

# DIFFERENCE IN THE OFFENSIVE ATTACK INDICATORS AMONG THE ABA LEAGUE TEAMS

**Borche Daskalovski, Aleksandar Aceski, Vlatko Nedelkovski, Andrijana Misovski**

Faculty of physical education, sport and health, University – Ss. Cyril and Methodius” –  
Skopje, Macedonia

## ORCID

Borche Daskalovski <https://orcid.org/0000-0001-8550-9452>

Aleksandar Aceski <https://orcid.org/0000-0001-5641-0189>

Vlatko Nedelkovski <https://orcid.org/0000-0002-3550-4909>

Andrijana Misovski <https://orcid.org/0000-0002-4327-5464>

## ABSTRACT

On a sample of 12 teams competing in the ABA League, a survey was conducted where 289 matches played in the 2018/2019 season were processed, in which the total number of attacks performed by the teams was analyzed. The sample of variables determines the attack of the teams i.e. the total number of possessions for each team as follows: Transition, Overall Half Court, Short Shot Clock <4 Seconds, Out of Bounds (End), Out of Bounds (Side), After Time Outs, Against Man, Against Zone, Press Offense. The data is undertaken by the specialized analytics platform Synergy Sport Tech. In order to determine the differences in the frequencies of the variables that define the attacks the Chi<sup>2</sup> test was calculated with the level of significance of the differences from p=0.05 and effect size. The processing of the results was performed with the statistical package program SPSS 21. Based on the obtained results and the performed analysis, it was concluded that there are statistically significant differences in the frequencies of Transition, Overall Half Court, Short Shot Clock <4 Seconds, Against Man, Against Zone and Press Offense, whilst in the variables Out of Bounds (End), Out of Bounds (Side) and After Time Outs there are no statistically significant differences in the frequency.

**Key words:** *Differences, ABA – league, Basketball, Attack,*

## INTRODUCTION

Determining the structural elements from which the basketball is consisted is crucial in the analysis of each professional staff, the need of a detailed and mathematically accurate picture of the parameters obtained in each match is an indicator for the direction it moves and where was the greatest emphasis on tactical actions in the attack of the teams. By basketball tactics we mean the application of all individual, group and team actions in achieving maximum sports result (Karaleic & Jakovlevic, 2001). In terms of the number of players participating in tactical actions, there are three levels of basketball tactics: Individual attack and defense tactics, Group attack and defense tactics, and Collective attack and defense tactics, (Karaleic & Jakovlevic, 2001). It is important to emphasize that this research covers the teams that play in the regional

competition ABA - League, their actions in the attack during the entire 2018-2019 competition year.

Basketball is a team sports game that can be presented as an orderly series of tasks and actions. (Trnecic, 1995, 1996, 2006; Dezman et al, 2001; Trnecic et al, 2010). The total number of possessions realized by one team in each match in the ABA-league is calculated, i.e. cumulatively for the whole season. The offensive actions covered by this research are divided into three groups. The first group includes midfield actions - positional attacks, actions in transition and actions that happened at least 4 seconds at the end of the attack. The second group are actions that were realized after the interruption of the game and after the time out. The third group includes actions against man-to-man defense, against zone defense and against zone pressure.

The purpose of this research is the comparative analysis of the distribution of attacks of the teams that play in the regional competition ABA League, by determining the difference in the registered frequencies of the variables that define the game in attack.

## **MATERIALS AND METHOD**

### **Sample of entities**

The research included analysis of indicators for the attacks from 289 matches of 12 teams from the ABA League in the 2018/19 season (Buducnost 30, Cedevita 25, Cibona 22, Red Star 30, FMP 22, Igokea 22, Mornar 22, Zadar 25, Krka 22 , Mega 22, Partizan 25, Olympia 22). A total of 24, 494 attacks were registered, of which 2,437 Buducnost, 2,125 Cedevita, 1,833 Cibona, 2,472 Red Star, 1,897 FMP, 1,901 Igokea, 1,854 Mornar, 2,158 Zadar, 1,820 Krka, 2,038 Mega, 2,114 Partizan, 1,845 Olympia.

