International Journal of Performance Analysis in Sport

ISSN: 2474-8668 (Print) 1474-8185 (Online) Journal homepage: http://www.tandfonline.com/loi/rpan20

An analysis of the side of rebound in high level basketball games

R. L Ribas, R. M Navarro, F. Tavares & M. A. Gómez

To cite this article: R. L Ribas, R. M Navarro, F. Tavares & M. A. Gómez (2011) An analysis of the side of rebound in high level basketball games, International Journal of Performance Analysis in Sport, 11:2, 220-226, DOI: 10.1080/24748668.2011.11868543

To link to this article: https://doi.org/10.1080/24748668.2011.11868543

Published online: 03 Apr 2017.

International Journal of Performance Analysis in Sport
2011, 11, 220-226.

An analysis of the side of rebound in high level basketball games

Ribas, R. L [1]; Navarro, R. M [2], Tavares, F [1]; Gómez, M. A.[3]

1. Faculty of Sports Sciences and Physical Education, University of Porto, Portugal.
2. Faculty of Physical Activity and Sport Sciences, University Alfonso X El Sabio.
3. Faculty of Physical Activity and Sport Sciences, Polytechnic University of Madrid, Spain.

Abstract

The aim of the present study was to identify if there was any difference between the side of the rebound when attempt occurs from three different zones. The sample was composed of 48 games (n= 4548 field-goals gathered) corresponding to the 2009-2010 Top 16 of the Euroleague. The analyzed variables were the unsuccessful attempted field goals, which generate rebounds, and then sample was split into three groups: i) paint zone, ii) two points zone, and, iii) three points zone. To analyze the side of rebound, the court was divided: i) same side and ii) opposite side of the field goal attempt.

The results of the present study showed: i) 46.5% of the shoots were taken from the paint compared with 38.3% taken from the 3 point zone and 15.2% taken from the 2 point zone; ii) near 91% of all rebounds were obtained inside the paint while there were no rebounds in three point zone; iii) when shoots were taken inside the paint, the same side had statistically significant more percentage of rebounds than the opposite side. Overall, it is suggested that coaches should take into account this reference values to better prepare training plans and game tactics in basketball.

Key words: basketball, rebound, notational analysis, field-goal attempt

1. Introduction

The research about basketball has become greater in the last few years, the game is in constant evolution and there are always new problems to investigate and try to solve. A considerable number of papers have been published about what makes differences between teams and players' performance in basketball games and it is very important to understand those aspects of the game to potentiate training methods and coach management during competition (Sampaio, Drinkwater & Leite, 2010).

With the evolution of tactical and technical in basketball games, it is important to coaches, players and researches to understand every single detail of the sport. Performance analysis in basketball is an important tool, allowing coaches to have reliable information concerning their own team and opponents (Ibáñez, García, Feu,

Lorenzo & Sampaio, 2009). To become better, teams must improve training sessions and matches. The study of the game, reflecting and reaching conclusions, can help to improve individual play, team play and the coach´s decision-making in important moments in the game (Ibáñez, Sampaio, Sáenz-López, Giménez & Janeira, 2003; Simovic & Komic, 2008; Pojskic, Separovic & Uzicanin, 2009; Sampaio, *et al*, 2010).
In the past few years, some researchers are focusing their attention in the game-related statistics. It is well documented that some variables such as, defensive rebound, allow researches and coaches to discriminated winning and losing in basketball games (Gómez, Lorenzo, Sampaio, Ibáñez & Ortega, 2008; Ibáñez, Sampaio, Feu, Lorenzo, Gómez & Ortega, 2008). Defensive rebound is a basis for development of team´s offense, because it gives the team a possibility to make fast-breaks and assists to easy baskets, and it does not allows the opponents an extra ball possession (Trninic, Dizdar & Luksic, 2002). The offensive rebound also has an important role in basketball, being a good variable to discriminated winning teams in playoff games (Sampaio & Janeira, 2003). However, available studies where the rebound was analyzed with more details, are not easy to find in scientific papers. If the rebound is a such an important variable that can predict winners, it is fundamental to understand how to win rebounds in basketball games.

