THE ROLE OF FINISHING ACTIONS IN THE FINAL RESULT OF THE BASKETBALL MATCH

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Abstract
Research was carried out to determine the structure of finishing actions and their effectiveness. The difference in the types of finishing actions executed by the winning and the defeated teams was studied along with the variables that contribute most to this difference. Data were gathered at the 2013 European Championship in Slovenia. Descriptive parameters were calculated and the difference between the winning and defeated teams in the types of finishing actions was determined by the independent samples t-test and the Mann-Whitney U test. Results show that the following finishing actions dominate within offensive game structure: 1:1 facing the basket, spot up, pick and roll, cutting and free throws. The obtained results show that there are no statistically significant differences between the types of finishing actions played by the winning and the defeated teams, but successful execution of finishing actions expressed through the efficiency coefficient proved to be the key to success. The winning team frequently used off-ball screens, handoffs, pick and roll, put back, cutting and spot up for shot or penetration. Centre position and isolation contributed to a somewhat lesser degree.

Key words: *types of finishing actions, notational analysis, basketball.*

Introduction

The structure of finishing actions in offense is made up of all types and modalities that a team uses to score. Some coaches point out that using any kind of finishing action in offense has a favourable chance of being successful if the coach and the players apply it properly and possess adequate confidence. Each offense is based on four concepts: shot selection, ball-handling skills without making mistakes, moving without the ball, providing open space to each other (Knight and Newell, 1986.). Researchers are particularly interested in the evaluation of factors that affect the success of a team in a competition. Some of them observed the impact of the following factors: ball screen (Gomez et al., 2015, Marmarinos et al., 2016, Vaquera et al. 2013, 2016); pick and roll (Marmarinos et al., 2016, Nunesa et al. 2016); the impact of situational 1:1 action (Garefis et al., 2006); characteristics of spot-up (Mavridis, et al. 2003); shooting strategy and the rebound efficiency (Suáres-Cadenas & Courel-Ibáñez, 2017), as well as the trend analysis and the effect of rule changes during a 10-year-period (Štrumbelj, et al. 2013). Some researchers focused on the importance of factors affecting teamwork (Barzanov, 2006.). So far, research studies have concentrated on identifying the types of offense, the modalities of finishing actions, and the types of shots (Lehto, et al. 2010). Remmert (2003) studied the offensive group-tactical cooperation in depending on defensive setup. His research results confirm that direct screen is most frequently used offensive action. In conclusion the author proposes intensified cooperation in the play types 1:1 and 2:2, more fakes and cuts to penetrate the defensive front line, the use of indirect and multiple screens and the use of pick and roll/pop as much as possible. Selmanović et al. (2015) analysed the differences in the types of finishing actions in professional European and American basketball and concluded that the NBA demonstrated dominant realization of 1 on 1 facing the basket, while offense in the EuroLeague is mostly based on pick and roll action. For many coaches and researchers, it is of utmost importance to identify valid and reliable factors for tracking the team's performance during the competition. The main purpose of this paper is to gain a full insight into the types of finishing actions and modalities that make a team successful.

Problem and aim

The aim of this paper is to determine the structure of finishing actions and their effectiveness. This work will also investigate the differences in the types of finishing actions of the winning and defeated teams and will determine which variables affect this difference.

Methods

Entity sample
Data were collected on 30 randomly selected matches of the European Championship in Slovenia in 2013. The research included (n = 6034) finishing offensive actions of the winning and defeated teams.

