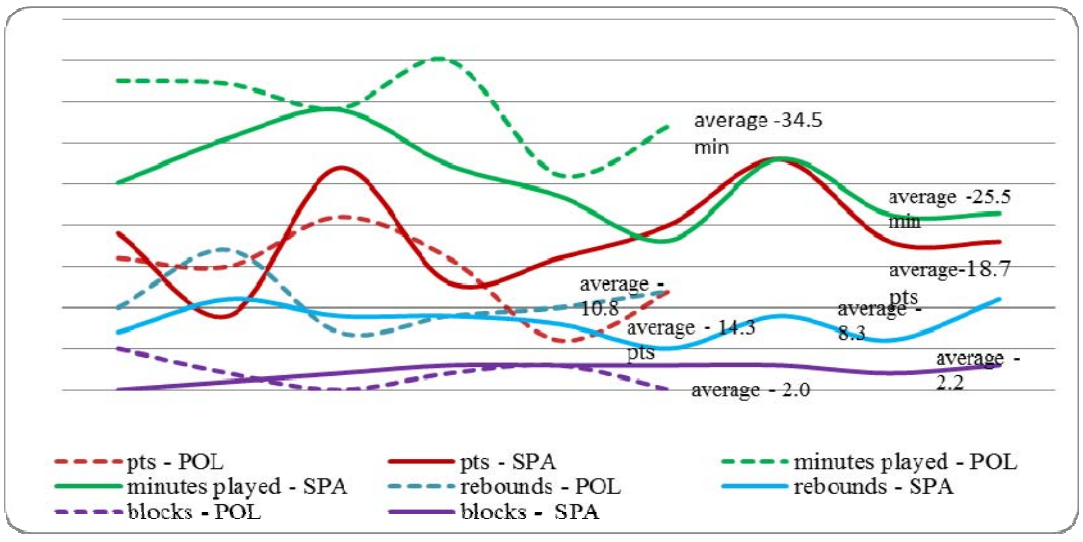

Figure 6.

Values of chosen SGC for the leaders of POL and SPA teams in the EC 2009 tournament

Table 5

A compartmental analysis of the playing line-up of players and team leaders for the Polish and Spanish teams in two games of EC 2009

Team	Game number	Quarter	T_j	Game time		Players					Result of composition of players		PIP	Score	Leader		UITE	
				t^p	t^k	Z1	Z2	Z3	Z4	L	W	Lo			WL	%	C	L
POL	6	I	T_1	10.00	3.09	9	11	12	15	13	9	14	-5	9:14	2	22.21	1.08	0.31
			T_2	3.09	2.18	7	10	11	12	13	0	2	-2	9:16	0	0	0	0
			T_3	2.18	0.00	10	11	12	15	13	5	7	-2	14:23	2	40	1.38	0.92
		II	T_4	6.04	4.01	11	12	14	15	13	4	3	1	22:35	2	50	0.99	0.99
			T_5	4.01	1.53	6	12	14	15	13	2	5	-3	24:40	2	100	0	0.96
			T_6	1.53	0.00	6	7	12	14	13	2	2	0	26:42	0	0	1.31	0
		III	T_7	10.00	7.53	11	12	14	15	13	4	10	-6	30:52	2	50	0.97	0.97
			T_8	3.55	0.00	5	12	14	15	13	8	7	1	46:71	0	0	2.25	0
		IV	T_9	10.00	6.48	5	7	12	14	13	5	4	1	51:75	2	40	0.96	0.64
			T_{10}	6.48	3.21	5	7	9	12	13	13	7	6	64:82	0	0	3.98	0
			T_{11}	3.21	2.19	5	7	8	12	13	0	6	-6	64:88	0	0	0	0
			T_{12}	2.19	0.00	4	5	6	8	13	4	2	2	68:90	0	0	1.25	0
SPA	9	I	T_1	10.00	4.24	5	6	7	15	4	13	7	6	13:7	4	30.77	1.65	0.73
			T_2	4.24	2.27	5	7	11	15	4	7	0	7	20:7	0	0	4.46	0
		II	T_3	8.51	7.07	9	11	12	14	4	4	2	2	28:18	2	50	1.39	1.39
			T_4	7.07	5.43	6	9	12	14	4	6	0	6	34:18	0	0	4.84	0
			T_5	5.43	4.45	6	7	9	12	4	0	2	-2	34:20	0	0	0	0
			T_6	4.45	0.00	6	7	12	15	4	18	9	9	52:29	8	44.44	2.25	1.80
		III	T_7	10.00	6.18	5	6	7	15	4	4	5	-1	56:34	2	50	0.58	0.58
		IV	T_8	4.31	2.55	11	12	13	14	4	2	2	0	81:54	2	100	0	1.47

Legend :

W – points scored, Lo – points lost, PIP – point interval difference,
WL – points scored by a leader, C - composition of players, L – leader,

$UITE = \frac{60\Delta U}{\Delta t}$ *[pts/min] - unitary index of shooting effectiveness*

Discussion

In today's team sports games we come across the concept of a leader. The course of his actions is determined by a great number of causes and effects that is why to the full and objective scientific knowledge it is necessary to systematically gather and process the information about the achievements of a leader during a game. Operational leaders, due to their special competences, determine the dynamics of team sports development. The manifestation of leadership occurs in sports games more frequently than in other disciplines. In basketball games played at the highest level, the actions of

leader-players are especially significant. The analysis of their performance is a difficult and multi-dimension process. This results from the fact that the essence of basketball play itself creates a multi-system governed by separate objective rules which are permanently recognized and improved. According to Bazanov et al. (2006), Ibanez et al. (2003), Ostojic et al. (2006), Milijkovic et al. (2002), Pluta (2008) and Stonkus (2002) the accurate analysis of the team leader's actions, in terms of cause and effect, is possible provided that both the training tasks and the tasks performed during competition are registered in detail, especially at the highest level of sports championship.