To prepare a team, to build up the best tactics, to make good decisions during a game, coaches need to know which elements of matches are the most crucial ones. Especially at close games where there are small differences between the performance of two teams (Csataljay, O´Donoghue, Hughes & Dancs, 2009). It is possible to find a large number of studies that discriminate winners and losers in basketball using game-related statistics, but according to Trninić *et al*., (2002), to a better understanding of the game, the information obtained from the game statistics should be completed by the computer video analyses. In this particular topic, some important variables such as zone of the field-goal attempt and side of the rebound are not available in official statistics. Indeed, available literature is quite scarce (Gómez, Tsamourtzis & Lorenzo, 2006; Ortega, Palao, Gómez, Lorenzo & Cárdenas, 2007; Gómez, Lorenzo, Ibáñez, Ortega, Leite, & Sampaio, 2010) and based on different topics in basketball, such as defensive systems, tactics used during basketball games or the game analysis in formative teams. Trying to investigate the rebounds as variables, there is only one study (Tsamourtziz & Athanasiou, 2004), the authors analyzed 5 different zones of shooting and rebounding, and found that most of shoots rebound to the opposite side.

According to the framework reported, it seems very important for coaches and players to have some scientific support that allowed them to have a better understanding about the zones where the rebound occurs considering the spot where the shoot attempt was taken. Thus, the present study aims to determine if the ball tends to rebound on the same side or the opposite side where the field goal try occurred.

2. Methods

2.1. Sample and variables

In order to carry out this study, all games (n = 48) corresponding to the 2009-2010 Top 16 of the Euroleague were analyzed. The games were analyzed through systematic

observation by two experienced observers trained for this observational analysis. Before the analysis of the games two separate observations were done to calculate interrater reliability. From a sub-sample of 10 games, Cohen' Kappa was 0.91 for shooting zone, 0.95 for rebound zone and 1.00 for side of rebound.

To analyze the zone of attempted field goal and zone of rebound, the court was divided in fourteen zones (Tavares & Santos, 2007) (Figure 1). The variables were determined by expert coaches and researchers and were registered by experienced observers (licensed in Sport Science and with a minimum of 5 years of experience as basketball coaches). A total of 4548 actions of attempted field goals were analyzed (successful = 2378 and unsuccessful = 2170). To avoid inconsistencies some actions were excluded from analysis (blocked shots, free throws attempted that did not touch the rim or the backboard, shooting foul, when the rebound went directly to out of bounds, second attempted field goal and held ball in the rebound). On the other hand, the unsuccessful attempted field goals, which generate rebounds, have been divided into three groups: i) paint (zone 11 to 14), ii) two points (zone 6 to 10) and, iii) three points (zone 1 to 5). To analyze the side of rebound, the court was divided in two by the imaginary line basket-basket: i) same side and ii) opposite side of the field goal attempt. Each game provides a percentage of rebound in the same and opposite side, thus, the following variables were studied: percentage of rebound in the same or opposite side, when shooting from the paint, from two points, from three points and total field-goals attempts.

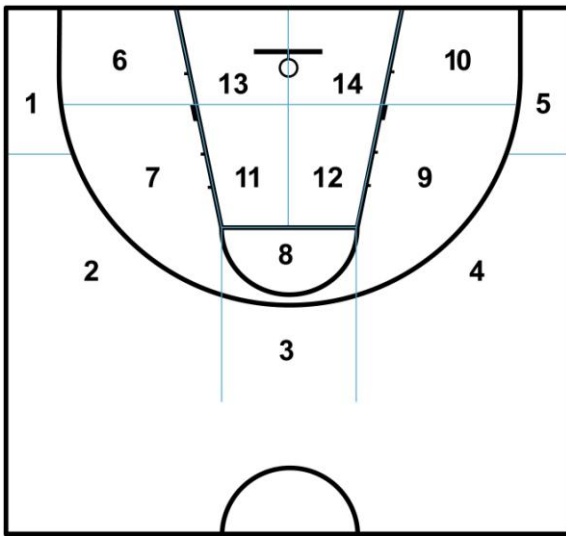

Figure 1. Zones of the court.