The sample of variables
The following 11 finishing action modes were used for the prediction of team performance:

- Play type 1: 1 facing the basket (FB) isolation – finishing action with a shot or penetration after play type 1:1
- Play type 1: 1 back to the basket (BB) post-up – finishing action with the player's back to the basket
- Getting open (CUT) – inside cut or outside cut and finishing action with a shot or penetration after a pass
- Spot-up (SUP) – penetration or shot after a pass to a player who is not strictly guarded or is open
- Pick & roll (PR) – Screen on a player with the ball with blocker cutting to the basket
- Pick & pop (PP) – Player who sets the screen then pops to the perimeter and receives the ball for a shot
- Hand off (HO) – the player hands out the ball to another player who uses the passer's screen to make a shot or penetrate to the basket
- Off-ball screen (OBS) – off-ball screen creates enough space for open shot or penetration
- Put back (PB) – player secures an offensive rebound, then immediately scores a basket
- Free throws (FT)
- Other actions (OA) – quick-lost ball and other actions that cannot be classified into either of the above mentioned finishing actions

Data analysis

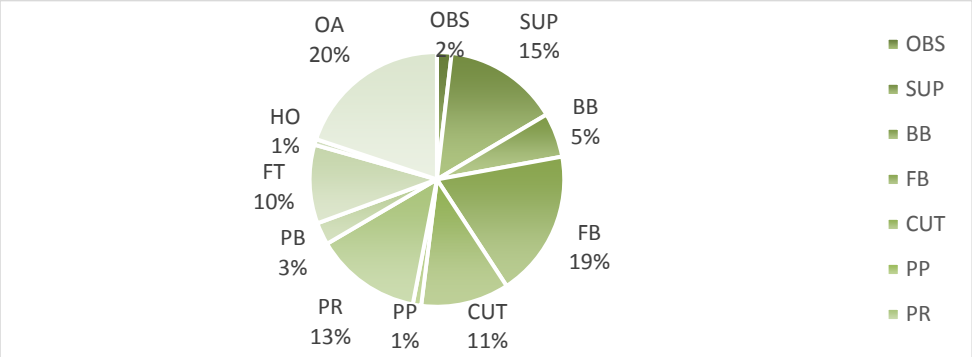
The data were analyzed with the Match Analysis System (MAS) computer program that supports video analysis and enables recording of predefined finishing action modes. The descriptive parameters calculated were arithmetic mean and standard deviation. The difference between the winning and defeated teams regarding the type of finishing action was determined by the independent samples t-test and Mann-Whitney U test. The distribution normality was tested using the Kolmogorov-Smirnov test and the reliability was defined by a $p < 0.05\%$ error. Data were processed using the Statistics 8.0 software package.

Results and discussion

The structure of finishing actions (Figure 1) indicates that 80% of them are planned and well executed. The remaining 20% includes other actions - turnover (OA).

The predominant finishing actions in the European Championship are the following: play type 1:1 facing the basket (FB) - 19% share; spot-up (SUP) - 15%; pick and roll (PR) - 13%; getting open (CUT) - 11%; and free throws (FT) - 10%. Slightly less represented is a play type 1:1 back to the basket (BB) - 5% share, quick shot following offensive rebound (PB) - 3% share. Finishing actions that contribute least to scoring points are screen on a player without the ball (OBS) 2 %; pick and pop (PP) 1 % and handoff (HO) with 1 % of the total share.

Figure 1. The structure of finishing actions.



The results obtained in this research are similar to those acquired by (Selmanović et al., 2015) who compared the finishing actions in the EuroLeague and the NBA, where European professional clubs and national teams show some similarity in the structure of finishing actions, but the share of each of them is significantly different. In fact, the share of each finishing action corresponds more to the NBA. This is induced by an increasing number of top European players playing in the NBA teams who successfully implement the acquired knowledge and experience through finishing actions when playing for their national team.

In the overall structure of realized finishing actions the predominant play type is 1: 1 facing the basket (FB). This coincides with the results obtained by Garefis et al. (2006) and Karipidis et al. (2010) who state that play type 1: 1 is an important factor in modern basketball. Furthermore, finishing actions without screen are spot-up (SUP) and getting open (CUT) for shots or layups with a share of 15% and 11% respectively, thus making a significant part in the total share of finishing actions, as confirmed by Mavridis et al. (2003); Karipidis et al. (2010); Štrumbelj et al. (2013). Nunesa et al. (2016) state that passing the ball is the second most performed technical action after shooting. Some researchers specify that a ball screen is most frequently performed finishing action (Gomez et al., 2015, Marmarinos et al., 2016, Remmert, 2003, Vaquera et al. 2013, 2016). Ball-screen finishing actions such as pick and roll (PR), pick and pop (PP) and handoff (HO) make up 15% of all finishing actions, which corresponds to Remmert's (2003) findings that this play type is used in 12.7% of actions, while Nunes et al. (2016) argue that 25.3% of total offenses finish with pick and roll.