The issue of a sports leader notion is especially significant in the rivalry of national teams. The creativity of a team's leader is not established once and for all and related to one or two players in a given team, but this is often a constant process of self-improvement in the area of one's sports and personal skills which manifest themselves as outstanding sports talents and suitable interpersonal cooperation.

According to Montgomery et al. (2008) and Nutting (2010), a team leader is a player who distinguishes himself from a sports group by his talent, high competence in handling the ball and has the ability to interact with other players to achieve the intended goal. However, first of all he is able to independently make accurate and effective decisions, appropriate to the situation. Empirical research shows that, what particularly characterizes the game of a basketball leader, are his individual actions, relatively independent of the team. During the game, a leader repeatedly has to act individually, and his creative initiative constitutes the basis of independence of thought. This was confirmed by the research of national team games' leaders during the Eurobasket 2009. These players overwhelmingly dominated the game for the implementation of the respective actions and demonstrated high efficiency in the game. Hence, it seems crucial to directly analyze the sequences and consequences of actions in the game of a sports team leader. This analysis allows to develop the precise quantitative and qualitative characteristics of his game.

The notion of a leader in team sport games is expressed by fairly broad gamut of his behaviors and achievements. That is why in the description of a leader's participation in the team's contribution we have to take into consideration all the information which, in the context with other players, allows the explicit definition of what type of a leader we deal with in different phases of a match. It is all even more significant as the continuous increase in tactical and strategic responsibilities supported by individual technical skills is observed, and simultaneously a fairly explicit division of competences during the game appears (Fernandez et al. 2009; Pluta, 2008; Romanowich et al. 2007; Zhao, 2001).

The analysis of a sports tournament in team games is conducted from the point of view of

different content-related criteria. The size and range of such an analysis depend on the extent of statistical data available concerning the participating teams, their players, and games played (Eom, Schutz 1992; Joksimović et al. 2009; Sampaio et al. 2010 Simović, Komić 2008). The paper provides a complex statistical analysis of the European Championships, focusing on the characteristics of the accomplishments of national player-leaders. According to the concept of such a tournament's analysis presented in general terms, one assumed the presentation of the research theme from the description of a kind and type of sports tournament as well as the presentation of characteristics of particular teams and players (including the leaders) for the assessment of their match actions. The factual value of the methods shows how a player-leader's actions during the game are analyzed. Comparisons of national teams of European countries participating in the European Championships 2009 showed the structure of age, body height, and body mass of player-leaders of different national teams, the positions at which they appear on the court, and also the influence of their game actions and situational variables, such as playing time, current result, and so on, in the course of the game. The positioning indicated allowed the initial analysis of player-leaders game accomplishments, based mainly on individual measures for each of the SGCs distinguished. The executed deduction also showed the directions of changes and how the leader of the Polish national team presents himself in this background.

However, an important requirement is an adequate level of substantial preparation of the coaching staff and the players for the reception and proper interpretation of the rallied information. Pluta (2008) and Yu (2007) state that to make a rational use of scientific research results in coaching practice, it takes a coach with outstanding personality and, first of all, with thorough knowledge and skills to transfer it at the coaching ground. Consequently, the coach's qualifications acquire basic significance in taking decisions concerning training. According to Milanovic et al. (1996) and Pecha, Crossan (2009) the prerequisite for the effective preparation of a player for competition requirements is the transition from the empirical form of coaching to its scientifically justified management with the use of objectified information.

A review of literature regarding basketball coaching indicates that training individualization of outstanding players (leaders) in professional league teams does not have an established tradition (Kim, 1999; Gerrard, 2001). In the coaching process, greater emphasis is put on tactics, and most frequently, there is no differentiation of training stimuli between particular players in the team. This partially results from the lack of time for individual training during a competitive season, from a limited access to structured data concerning players' performances, and from insufficient

preparation of players themselves for such forms of activities.

On the basis of the conducted analysis one can affirm that in the field of sport research, there is a growing need for rigorous collection of data that provide empirical evidence about the complex reality they refer to. This investigation proposes a new model of analysis for studying the effectiveness and construction of offensive and defensive basketball leader plays in order to identify their outcomes, thus providing coaches with an important device for improving or consolidating them.

Conclusions

The main conclusions arising from the research conducted may be presented in the following points:

a) The theory presented in the paper creates the opportunity for the coach to analyse the game actions of a leader-player in set time intervals, as well as in the longer series of games, depending on the position occupied on the court.
b) The method of information capacity of a leader basketball actions in a game constitutes a supplement in the scope of detailed cognition of the share of his accomplishments in the team's performance and allows the assessment of the efficiency level of his actions and those of the players appearing on the court with him. This allows the selection of optimal starting line-ups achieving the highest performance and efficiency on the floor.
d) The knowledge of particular SGCs realization allows those dispositions of leader-players which are especially significant in the process of cooperation in a basketball team to be improved by coaching.

Research issues presented in this paper justify the necessity of conducting similar analyses in other team sport games. The objectified study of sports events of championship status (Olympic tournaments, continental and world championships) allows permanent tracking of the tendencies of changes occurring in the rivalry in team sports games and make their broad interpretation possible. They also have crucial significance in streamlining the coaching process of athletes specializing in playing basketball. Moreover, the practice of other team sport games gain new opportunities to apply the above-mentioned methods in analyzing empirical data coming from the dynamic monitoring of team sport leaders' performances.

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