### **Sample of variables**

The character of the attack is defined according to the following variables: Transition, Overall Half Court, Short Shot Clock <4 Seconds, Out of Bounds (End), Out of Bounds (Side), After Time Outs, Against Man, Against Zone, Press Offense.

### **Data processing**

The data is undertaken by the specialized platform and database for sports analytics Synergy, which has a wide range of videos, notation, statistics and other data.

In order to determine the differences in frequencies of variables that define the attacks the Chi<sup>2</sup> test was calculated with significance level of differences from p=0.05 and effect size.

The processing of the results was performed with the statistical package program SPSS 21.

## RESULTS AND DISCUSSION

The obvious difference in the overall percentage representation of the variables (Over Half Court 88.1%) and Transition (11.9%) clearly reflects the tendency in the attack of the ABA League teams (Table 1).

The analysis of the individual distributions of the results shows that the highest percentage representation of the variable Transition has the team Mega (16.5%), and the lowest the team Krka (8.3%). The state is reversed in the variable Overall Half Court, where the highest percentage representation is present in the team Krka (91.7%), and the lowest in the team Mega (83.5%).

This ratio in the percentage representation results in a statistically significant difference in the distribution of these attacks among the teams (Chi-Square=101.473, df=11, p=.000) with small effect size (Cramer's V=.064).

**Table 1.** Differences in the distribution of attacks Transition and Overall Half Court

		TEAM											Total		
		Buducnost	Cedevita	Cibona	RedStar	FMP	Igokea	Mornar	Zadar	Krka	Mega	Partizan		Olimpija	
TRAOVHC	Transition	Count	266	293	204	235	202	246	241	286	151	336	255	195	2910
		% within TEAM	10.9%	13.8%	11.1%	9.5%	10.6%	12.9%	13.0%	13.3%	8.3%	16.5%	12.1%	10.6%	11.9%
	Overall Half Court	Count	2171	1832	1629	2237	1695	1655	1613	1872	1669	1702	1859	1650	21584
		% within TEAM	89.1%	86.2%	88.9%	90.5%	89.4%	87.1%	87.0%	86.7%	91.7%	83.5%	87.9%	89.4%	88.1%
<b>Total</b>		Count	2437	2125	1833	2472	1897	1901	1854	2158	1820	2038	2114	1845	24494
		% within TEAM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Chi-Square = 101.473</b>			<b>df = 11</b>	<b>p = .000</b>	<b>Cramer's V = .064</b>										

The highest percentage representation of Short Shot Clock <Seconds have Cibona (19.9%) and Red Star (19.7%), and Mega has definitely the smallest (7%) (Table 2). This ratio of percentage representation causes the teams to differ statistically significantly in relation to this variable (Chi-Square=209.979, df=11, p=.000), with a small effect size (Cramer's V=.093).

**Table 2.** Differences in the distribution of attack Short Shot Clock < 4 Seconds

		TEAM													
SH4SO	Short Shot Clock <4 Seconds	Count	Buducnost	Cedevita	Cibona	RedStar	FMP	Igokea	Mornar	Zadar	Krka	Mega	Partizan	Olimpija	Total
			% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM	% within TEAM
Other		Count	2057	1848	1469	1984	1585	1598	1562	1882	1490	1896	1767	1532	20670
		% within TEAM	84.4%	87.0%	80.1%	80.3%	83.6%	84.1%	84.3%	87.2%	81.9%	93.0%	83.6%	83.0%	84.4%
Total		Count	2437	2125	1833	2472	1897	1901	1854	2158	1820	2038	2114	1845	24494
		% within TEAM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Chi-Square = 209.979			df = 11	p = .000	Cramer's V = .093										

The inspection in Table 3 shows the presence of a balanced percentage of the three analyzed variables.

