



The effectiveness of the predominant execution of a long three-point throw in a game situation in basketball

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Abstract

Purpose: This article examines the results of attacking actions in basketball where long-range three-point throws are mainly used. The aim is to determine the effectiveness of the predominant long-range three-point throw in a game situation in basketball. **Methodology:** The leading research approaches to the use of long-range three-point throw are: structural-analytical and personality-oriented approaches. **Research methods -** scientific and methodological literature analysis and summarizing, questionnaires, pedagogical testing, pedagogical experiment and methods of mathematical statistics. **Results:** As a result of our research, we compared North American and European basketball patterns and statistics for the 2018/19 season and the proposed 2018/19 season in the NBA and Euroleague. The results are given and discussed, proving the effectiveness of the use of long-range three-point throw in basketball in competitive conditions. **Applications:** The article will be useful for both novice and professional basketball coaches, as an aid in building the training process during the preparation for the competition. **Novelty/Originality:** The problem under study is relevant, since in the NBA teams spend 8-18 seconds to attack the ring. Defensive formations are not a decisive factor in achieving a winning result. The principle applies: "score more than the opponent". The use of long-range three-point throws will add variability in the attack, reduce the time to attack, and also add the number of attacks, which contributes to an increase in effectiveness.

Keywords: long-distance three-point shots, competitive season, basketball attacking actions, physical training of basketball players

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INTRODUCTION

In this article, we'll take a look at two completely different basketball worlds. Two leagues: NBA and TURKISH AIRLINES EUROLEAGUE. According to Championat.com for the 2018-19 season, the Milwaukee Bucks top scorer averages 118.1 points per game (2.46 ppm), while the lowest scorer Memphis Grizzlies has averaged 103.5 points per game (2, 16 ppm). For 48 minutes of playing time, very average indicators. For comparison, in the same season, the average performance of the most scoring team in the Euroleague AX Armani Exchange Olimpia Milan is 87.2 points per game (2.18 points per minute), while the less scoring team Budućnost has only 74.3 points per game (1, 76 ppm). For 40 minutes of net time, very modest performance. But in this league, teams often spend 16-24 seconds to attack the ring. Defensive formations are the key to winning. The principle "defense wins the game" applies. Therefore, the use of long-range three-point throws will expand the opponent's defensive formations, which will simplify the attacking actions; will

reduce the time to attack, and also give extra seconds to rest for your partners.

LITERATURE REVIEW

The three-point shot is one of the most important elements of basketball.

The three-point arc has become the most significant element of the site marking. Coaches dance from her when creating models of defense and attack, and general managers, working in the draft or the free agent market, always remember the need for the presence of at least one or two top-class "truckers" in the team. And all would be fine, but after all, initially such throws were thought only as an element of marketing, and no one even imagined that its importance would increase significantly over time. M.P. Shchekotikhin (2017) in his work he determined the effectiveness of throws and their

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Table 1. Comparison of NBA and Euroleague game models