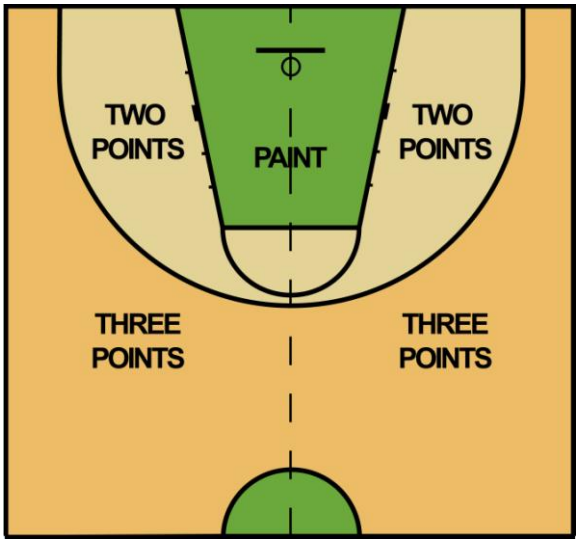

Figure 2. Zones of field-goals and side of rebounds.

2.2. Data Analysis

A normality test of Shapiro-Wilk was performed in all variables and after a paired t-test it was used to examination if there were differences between the percentage of rebound in the same and opposite side when shooting from the paint zone, two points zone, three points zone and total shooting attempts. The statistical analyses were performed using SPSS software 16.0 and significance level was set at $p \leq 0.05$.

3. Results

The results of total field goals attempted and rebounds are presented in Figure 3 and Figure 4. Near 46.5% of total shoots were taken from inside the paint, while 38.3% from the three points and 15.2% from two points zone.

It is also possible to see that almost 59.0% of all field goals attempted in all games were taken from zones 2, 4, 13 and 14. Near 91.0% of all rebounds were obtained inside the paint while there were no rebounds obtained in three point zone.

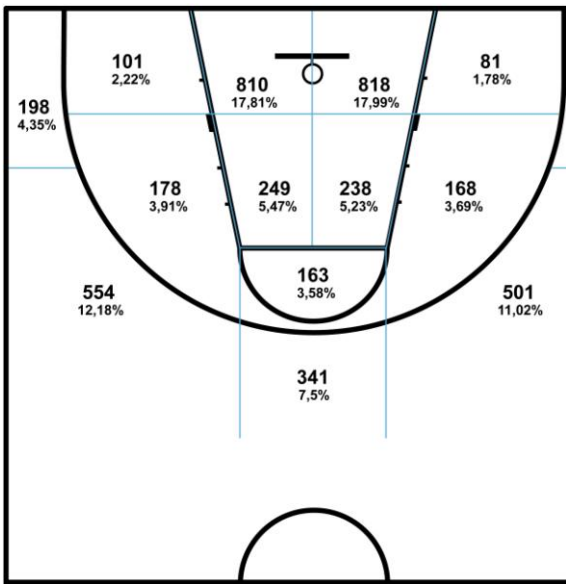

Figure 3. Field-goals distribution (recount and %).

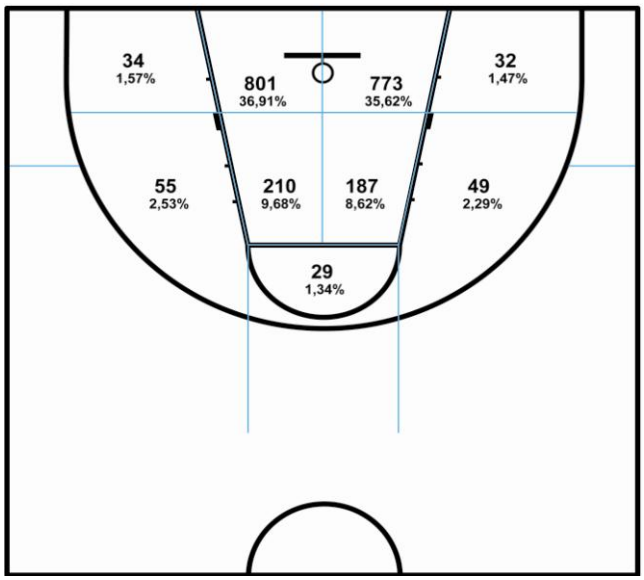

Figure 4. Rebounds distribution (recount and %).

This study found that when attempts occur inside the paint, the same side had statistically significant more percentage than the opposite side (Table 1). When attempt occur in two points, three points zones and total attempts, the same side had no statistically significant more percentage than the opposite side.