The highest percentage representation in the variable Out of Bounds (End) is present in the team FMP (26%), and the lowest in the teams Cedevita and Partizan (20.3%).

The team of Cedevita shows the highest percentage representation of the variable Out of Bounds (Side) (36.3%), and the lowest the team of Zadar (29%).

In the variable After Time Outs, the highest percentage representation is present in the team Partizan (45.9%), and the lowest in the team Olimpija (41.6%).

The analysis of the results of the Chi-Square test and the level of significance indicate that there is no statistically significant difference in the registered frequencies between the teams from the ABA League (Chi-Square = 21.506, df=22, p=.490), and a small effect size (Cramer's V=.042).

**Table 3.** Differences in the distribution of attacks Out of Bounds (End), Out of Bounds (Side), After Time Outs

		TEAM													Total
OBTA	Out of Bounds (End)	Buducnost	Cedevita	Cibona	RedStar	FMP	Igokea	Mornar	Zadar	Krka	Mega	Partizan	Olimpija		
	Count	140	104	100	146	125	100	105	142	102	126	105	108	1403	
	% within	23.3%	20.3%	21.7%	23.7%	26.0%	21.5%	22.3%	27.5%	21.4%	25.9%	20.3%	23.4%	23.1%	
	Count	207	186	156	209	154	163	158	150	166	150	174	161	2034	
	% within	34.4%	36.3%	33.8%	34.0%	32.1%	35.1%	33.5%	29.0%	34.8%	30.8%	33.7%	34.9%	33.5%	
	Count	254	223	205	260	201	202	208	225	209	211	237	192	2627	
	% within	42.3%	43.5%	44.5%	42.3%	41.9%	43.4%	44.2%	43.5%	43.8%	43.3%	45.9%	41.6%	43.3%	
<b>Total</b>	Count	601	513	461	615	480	465	471	517	477	487	516	461	6064	
	% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
<b>Chi-Square=21.506</b>	<b>df = 22</b>	<b>p = .490</b>	<b>Cramer's V = .042</b>												

The difference presented in the overall percentage representation of Against Man (98.3%) and Against Zone (1.7%) between the 12 teams, clearly shows their tendency.

The highest percentage representation of the variable Against Man have the teams FMP and Mornar (99.8%), and the smallest the team of Red Star (95.8%).

The variable Against Zone is distributed the most among the team of Mega (4.2%), and the least among the team of FMP and Mornar (.2%).

Such frequency distribution causes the teams to differ statistically significantly in relation to these two variables (Chi-Square = 286,571, df = 11, p=.000), with a small effect size (Cramer's V=.115).

The results obtained in this variable are expected and they are confirmed in the research of Selmanovic et. al., 2015, which point out that the European basketball model focuses on defense against man, given that zone defense is more risky due to the possibility of opening more space for offensive clubs that would have open positions for shooting from outside positions and achieving of jumps in attack.

**Table 4.** Differences in the distribution of attacks Against Man u Against Zone

		TEAM													
		Buducnost	Cedevita	Cibona	RedStar	FMP	Igokea	Mornar	Zadar	Krka	Mega	Partizan	Olimpija	Total	
HCOFF	Against Man	Count	2117	1818	1621	2177	1692	1646	1610	1816	1663	1630	1783	1644	21217
		% within TEAM	97.5%	99.2%	99.5%	97.3%	99.8%	99.5%	99.8%	97.0%	99.6%	95.8%	95.9%	99.6%	98.3%
	Against Zone	Count	54	14	8	60	3	9	3	56	6	72	76	6	367
		% within TEAM	2.5%	.8%	.5%	2.7%	.2%	.5%	.2%	3.0%	.4%	4.2%	4.1%	.4%	1.7%
<b>Total</b>		Count	2171	1832	1629	2237	1695	1655	1613	1872	1669	1702	1859	1650	21584
		% within TEAM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Chi-Square= 286.571</b>			<b>df = 11</b>	<b>p = .000</b>	<b>Cramer's V = .115</b>										

The analysis of Table 5 shows that the highest presence of the variable Press Offense is present in the team of FMP (13.9%), and the lowest in the team of Buducnost (7.4%).