Criteria (season data 2018/19)	NBA (30 teams, 82 games)	Euroleague (16 teams, 30 games)
Attack model		
Start of attack	- After a successful attack of the opponent 1- Start of positional attack (~ 80%) 2- Fast attack (~ 20%) - After an unsuccessful attack by an opponent 1- Fast attack (~ 60%) 2- Start of positional attack (~ 40%)	- After a successful attack of the opponent 1- Start of positional attack (~ 95%) 2- Fast attack (~ 5%) - After an unsuccessful attack by an opponent 1- Start positional attack (~ 70%) 2- Fast attack (~ 30%)
Time to attack	1- 8 to 16 seconds (~ 55%) 2- 17 to 24 seconds (~ 30%) 3- From 4 to 7 seconds (~ 15%)	1- 17 to 24 seconds (~ 65%) 2- From 8 to 16 seconds (~ 30%) 3- From 4 to 7 seconds (~ 5%)
"Favorite" combination	1- Homemade preparations 2- Improvisation 3- Pick and Roll 4- Insulation	1- Homemade preparations 2- Pick and Roll 3- Improvisation
Completion of the attack	1- Throw from close range (~ 44%) 2- Throw from a long distance (~ 36%) 3- Throw from medium distance (~ 20%)	1- Throw from close range (~ 52%) 2- Throw from a long distance (~ 38%) 3- Throw from medium distance (~ 10%)
The influence of the coach on the attack	Virtually none. Usually the coach just sits and watches the game, sometimes he can suggest something and talk to the referees.	Great. Usually, the players follow the coaching guidelines, the coach himself closely monitors the attack, constantly says something and actively gestures.
Statistics for the season 2018/19	Conversion rate for two-point shots in a season: High level (> 55%) have 3 teams; Average level (45-54.9%) - 27 teams; Low level (<45%) - 0 teams. Realized percentage of three-point shots in a season: 0 teams have a high level (> 43%); Average level (36-42.9%) - 7 teams; Low level (<36%) - 23 teams. Average team performance: High level (> 124.7 points per game) - 0 teams; Average level (103.2-124.6 points per game) - 30 teams; Low level (<103.2 points per game) - 0 teams.	Conversion rate for two-point shots in a season: 4 teams have a high level (> 55%); Average level (45-54.9%) - 12 teams; Low level (<45%) - 0 teams. Realized percentage of three-point shots in a season: 1 team has a high level (> 43%); Average level (36-42.9%) - 9 teams; Low level (<36%) - 6 teams. Average team performance: High level (> 87.7 points per game) - 0 teams; Average level (72.6-87.6 points per game) - 16 teams; Low level (<72.6 points per game) - 0 teams.
Defense model		
Types of defenses used by teams	1- Personal (personal) protection "man-to-man defense" 2- Zone protection "Zone defense" 3- Pressure: - on someone else's half of the site; - from the middle; - in their own half	1- Personal (personal) protection 2- Zone protection 3- Pressure: - on someone else's half of the site; - from the middle; - in their own half
The influence of the coach on defense	Virtually none. Usually the coach just sits and watches the game. He makes some adjustments in timeouts	Great. The coach can act as a defender along with the players, thereby adding energy to his team. Constantly prompts some points. Shouts or swears when mistakes are made. Is completely in the game
Statistics for the season 2018/19	The total average number of interceptions (st), losses (to) and block shots (blk): 7.6st, 13.6to, 4.95blk.	The total average number of interceptions (st), losses (to) and block shots (blk): 6.4st, 12.2to, 2.5blk.
Other		
Differences in rules	A quarter lasts 12 minutes; The total playing time is 48 minutes; Three-point arc at a distance of 7.24 m from the ring.	A quarter lasts 10 minutes; The total playing time is 40 minutes; Three-point arc at a distance of 6.75 m from the ring.
Work of judges	The judges may not register a violation of the rules for the sake of a beautiful moment, for the sake of an element of the show.	The judges record everything they see, sometimes even in the most ambiguous moments.
Statistics	Besides the basic indicators, there are advanced statistics. Various statistical indicators are calculated for each minute of the game, for each meter of the site, etc.	Standard statistics, the most basic.
Game motivation	Leading teams that are in a safe position from the playoff border in the regular season may not afford to play at their full strength or the strongest lineup. Also, there are teams that specifically want to take the last place so that the club will choose the best player for itself in the NBA Draft.	Each game is "worth its weight in gold". Since there is a fierce struggle for the top eight teams, any defeat can affect the standings.

influence on the effectiveness of the game. He noted that the accuracy of throwing into the basket is primarily determined by rational technique, stability of movement and controllability, correct alternation of muscle tension and relaxation, strength and mobility of the hands, their final effort, as well as the optimal trajectory of flight and ball rotation.

In turn, A.S. Belov (1990) argued that such throws should be performed by a maximum of two team

members since the roles of the players are different and they should improve their skills in the form where they are strong. A.Sh. Kasymov (1986) determined that long-range three-point shots are effective and radically change the opposing team's game plan, as they need to adapt to rapidly changing game conditions and rebuild their defense.

As a comparison of the game models of different leagues, let us turn to **Table 1**, where a detailed

comparison of games and game elements of teams takes place.