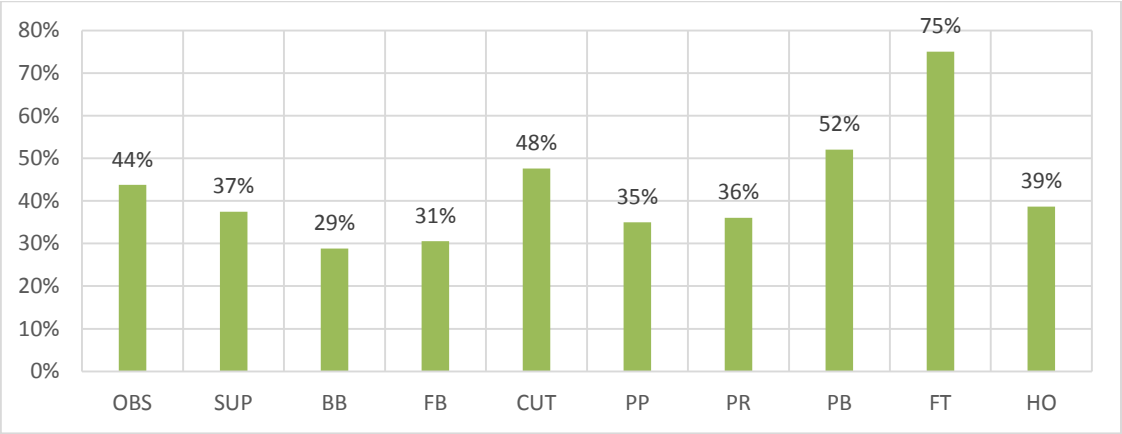


Figure 2. Coefficients of finishing actions effectiveness (CFA).

Regarding the effectiveness of each finishing action (Figure 2), free throws proved to be the most effective way (75%) to score points. This proves conductive tendency to provoke illegal physical contact of defense. Free throws are utterly important for the final result of the game (Christoforidis et al., 2000, Ittenbach & Esters, 1995, Kozar et al., 1994., Sampaio & Janeira, 2003) because they give the fouled team double advantage, i.e. a foul is registered to the fouling team and the fouled shooter on the freethrow line gets the chance to score points. In this research the effectiveness of offensive rebound and put back is recorded to be 52%. A double advantage is gained by a successful realization of these actions, i.e. besides scoring points, they significantly reduce the opponent's chance to create quick and favourable transition. Dežman et al., (2002), Kubatko et al. (2007), Suáres-Cadenas & Courel-Ibáñez (2017) underline the effectiveness of the offensive rebound since a regained possession of the ball logically increases a shot opportunity for offence. Furthermore, the most effective finishing action modes involving 2 or 3 players are cut (getting open) with 48% efficiency and off-ball screen with 44% efficiency. The obtained results highlight the importance of movement without the ball (cut towards or away from the basket, change of direction, fakes, proper utilization of set screen to get open, etc.). Although assists are not featured in this study, yet it comes to the fore with these two modes of scoring points. Sampaio and Janeira (2003) claim that free throws are a distinguishing factor between the winning and the defeated teams in the championships, while in the playoffs it is offensive rebound. In terms of efficiency, finishing actions that succeed are handoff (39%), spot-up, i.e. penetration or shot after assistance to a player who is not strictly guarded or is open for shot (37%), followed by 2 on 2 plays with screener rolling towards the basket - pick and roll with 36 % efficiency and pick and pop with 35 % efficiency. Nunes et al. (2016) explain that the efficiency of pick and roll reaches 36.3% if it results in direct score. The average efficiency of finishing actions studied in this research is 42.6%. It is slightly below the results recorded by Lehto et al. (2010) which are 46% in the Finnish Basketball League, 49% in the Beijing Olympics and 50% in the game of the Finnish basketball national team.

