ANALYSIS OF SHOOTING TYPES AND SHOOTING SUCCESS RATE OF DIFFERENT LEVELS OF COMPETITIVE BASKETBALL (TAKE EUROPEAN AND AMERICAN BASKETBALL FOR EXAMPLE)

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ABSTRACT

The research purpose of this thesis is to investigate the success frequency of the use of different types of basketball shots (overhead, hook, layup, slam dunk, shot) and some details in the use of statistical techniques. By analyzing the video clips of five different levels of competitive basketball (NBA, Euro League, Slovenian League One, and two youth basketball games), discussing the state (shooting position, player type, and attack during transformation) in different games, and finally getting the relevant analysis results, I added a theoretical basis for the development of basketball in my country.

Keywords: competitive, shooting type, success rate.

INTRODUCTION

Non-free throw shots (or outfield goals) are the main scoring method and one of the most common and important technical elements in competitive basketball. Athletes Use Differences The choice of shooting technique is affected by factors such as distance, angle, player type, etc. To be an effective basketball shooter, players must be selectively trained to acquire proper technique and execute it. Also, due to limited practice time, techniques that must be used frequently during competitions should be practiced more often. Therefore, as a first step in improving the quality of basketball training, there needs to be a better understanding of which basketball shooting techniques are

more frequently performed during the game. In addition, we also wanted to see how much difference there was between age groups and levels of competition, especially Is the size of the gap between the youth and the senior or middle levels of EuroBasket and the National Basketball Association (NBA). In this case, we'd expect a wide variation in athleticism (especially between youth and senior basketball teams) and offensiveness. The technical ability of the athlete will also have an impact on the choice and technique of the shot type(Ibáñez et al., 2008). While there is some work on the technical elements of dribbling and passing, the work on understanding basketball shots is only basic. Statistics based on official records (field goals made) More research has been directed to the position of the shot, and less has been involved in the actual analysis of basketball skills(Fox et al., 2017). Depend on Shots clearly analyzed and supported by experimental research are a guarantee of success, with more successful teams having fewer 3-point attempts and higher field goal percentages(Gómez et al., 2008). Team guards attempt more long-range three-pointers, which has been the most widely studied focus in recent times. Direct collection of data is difficult to accomplish because data on the technical execution of basketball shots is not readily available. In recent years, great strides have been made in monitoring players and ball tracking(Heuzé et al., 2006). Technology implemented in the NBA that automatically recognizes technical elements such as shot types and defensive spacing, and these data are automatically recognized. For other technical aspects and basketball games outside of the NBA, researchers currently have no choice but to manually collect data through visualization(Andrews, 1999).

1 Method

In this study, by watching the video recordings of the European and American national basketball leagues and classifying them one by one, the variables appearing in the game are summarized and analyzed in a targeted manner. Among them, in the game video observation, we divide the lens into the following five basic lens types: Over the head: Shoot the ball over the head, looking from under the ball towards the edge. This shot type is the most commonly used when shooting from a distance, but it can also be used when shooting multiple shots. The most typical example of the above shot is the jump shot. Shooting: When shooting, the ball is roughly perpendicular to the basket, the arm moves outward in a sweep, the shoulder is extended, and the wrist is bent to perform a hook action. This half-hook shot (approximately facing the basket) is also classified as a shot. Layup: A one-handed shot by taking the ball from below and releasing it after the arm moves up. Usually performed near the rim and jumping off one leg, sometimes bouncing the ball off the backboard. Shot: A shot

made by throwing the backboard into the hoop, which is made entirely in mid-air. Slam Dunk: Shooting the ball from under the hoop with your hands This technique is limited to players with sufficient height and/or vertical jump.