The frequencies distributed in this way contribute to the teams differing statistically significantly in relation to the variable Press Offense (Chi-Square=63.396, df=11, p=.000), with a small effect size (Cramer's V=.054).

**Table 5.** Differences in the distribution of attacks Press Offense

		TEAM													
		Buducnost	Cedevita	Cibona	RedStar	FMP	Igokea	Mornar	Zadar	Krka	Mega	Partizan	Olimpija	Total	
PROT	Press Offense	Count	161	159	165	236	235	171	173	156	189	149	179	152	2125
		% within TEAM	7.4%	8.7%	10.1%	10.5%	13.9%	10.3%	10.7%	8.3%	11.3%	8.8%	9.6%	9.2%	9.8%
	Other	Count	2010	1673	1464	2001	1460	1484	1440	1716	1480	1553	1680	1498	19459
		% within TEAM	92.6%	91.3%	89.9%	89.5%	86.1%	89.7%	89.3%	91.7%	88.7%	91.2%	90.4%	90.8%	90.2%
<b>Total</b>		Count	2171	1832	1629	2237	1695	1655	1613	1872	1669	1702	1859	1650	21584
		% within TEAM	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Chi-Square = 63.396</b>		<b>df = 11</b>	<b>p = .000</b>		<b>Cramer's V = .054</b>										

## CONCLUSION

Based on the obtained results and the analysis performed, it can be concluded as follows:

A statistically significant difference was found for the variables that analyze the differences in the distribution of Transition and Overall Half Court attacks between the ABA teams, Evident differences are also present in the variable Short Shot Clock < 4 Seconds.

The difference in the overall percentage representation of the variables Against Man and Against Zone between the 12 teams, clearly shows their tendency, also statistically significant differences are present in the variable Press Offense

From the analysis of the results we can conclude that there are no statistically significant differences in the variables Out of Bounds (End), Out of Bounds (Side), After Time Outs.

It should be emphasized that this research was conducted for one season and took the basic variables that characterize the attack structure in basketball. Given the multifactorial character of the basketball and its complex structure, there is a need to conduct research in which other methods of analysis would be applied and which would cover other aspects of the game.

## REFERENCES

Dežman, B., Trninić, S., & Dizdar, D. (2001). Expert Model of Decision-making System for Efficient Orientation of Basketball Players to Positions and Roles in the Game - Empirical Verification. *Collegium Antropologicum*, 25(1), 141-152.

Karaleic, M I Jakovlevic, S. (2001). *Osnovi kosarke*. Belgrade: Faculty of Sports and Physical Education and VSST.

Selmanović, A., Škegro, D., & Milanović, D. (2015). Basic characteristics of offensive modalities in the Euroleague and the NBA. *Acta Kinesiologica* 9 (2015) 2: 83-87.

Trninić, S., Karalejić, M., Jakovlevic, S., and Jelaska, I. (2010). Structural analysis of knowledge based on the basic attributes of the basketball game. *Physical Culture*, 64(1), 5-25.

Trninić, S. (1995). *Structural analysis of knowledge in basketball*. (Doctoral dissertation) Zagreb: Faculty of Physical Education.

Trninić, S. (1996). *Analysis and studying basketball*. Pula: Vikta.

Trninić, S. (2006). *Selection, preparation and management of basketball players and teams*. Zagreb: Vikta-Marko.

**Corresponding author:**

**Vlatko Nedelkovski,**

<sup>1</sup>Faculty of physical education, sport and health,  
University – Ss. Cyril and Methodius” – Skopje, Macedonia

e-mail: vlatko4@yahoo.com