- Let's summarize the interim results. The NBA and the Euroleague have a fair amount of differences between themselves. Two completely different game models, with different approaches to the match process. We can see that key metrics such as the percentage of three-point shooting implementation on average for all teams are at either medium or low levels. The average performance is also average. I would like to increase these indicators. What is needed for this?
- Increase the percentage of all throws;
- Take your shooters to more advantageous positions more often;
- Add to attacking actions a long-range three-point throw, both an attack of the ring and a threat, which will expand the enemy's defensive formations, thereby simplifying the withdrawal of players to more advantageous positions, etc.

METHODOLOGICAL FRAMEWORK

In the process of research, we generalized and analyzed the data of scientific and methodological literature on the history and modern period of the basketball leagues of the NBA and Euroleague; about the tactics and model of the game of European and North American basketball.

Analysis of scientific and methodological literature made it possible to get a complete picture of the state of the issue under study. Also, in this article, a forecasting method was used with the help of which, we presented how some statistical data could change when adding the investigated attacking option. That is, they made their forecast for the same season, based on the indicators of the past season.

RESULTS

In this chapter, we will analyze several offensive actions, in which we will add an advantageous throw from a very long distance, as well as the same throw in the form of a threat. We'll also see how much the stats in the NBA and Euroleague will change when this option is added. Will this option be effective for the NBA and Euroleague. But, first, we need to understand what benefit and harm the use of this throw can bring.

Benefits:

- + The effect of surprise works;
- + Reduces the time to attack;
- + Increases the number of attacks per match;
- + Gives a few seconds to rest teammates who are not involved in the attack;
- + Expands the opponent's defensive formations;
- + Adds a new option in attack.

Disadvantages:



Fig. 1. Attack 1

- It is necessary to apply a little more force in the throw;
- The throw is made in a small area;
- Risk to reduce the percentage of implementation of throws.

So, in order to successfully use attacks with a predominant long-range three-point throw, you must:

- the shot must be made by the sniper;
- transmissions must be accurate and timely;
- the screens must be set firmly so that the attacking player can free himself from the guard, receive the ball and attack the ring.

To begin with, let's analyze several attacking actions with a predominant long-range three-point throw.

Legend:

X - defending team;

O - attacking team;

Orange circle - basketball;

- - - - - ball transfer line;

————— screening line;

 - player movement line.

Attack 1:

- Protection - personal (personal);
- Development of the attack - the players get into a classic positional arrangement, the ball is at the player # 1. Without a single pass, a throw is made from a long three-point distance.
- Attack time - 6-9 seconds;
- The effectiveness of the attack is high if the player makes a throw. For her, the team will receive 3 points, the rest of the players will receive a few seconds of rest.

