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# HOME ADVANTAGE ANALYSIS IN ACB LEAGUE IN SEASON 2007-2008

**Javier García\*, Javier Sáez\*, Sergio J. Ibáñez\*, Isabel Parejo\*  
& María Cañadas\*\***

KEY WORDS: home advantage, discriminant analysis, basketball

SUMMARY: Home advantage was defined as the fact that home teams win more than the 50% of their matches (Courneya & Carron, 1992). The aim of this work was to investigate the home advantage in the ACB league and identify the game-related statistics which best discriminate home and away teams. The data were obtained from the Spanish Basketball Association for the period 2007-2008 ACB league (n= 306). Game related statistics were normalized to 100 ball possessions. In order to compare game related statistics in home and away teams, a discriminative analysis was employed.

This analysis identifies the game related statistics that best discriminate between home and away teams. The function obtained was interpreted with the structural canonical coefficients (SC), with values higher than  $|\cdot30|$ .

In the 2007-2008 ACB league, the home teams won the 55.22% (n=169) of the games. The analysis identifying the two-point field goals made, blocks made, dunks, the defensive rebounds and the assists as common to the mean vectors that discriminate home teams in all games. Blocks received contribute to discriminate away teams in ACB league.

These results could be used by the psychologist who works with the team. They must design specific programs to decrease anxiety levels, and to improve motivation and concentration levels in basketball players before a competition.

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Javier García Rubio, Facultad de Ciencias del Deporte, Universidad de Extremadura. Avd. De La Universidad  
S/N.10071 Cáceres. España

E-mail: [javiargarciarubio@gmail.com](mailto:javiargarciarubio@gmail.com)

\*Facultad Ciencias del Deporte. Universidad de Extremadura.

\*\*Facultad de Ciencias del Deporte. Universidad de Murcia.

## Introduction

The home advantage of team sports is well documented in several sports (basketball, soccer, rugby, ice-hockey...). Home advantage is defined as the fact that local teams win more of the 50% of their matches (Courneya & Carron, 1992). As possible causes of advantage in team sports, it is thought to be associated with; i) the location of the match; ii) associated factors of the location (crowd, familiarity with the facilities, travel, and rules); iii) the psychological state and the behavior of the athletes, and the states of the coaches and referees.

Bray and Widmeyer (2000) concluded that women basketball players consider that being familiarized with the facilities is the most important factor (39%) in home advantage, followed by crowd effect (27%) and the various factors associated with travel (17%). In the same way, the athletes believe that when they are playing at home, they experience less anxiety, and are more motivated and concentrated than when playing away.

Available research on basketball has determined that game location influences the match result. Pollard and Pollard (2005), have estimated that the percentage of match wins by local teams in the NBA is about 60%. Pollard and Gómez (2007) analyzed the NBA, as well as the Spanish, French, Greek and Italian national Leagues, from season 95-96 to season 06-07. In the NBA, the home advantage is relatively low (60.3%). In Italian and Greek National Leagues the game location is high (66.4% and 66.3%, respectively).

Sampaio, Ibáñez, Gómez, Lorenzo and Ortega (2008), analyzed the home advantage of players at position level. They found that

the best game-related statistics to define guards were: successful two points field-goals, defensive rebounds, assists, steals, blocks and committed fouls. The forward performances were discriminated by successful free-throws, assists, steals, block and committed fouls. For centers, no significant function was found.

Gómez, Lorenzo, Ortega and Olmedilla (2007) investigated home advantage in women's basketball. Their research shows that the winning teams were differentiated from the losing teams by defensive rebounds, successful two point field-goals and assists. When the winning teams played at home, they were differentiated by, successful two point field-goals, steals and assists. Finally, the winning teams were differentiated from the losing teams when they played away, by successful two point field-goals, defensive rebounds, unsuccessful three point field-goals and successful free-throws. Furthermore, the winning teams had a better shot efficiency than the losing teams.

The purpose of this research is to investigate the home advantage in the ACB league and identify the game-related statistics which best differentiate between home and away teams.