Table 1. Result analysis of the distinction between the winning and the defeated teams according to the types of finishing actions.

Variables	Descriptive parameters				t - test		Mann-Whitney U Test		KS - test	
	Mean WIN	Mean DEF	Std.Dev. WIN	Std.Dev. DEF	t	p	z	p	maxD	p
OBS	1,73	2,00	1,39	1,60	-0,69	0,49	-0,62	0,53	0,181	p < ,05
SUP	14,77	14,67	4,79	5,39	0,08	0,94	0,41	0,68	0,178	p < ,05
BB	5,77	5,57	2,87	3,78	0,23	0,82	0,44	0,66	0,129	p > .20
FB	17,93	19,57	5,59	5,47	-1,14	0,26	-1,05	0,29	0,124	p > .20
OA	20,30	19,67	7,20	6,44	0,36	0,72	0,34	0,73	0,068	p > .20
CUT	12,10	10,43	4,68	4,01	1,48	0,14	1,31	0,19	0,088	p > .20
PP	1,07	1,07	0,94	1,20	0,00	1,00	0,38	0,71	0,241	p < ,01
PR	13,23	13,97	5,04	6,44	-0,49	0,63	-0,55	0,58	0,122	p > .20
PB	2,77	2,93	1,92	1,64	-0,36	0,72	-0,41	0,68	0,117	p > .20
FT	10,43	9,67	3,90	3,37	0,81	0,42	0,89	0,37	0,103	p > .20
HO	0,67	0,80	0,84	1,10	-0,53	0,60	-0,17	0,86	0,308	p < ,01
TOTAL	100,77	100,33	9,25	7,42	0,20	0,84	0,35	0,72	0,093	p > .20

Legend: Winning team (WIN); Defeated team (DEF); Off-ball screen(OBS); Spot up (SUP); Post-up (BB); Isolation (FB); Other attack (OA); Getting open (CUT); Pick & pop (PP); Pick & roll (PR); Offensive rebound & put back (PB); Free throws (FT); Hand off (HO)

Descriptive parameters for 11 prediction variables are calculated and presented in Table 1. On average 100 finishing actions were attributed to each team in the 2013 European Championship in Slovenia, which corresponds to the results of Lehto et al. (2010) who recorded 98 finishing actions at the Beijing Olympics. According to the identified types of finishing actions, offense most commonly ends in: play type 1:1 facing the basket (FB), spot up (SUP), pick and roll (PR) and cutting towards or away from the basket (CUT). These four types of finishing actions account for 58% of the total offense structure, which is consistent with the findings of Selmanovic et al. (2015) who recorded between 57% and 63% of finishing actions with the same structure in the EuroLeague and the NBA.

The game of the winning and the defeated teams is characterized by a high percentage of other actions – turnovers with 20.3% vs 19.7% in favour of the winning team. Turnovers, occurring due to a mistake or a rule violation, may be the result of defensive pressure and/or negligence and poor performance of an offensive player (Gomez et al., 2006, Sampaio et al. 2010). According to the type of finishing actions the play type 1:1 facing the basket is predominant and is implemented slightly more by the defeated team (19.6 vs 17.9). As can be seen in Figure 4, the execution of certain finishing action does not in itself bring success or advantage, but what makes the difference is the quality of execution. The second most frequently used finishing action is spot-up i.e. penetration or shot after a pass (14.8 vs 14.7) with a minimal difference in favour of the winning team. The same applies for pick and roll (14 vs 13.2), more in favour of the defeated team. The winning team derives benefit from the finishing action cut (12.1 vs 10.4), succeeded by free throws (10.4 vs 9.7). The research of Lamas et al. (2011) proves that the fast-paced flow of the ball aggravates defensive anticipation and beneficially serves towards creating unattended outside shot with defending screen used to a smaller extent.