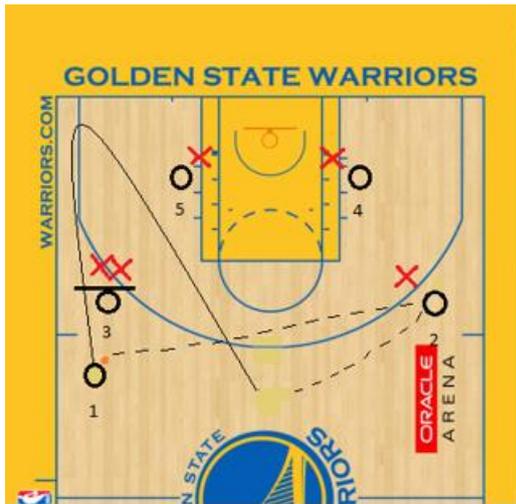


Fig. 2. Attack 2

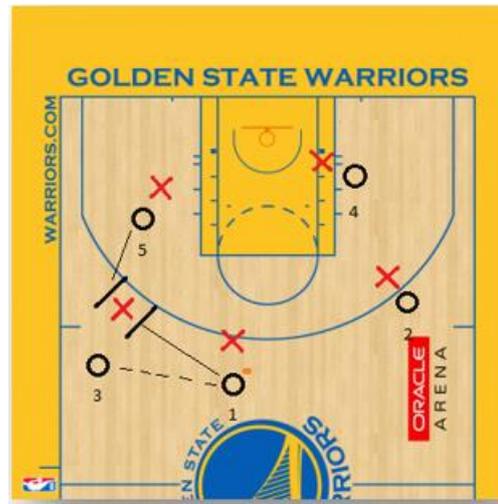


Fig. 4. Attack 4

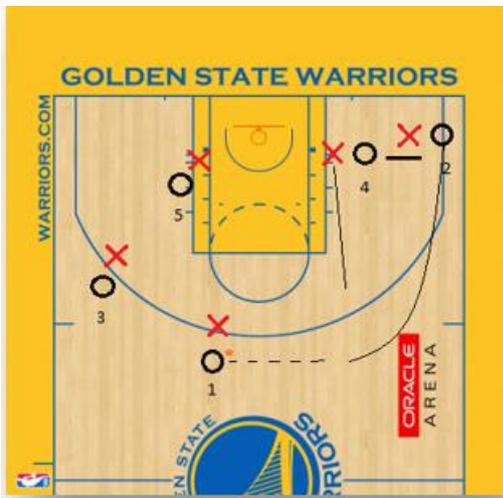


Fig. 3. Attack 3

Attack 2:

- Protection - personal (personal);
- Development of the attack - the arrangement of the players as in Attack 1, the ball is at the player # 1. Player # 1 gives the ball to player # 2. After the pass, he accelerates into the corner of the court, and runs out from behind the back of player # 3, who puts a screen on the defender. Player # 1 receives the ball from player # 2 and attacks the ring. The same can be done in the other direction;
- Attack time - 10-13 seconds;

The effectiveness of the attack is high if the player makes a throw. The team will receive 3 points for it. Even if the screen does not work, and player # 1 is prevented from shooting, he can go into the passage under the ring, creating a "3 on 2" situation, or make a shot from an average distance.

Attack 3:

- Protection - personal (personal);

- Development of the attack - the picture shows the initial formation. Player # 4 places a screen, from under which player # 2 runs out to the "spot". Then player # 1 makes a pass to player # 2 and he makes a shot on the ring. Here you need to lead the player to a distant three-point shot, because a regular three-point shot has time to block the defender. The same can be done in the other direction;

- Attack time - 10-13 seconds;

The effectiveness of the attack is high if the player makes a throw. The team will receive 3 points for it. Even if the defender miraculously manages to close the throwing player, the pass can be made to player # 4, who will remain face-to-face with a small defender, which gives a big advantage in "post" Attack 4:

- Protection - personal (personal);

- Development of the attack - the picture shows the initial formation. Player # 3 receives the ball from player # 1. Simultaneously, players # 1 and # 5 put a screen on the defender from both sides. Then the defender begins to be distracted by the players who put up screens. And at this moment, player # 3 must have time to make a throw. The same can be done in the other direction;

- Attack time - 10-13 seconds;

The effectiveness of the attack is high if the player makes a throw. The team will receive 3 points for it. If the defender manages to interfere with the throw, then player # 3 can move in any direction and find any player with a pass, thereby continuing the attack.

Now let's look at a few attacking actions when a long-range three-point throw will serve as a threat to the ring.

This is possible when the opponent already understands that the team can take shots from ultra-long range. In this case, the defense will be built a little differently.