## Method

The data were obtained from the Spanish Basketball Association for the period 2007-2008 ACB league (n= 306). The following game-related statistics were used in the analysis: 2 and 3 points field-goals attempts (successful and unsuccessful), free-throws (successful and unsuccessful), offensive and defensive rebounds, assists, steals, turnovers, blocks (made and received) and fouls committed. Game related statistics were normalized to 100 ball possessions. In order to

compare game related statistics in home and away teams, a discriminative analysis was employed. This analysis identifies the game related statistics that best discriminate between home and away teams. The function obtained was interpreted with the structural canonical coefficients (SC), with values higher than  $|.30|$  (Tabachnick & Fidell, 2007). The software used for this study was SPSS 17.0.

## Results

In the 2007-2008 ACB league, the home

teams won the 55.22% ( $n=169$ ) of the games.

Table 1 shows descriptive statistics of ACB league in match location. Results show that home and away teams perform similar.

The results from the discriminant analysis are presented in table 1. This analysis classify correctly the 58.5% of the data. The structural coefficients allowed identifying the two-point field goals made, blocks made, dunks, the defensive rebounds and the assists as common to the mean vectors that discriminate home teams in all games. Blocks

	Game Location				SC
	Home		Away		
	M	SD	M	SD	
2-pt field goal made	36.83	8.17	34.89	7.61	.49†
2-pt field goals missed	32.71	9.20	33.45	8.90	-.16
3-pt field goal made	15.01	5.46	15.15	5.41	-.05
3-pt field goals missed	25.88	6.91	26.60	7.91	-.19
Free throw made	30.85	14.45	31.78	14.14	-.13
Free throws missed	9.73	6.17	9.58	5.75	.05
Defensive rebounds	41.87	9.00	40.35	9.49	.33†
Offensive rebounds	19.80	7.42	19.11	7.09	.19
Assists	25.22	7.98	24.08	7.29	.30†
Steals	15.32	5.88	15.82	5.98	-.17
Turnovers	25.61	6.77	25.56	6.41	.01
Blocks made	5.64	3.81	4.90	3.13	.42†
Blocks received	4.82	3.07	5.62	3.71	-.47†
Dunks	3.69	3.37	3.12	3.22	.35†
Fouls committed	41.40	8.65	41.65	9.13	-.05
Fouls received	41.91	11.63	42.13	10.81	-.04
Wilks Lambda			.94*		
eigenvalue			.06		
Canonical Corr.			.24		

† SC  $\geq |0.30|$ ; \* $p \leq .001$

Table 1. Means, standards deviations and structural coefficients ACB league 2007/2008

received contribute to discriminate away teams in ACB league.

## Discussion

The aim of this study was to analyze the influence of game location on the teams' performance in the 2007-2008 ACB League. The results concluded that the game location influences the final outcome of the game. In the Spanish league, the sport centers where teams play, have an average of 6.387 spectators ([www.ballineurope.com](http://www.ballineurope.com)), the most crowded in Europe. Available studies show that the presence of an audience increases performance in a conditioning task, however there was not any clear evidence of the crowd affecting coordination abilities. In basketball there are some tasks that are principally conditioning, such as blocks (committed and received), dunks and defensive rebounds (Gómez et al., 2007; Sampaio et al., 2008). These actions, in basketball terms, are related to aggressive behavior.

The team which plays at home, improves their performance thanks to their supporters, whereas the performance of the away team suffers accordingly due to the negative support (Sampaio et al, 2008).

Gómez et al, (2007) found that home teams have higher scoring in defensive rebounds, successful 2-points field-goals, steals and assists. Players from the home team presented lower values in precompetitive anxiety and felt more concentrated and motivated, which in turn resulted in a better overall team performance (Bray y Widmeyer, 2000). A better team performance allowed them to achieve a higher number of assists, a better tactical distribution, with better passes, and consequently, a better shot selection. This factor, together with crowd support, implies the discrimination of the home team by successful two points field-goals.

## Conclusions

The home and away teams were discriminated by successful 2-point field-goals, blocks, dunks and assists. Coaches should use these findings to improve their preparation for the competition.

These results could be used by the psychologist who works with the team. They must design specific programs to decrease anxiety levels, and to improve motivation and concentration levels in basketball players before a competition.

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