There is almost no difference in: play type 1:1 back to the basket, offensive rebound and put back, off-ball screen, pick and pop and handoff. These modalities that cover both inside and outside actions make up the standard offense structure of the top-level teams, so it is expected that teams trying to achieve a good result in a tournament would apply the aforementioned modes of movement. The obtained results show that there are no statistically significant differences between the types of finishing actions played by the winning and the defeated team. Hence, we can conclude that the winning and the defeated teams apply almost identical structure of finishing actions to score points.

Looking at the overall difference (Figure 3) in the structure of offense between the winning and the defeated team we can say that the winning team is characterized by a greater number of cuts, free-throws, play type 1: 1 back to the basket and the dominant finishing action is spot-up, while the defeated team is characterized by play type 1: 1 facing the basket, pick and roll, off-ball screens, put back and handoff. The game of the winning team is characterized by getting open with a cut towards and away from the basket to make a shot or a layup; awarded fouls, low post play, penetration or quick-paced ball movement between the inside and outside positioned players so that the players either on the strong side or on the help side get an open shot. The defeated team built their game on play type 1:1 facing the basket; play type 2:2 with a greater share of pick and rolls, handoffs and off-ball screens. The defeated team proved to be better in the segment of offensive rebound. The obtained results show that during this competition the team oriented tactic based on versatile finishing actions brought better results than individual and group game modes. Dežman et al. (2002) emphasize that the winning team at the junior European Championship exhibited better offensive co-operation, teamwork and more effective offense and defense.

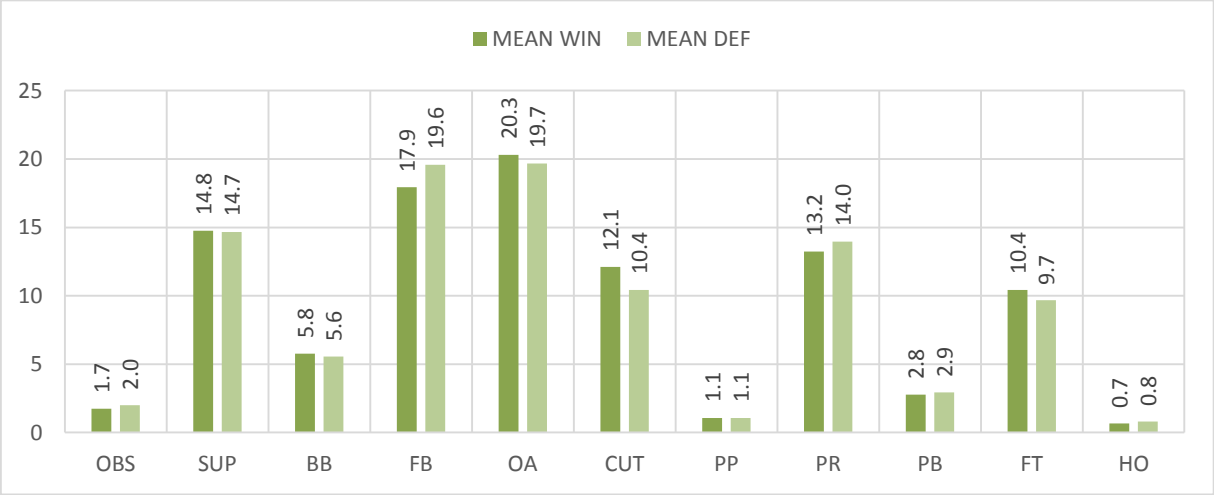
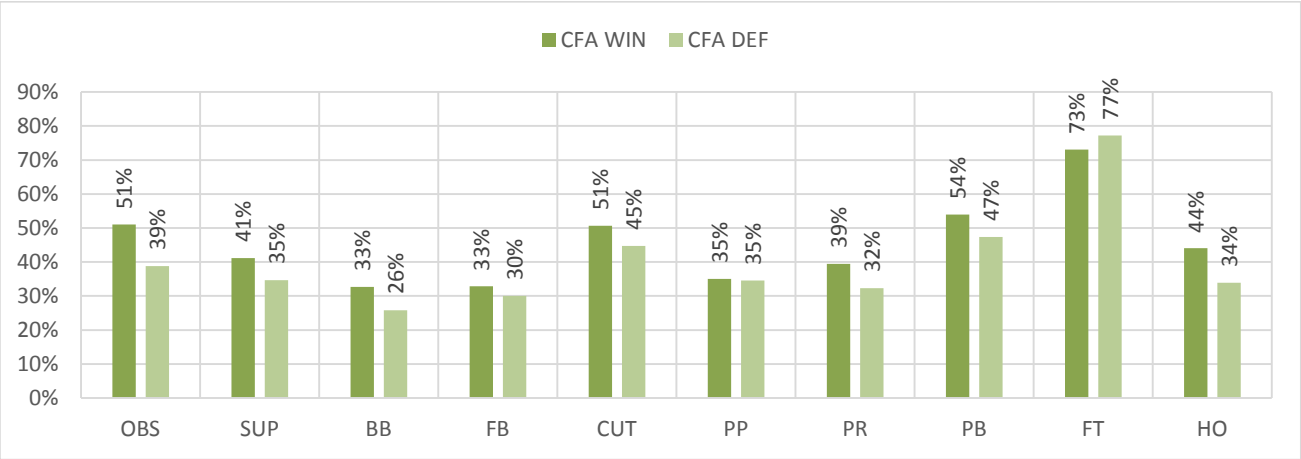