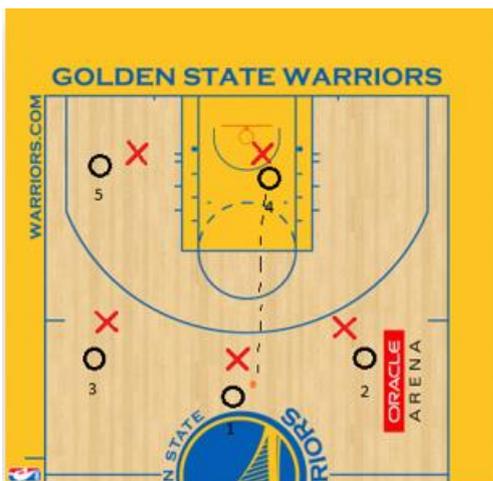


Fig. 5. Attack 5

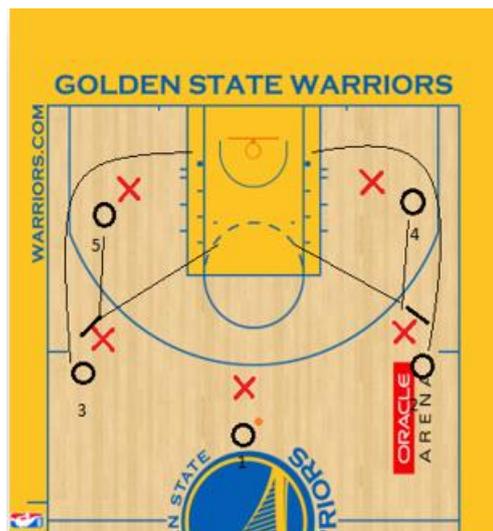


Fig. 7. Attack 7

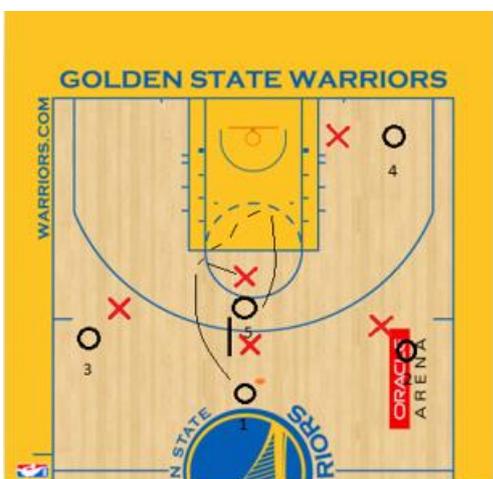


Fig. 6. Attack 6

Attack 5:

- Protection - personal (personal). The defenders began to meet the attackers higher, because of this, a free zone was formed under the ring;
- The development of the attack - the attackers squeezed three defenders out of the zone, only 4 people remained inside. Player # 5 must take his guardian aside so that player # 4 can stay 1 on 1 with the defender, get the ball from player # 1, beat the defender and throw the ball into the basket, if a second defender comes to help, you can give the ball to a free player and continue the attack. The same can be done in the other direction;
- Attack time - 12-17 seconds;
- The effectiveness of the attack is high if the player makes a throw. The team will receive 2 points for it. 4 out of 5 players will receive additional seconds of rest.

Attack 6:

- Protection - personal (personal). Defenders keep back row players tighter (# 1-3);

- Advancement of the attack - with such a tight and high defense, it is easier to play a standard pick and roll. Player # 5 sets up a screen, player # 1 goes to the left and rushes into the zone where he is met by another defender. At this time, player # 5 "falls through" into the zone, receives the ball and attacks. The same can be played in the other direction by other players.

- Attack time - 10-15 seconds;

The effectiveness of the attack is high if the player makes a throw. The team will receive 2 points for it. If player # 3's defender tries to prevent player # 1 from entering the zone, then a pass will immediately follow to player # 3, who will throw a long-range three-point shot, and 3 points are given for him. Most likely, the defender of player # 4 will be on the safe side and leave his guardian alone. In this case, a pass to the corner and an instant free throw will follow.

Attack 7:

- Protection - personal (personal);
- Development of attack - at the same time players # 4 and # 5 put screens on players # 2 and # 3. Then players # 2 and # 3 rush into the zone along the sideline, defenders switch to them (or not). After the screens, players # 4 and # 5 "fall" into the zone. The defenders who have been screened will not have time to block the attackers. Player # 1 has to pass the pass to the most advantageous position;
- Attack time - 12-17 seconds;
- The effectiveness of the attack is high if the attack is completed successfully. The team will receive 2 points for it. This attack can also be played on one side. The most important thing is that the zone remains free due to the threat of a long three-point shot. Therefore, it becomes easier to play any interactions inside the zone.

The effectiveness of such attacking actions, of course, is great, but it is still not worthwhile to constantly perform them. The surprise effect should always last. Also, the effectiveness will remain if there are players in the team who have a high percentage of the implementation of shots from a long distance. Therefore, it is them that should be brought to long three-point shots. Such attacks need to be carried out intelligently and in a timely manner (Stafeeva et al., 2020). If it is possible to give the ball to a more advantageous position than stated in the combination, this must be done. As we can see, the time for using these team interactions does not reach 18 seconds. This means that in case of failure, there will be about 6-7 seconds left to bring the attack to the end. Perhaps in the near future we will see them performed by the NBA and Euroleague teams.