Table 1: Analysis of Same Side and Opposite Side

Variables	Shapiro-Wilk	Same Side		Opposite Side		*t*	*p*
	p	*Mean*	*SD*	*Mean*	*SD*		
Paint	0.988	58.04	11.94	41.95	11.94	4.666	0.000*
2-points FG	0.978	49.26	18.1	50.73	18.1	-0.283	0.779
3-points FG	0.232	47.87	11.6	52.12	11.6	-1.266	0.212
Total	0.405	51.64	7	48.35	7	1.631	0.110

Significantly different: *$p \leq 0.05$

4. Discussion

The purpose of the present study was to identify if there was any difference between the side of the rebound when attempt occurs from inside the paint, two point zone and three point zone. There are not too many previous scientific studies in this field of research (Tsamourtziz & Athanasiou, 2004). Most of the information available about zone of rebound is from self experienced coaches and their empirical knowledge.

The analysis of game-related statistics in basketball games showed that winning teams have better performance than losing teams in some variables, such as, defensive rebound, two points percentage field goal and free throws (Karapidis, Fotinakis, Taxildaris & Fatouros, 2001; Sampaio & Janeira, 2003; Trninic, *et al*., 2002). These studies allow coaches and players to understand which variables of the game are most important to have a better chance of winning games, but do not give the opportunity to coaches positioned players to gain the rebound, for example. Beyond knowing what is important to perform well during the game, they must know how to execute the actions. The zone of the field where the ball has more probability to rebound, considering the place where the shot was attempted is a very good information to the players.

The rebound is clearly a very important variable in the game. Sampaio *et al*, (2006) showed the importance of defensive and offensive rebounds in three different levels of competition (Portuguese League, Spanish Professional League and NBA). Trninić *et al*, (2002), suggested that the defensive rebound is an indicator of overall defensive successfulness since it follows the unsuccessful opponent's shot which is, most often, a consequence of the organized pressure defense well performed. We believe that this assumption and a good position of the players to dispute rebound can lead a team to over perform the opponent in the fight for the ball after an unsuccessful shot. The results obtained in the present study show that more than 90% of the rebounds occur inside the paint. The study about rebound zones of Tsamourtzis & Athanasiou (2004) does not use the same number of zones in the court to analyze the rebound and because of this a comparison is unlikely. This kind of information allows the coaches to prepare their team to be well positioned when the dispute happens. A team which usually disputes the rebound with two, three or four players can position each player in an exact place to box out the opponent from the zone where the ball has more possibility to rebound, in this case, inside the paint. The rebound is considered by some expert coaches (Jackson & Arkush, 2004), the most overlooked aspect of the game and requires a tremendous effort that the players will have to gain the dispute. With more scientific information about the rebound, it is possible to know the zones where rebound happens with more frequency having into account the areas where the shots are taken in the field. It is also very important all for the players to know who they are going to defend and to know the weakness of the opponent, this way they can try to explore this fragility of the adversary, for example, they must know exactly the zones where the other team has good percentage of successful shoot and try to avoid the attempts from there.

It was found in this study that when the shot is taken from inside the paint there is a significant higher percentage of rebound on the same side and there were no differences between percentage of the two and three points attempt. The results obtained are

different from Tsamourtziz & Athanasiou (2004) which suggest that much more likely 70%-75% of the time the ball rebound to the opposite side, but the present study does not use the same methodology of analyses. Since we do not have this information, but one possible explanation to these results is that the shoots taken from inside the paint are mostly with high pressure of the defense, because the paint is a zone very close to the basket, this pressure can cause a different mechanical of shooting which leads the ball rebound to the same side. There was no difference between the side when the shoot attempt occurs from two and three points zone, these results can be interpreted in the same way. The attempts from these zones are not always in high pressure from defense and there are no tendencies to the ball rebound to one specific side.

The present study was limited in some aspects. It was not taken into the analysis if the player who shots the ball was free or was being defended and if it was individual or zone defense. We think it is very interesting that further research to control this information and look if when the attempt is unsuccessful there is any difference regarding the zone the ball goes to, because a free try is different from a non free one.

5. References

Csataljay, G., O´Donoghue, P., Hughes, M. & Dancs, H. (2009). Performance indicators that distinguish winning and losing teams in basketball. **International Journal of Performance Analysis in Sport**, 9, 60-66.