Figure 3. The arithmetic mean of the winning and the defeated teams in terms of the types of finishing actions.

Figure 4. Efficiency of finishing actions between the winning and the defeated teams.



What makes a difference between the winning and the defeated teams is the coefficient of finishing action utilization (Figure 4), which shows that in 8 out of 10 finishing action modalities, the winning team achieves greater success ranging from 3% to 12%.

The most prominent difference was recorded in off-ball screen (51% vs 39%), handoffs (44% vs. 34%), pick and roll (39% vs 32%), put back (54% vs. 47%), cut (51% vs 45%), spot-up (41% vs. 35%), play type 1: 1 with back to the basket (33% vs. 26%) and 1: 1 facing the basket with the smallest difference (33% vs. 30%). The defeated team was better in free throws (77 % vs 73 %). This research shows that key factors for winning are a successful set offense (Barzanov, 2006); screens (Gomez et al., 2015, Marmarinos et al., 2016, Nunes et al., 2015, Remmert, 2003, Vaquera et al. 2013, 2016); actions without screening (Mavridis et al. 2003, Karipidisa et al. 2010, Štrumbelj et al., 2013) and the mastery of offense from the inside position which gives a team a better chance for offensive rebound (Courel-Ibáñez et al. 2013, Suáres-Cadenas & Courel-Ibáñez, 2017). Knight & Newell (1986., Vol. II., p. 21) claim that proper execution of the fundamentals is much more important than the choice of the offensive pattern or style of the game.

Conclusion

Research results show that the structure of finishing actions of European national teams is dominated by 1:1 realization facing the basket, spot-up, pick and roll, cut and free throws. Regarding the effectiveness of each final action, we can state that the most effective actions are the following: awarded free throws, put back and actions involving 2 or 3 players such as getting open by a cut and screen on a player without the ball. Furthermore, there is no statistically significant difference in the types of finishing actions used between the winning and defeated teams, suggesting that both teams used approximately the same structure of finishing actions. A variety of finishing actions in offense do not ensure winning, but the "key to success" is a high quality of coordinated teamwork. The coefficient of efficiency shows that the winning team was more successful in 8 out of 10 observed finishing actions whereby the following actions dominate: screen on a player without the ball, handoff, pick and roll, put back, getting open, spot-up, 1:1 back to the basket, and 1:1 facing the basket. This research emphasises that tactical training oriented towards the strict execution of technical elements and coordinated offense results in greater effectiveness of finishing actions.

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