That way, when your opponent knows your team is using long 3-point shots, their defense will be higher and tighter. In this case, the area inside the three-point line will become freer (Kim & Shamov, 2019). Consequently, it will be much easier to produce different interactions in it than with low defense.

DISCUSSIONS

The results of the study showed that a predominant attack from a long three-point distance, as well as its threat, has a sufficiently high level of effectiveness and can lead to:

- an increase in the total number of attacks per match for all teams;
- to increase the attack speed of all teams;
- to an increase in average performance due to an increase in the number of attacks with the same percentage of hits for all teams;
- to an uncritical decrease in the percentage of realization, only ~ 0.5%, three-point throws;
- to increase the complexity of the opponent's defense.

We also see that the NBA teams have practically not used such an option in attack as a long-range three-point shot. In the Euroleague statistics, such parameters are not calculated, therefore the analysis of some games of the Euroleague group stage showed about the same result as in the NBA. This may indicate:

- Lack of players capable of consistently shooting from such a distance;
- Team play style. The game is built through other components.

How will the structure of the game change if long three-point shots are used consistently by all teams?

There are many good snipers in the NBA who can score from this distance. Perhaps soon we will see such options in the attack. If earlier the game was built through powerful, strong, tall players, now there is nothing to do on the court without a high-level sniper. Nowadays, the big players are learning how to shoot three-point shots. An ordinary "silovik" is no longer needed. The main players were the snipers. Some teams are already shooting under 40 three-pointers per match, which is 120 potential points. Therefore, the structure of the game is changing right now, and with the addition of a new option, we will see even more speed, ultra-long shots and an increase in efficiency (Bystritskaya et al., 2020).

In the Euroleague, the number of highly skilled snipers can be counted on one hand. This fact will complicate the addition of such an option, but will give a great advantage to teams that have such players in their composition. It is more difficult here to implement the constant use of the new option. The psychological state that was created and maintained during the entire period of preparation also has a great influence (Kochneva & Grishina, 2019). The Euroleague is more interesting than the NBA for its tough defense. Perhaps there is no need to see huge bills here. But even if the structure of the game changes towards the sniper, defense will still come first. Therefore, it will be doubly interesting to watch the defenders.

CONCLUSION

Returning to the goal of the work, namely, the determination of the effectiveness of the predominant long-range three-point throw in a game situation in basketball, we can say with confidence that it has been fulfilled. The tasks were completed by:

- Comparison of the NBA and Euroleague league game models;
- Attacking and defensive actions are considered, when the priority of completing the attack will be a long-range three-point shot in two game models;
- Attacking and defensive actions are considered when a long-range three-point shot will serve only as a threat in two game models.

The effectiveness of a long-range three-point shot will be high in the presence of qualified shooters, a certain model of the game, and an insufficient level of defense of the opponent. In the NBA, this is possible in the near future. In Euroleague, most likely, this option will not appear soon, if at all.

REFERENCES

Belov AS (1990) Basketball. Ring throws. Physical education at school, 6(7): 17-18.

- Bystritskaya EV, Skitnevskiy VL, Grigoryeva EL, Krasilnikova YS, Sedov IA, Balashova VF, Germanov GN (2020) Physical training teacher certification as a basis of the professional standard requirements for teachers. *Journal of Environmental Treatment Techniques*, 8(2): 674-678.
- Kasymov AS (1986) Questions of improving the performance of basketball players in the competitive activity. Tashkent: Meditsina.
- Kim OM, Shamov AN (2019) Formation of intercultural business dispute competence in the sphere of professional business communication: contents and technological aspects. *Vestnik of Minin University*, 7(2): 2-12.
- Kochneva EM, Grishina AV (2019) On the creation of a model of psychological and pedagogical support of positive parenthood. *Vestnik of Minin University*, 7(3): 10-17.
- Shchekotikhin MP (2017) Analysis of the tactics of throwing in basketball and its influence on the effectiveness of the attacking actions of basketball students. *Science-2020*, 2(13): 129-132.
- Stafeeva AV, Ivanova SS, Burkhanova IY, Vorobyov NB, Reutova OV, Komercheskaya SP (2020) Forming self-development competences in engineering students during physical culture lessons. *International Journal of Applied Exercise Physiology*, 9(4): 111-116.