Gómez, M. A., Tsamourtzis, E., Lorenzo, A. (2006). Defensive systems in basketball ball possessions. **International Journal of Performance Analysis in Sport**, 6(1), 98-107.

Gómez, M. A., Lorenzo, A., Sampaio, J., Ibáñez, S. & Ortega, E. (2008). Game related statistics that discriminated winning and losing teams from Spanish men's professional basketball teams. **Coll Antropol**, 32, 451- 456.

Gómez, M. A., Lorenzo, A., Ibáñez, S. J., Leite, N. & Sampaio, J. (2010). Na analysis of defensive strategies used by home and away basketball teams. **Perceptual and Motor Skills**, 110, 159-166.

Ibáñez, S. J., Sampaio, A. J., Sáenz-López, P., Giménez, J. & Janeira, M. A. (2003). Game statistics discriminating the final outcome of Junior World Basketball Championship matches (Portugal 1999). **Journal of Human Movement Studies**, 45**(**19), 1-19.

Ibáñez, S., Sampaio, J., Feu, S., Lorenzo, A., Gómez, M. A. & Ortega, E. (2008). Basketball game-related statistics that discriminate between teams' season-long success. **European Journal of Sport Science**, 8**,** 369-372.

Ibáñez, S., García, J., Feu, S., Lorenzo, A. & Sampaio, J. (2009). Effects of consecutive basketball games on the game-related statistics that discriminate winner and losing teams. **Journal of Sports Science and Medicine**, 8**(**6), 458-462.

Jackson, P. & Arkush, M. (2004). **The last season: a team in search of its soul**. United States of America, Penguin Press.

Karapidis, A., Fotinakis, P., Taxildaris, K. & Fatouros, J. (2001). Factors characterizing a successful performance in basketball. **Journal of Human Movement Studies**, 41, 385-397.

Ortega, E., Palao, J. M., Gómez, M. A., Lorenzo, A. & Cárdenas, D. (2007). Analysis of the efficacy of possessions in boys´ 16 and under basketball teams differences between winning and losing teams. **Perceptual and Motor Skills**, 104, 961-964.

Pojskic, H., Separovic, V. & Uzicanin, E. (2009). Differences between successful and unsuccessful basketball teams on the final Olympic Tournament. **Acta Kinesiologica**, 3**,** 110-114.

Sampaio, J. & Janeira, M. (2003). Statistical analyses of basketball team performance: understanding teams wins and losses according to a different index of ball possessions. **International Journal of Performance Analysis in Sport**, 3**,** 40-49.

Sampaio, J., Ibáñez, S., Lorenzo, A. & Gómez, M. A. (2006). Discriminative game-related statistics between basketball starters and nonstarters when related to team quality and game outcome. **Percept Mot Skills**, 103**,** 486-94.

Sampaio, J., Drinkwater, E. J. & Leite, N, M. (2010). Effects of season period, team quality, and playing time on basketball players´ game-related statistics. **European Journal of Sports Science**, 10(2), 141-149.

Simovic, S. & Komic, J. (2008). Analysis of the influence of certain elements of basketball game on final result based on differences at the XIII, XIV and XV World Championship. **Acta Kinesiologica**, 2 (2), 57-65.

Tavares, F. & Santos, A. (2007). Análise do ressalto ofensivo em equipas de basquetebol do escalão sénior feminino. In IV Congreso Ibérico da Baloncesto "El entrenamiento desde la base a la élite deportiva en baloncesto" (Sérgio Ibáñez Gogoy; Sebastián Feu Molina; Isabel González; Javier Rubio; Maria Cañadas Alonso).

Trninic, S., Dizdar, D. & Luksic, E. (2002). Differences between winning and defeated top quality basketball teams in final tournaments of European club championship. **Collegium Antropologicum**, 26, 521-31.

Tsamourtzis, E., & Athanasiou, N. (2004). Registration of rebound possession zones in basketball. **International Journal of Performance Analysis in Sport**, 4(1), 34-39.

C**orrespondence:**

Roberto Lampert Ribas
Rua Santa Luzia Nº 852 – 14 drto. frente, 4250-415, Porto, Portugal.
Email: robertobreak@hotmail.com