2 Results and Analysis

After analysis and statistics, the following discussion information can be obtained, mainly for comparison and statistical analysis of different body movement postures and shooting percentages in the game. Finally, the summary is as follows: Shot type. Overall, the most common shot type is the above-head shot, followed by layups. Layups and unclassified (other) shots are more frequent in youth basketball. Above the head, there are fewer dunks and shots. The only noticeable difference between the three high-level basketball games is that hook shots are less common in the NBA than in the two European games. Generally, in regular games, the difference in the relative frequency of dunks between the NBA and other advanced games increases. Excluding special circumstances, the technical movements used in warm-ups and layups between youth and advanced games are more significant. leg position(Lorenz & Murray, 2014). In the advanced game, about 4/5 of the shots are made standing on two legs or jumping. In youth competition, this figure is roughly 10 percent lower and can be attributed to youth basketball players using more layups. In any case, although the difference is smaller, it persists at high levels of play even after adjustments(Roccatello et al., 1989).move. Most shots were made in set situations, about three-quarters of the court after a player dribbles or through defenses, with only a small percentage of shots coming from the backcourt to send the ball directly to the hoop(Roccatello et al., 1989).

2.1 Shock analysis

The action form of impact expresses the existence of people's resistance and the ambivalence of inner uneasiness. It is the ultimate in body control. For example, when "Farewell" draws to a close, it gives people a sense of shock with a buckled drop, which implies that no amount of retention will be in vain and desolate, which makes people feel a lot of regret. In the excerpts of "Carmen" from the Rumba segment, the contrast between love and hate between men and women is a fatal blow. When using impact elements, it is necessary to design actions that fit the scene according to the breakpoints of the music, creating a strong visual contrast.

2.3 Floating Analysis

The floating force effect will give people an ethereal and floating feeling. It is expressed by the infinite extension of body feelings and lines, as if being on top of the clouds, with strong adaptability. This force effect is mostly manifested in the tenderness of men and women.

For example, in "Three Lives III", the close embrace of boys and girls is often used. Girls use their back lines and arms to extend infinitely, bringing people a beautiful and unrequited love.

2.4 Tap analysis

Tapping is a light gravity factor in the force effect structure, presenting joyful or restrained colors in time and space(Furley & Memmert, 2010). For example, in the international rumba competition, dancers use the rhythmic syncopation in rumba dance and the effective connection and filling between the body and fingers to form a sense of joy or shyness.

2.5 Spring Analysis

In Latin dance, cowboy and samba are prominently used for springing, but in rumba, it is mostly used for springing from the upper body to the head. The spring is formed by the upward extension of the spine and the compression of the thoracic spine(Stroganov et al., 2019). For example, in international Latin dance competitions, Rumba often uses roundabouts to connect with body waves, making the movements sharp and angular in movement and stillness, making the speed complement each other in speed and making the interaction between the dancers more expressive under the control of the body(Campbell et al., 2014).

2.6 Chopping Analysis

The slashing is a flash reflected in the shortest time by the body's extreme speed, giving people a feeling that it is impossible to guard against. Multi-application and the combination of folk dance and Latin dance, combined with the tenderness and tenderness of rumba and superb skills, in the style switching, softness is used to shape rigidity, and rigidity is used to promote softness, making the content of rumba more interesting(Herring, 2002).

2.7 Analysis of projectiles

There are also very few differences between Americans and Arabs in throwing the ball into the basketball hoop. In American basketball, when attempting to score by throwing the ball into the hoop, you typically throw the ball in a vertical trajectory rather than a horizontal one. The objective is to have the ball arc through the air and descend into the basket. This technique allows for better control and accuracy when shooting. When shooting a standard jump shot or layup, players aim to release the ball with a slight backspin and an upward trajectory. This backspin helps stabilize the ball's flight and increases the likelihood of it bouncing softly off the backboard or going through the net.

It's important to note that there are different shooting techniques and styles used by players, but the general principle is to shoot the ball vertically towards the hoop. Practice, proper shooting form, and understanding the mechanics of shooting can greatly improve your shooting accuracy. In European basketball, as well as in basketball played around the world, the ball is generally thrown into the hoop vertically. Players typically shoot the ball by releasing it with an upward motion, aiming to have it travel in a parabolic arc toward the basket. While there might be variations in shooting techniques and angles depending on individual players' preferences, the vertical shooting style is the most common and effective method used in basketball. Using this set of equations, we can analyze projectile motion, keeping in mind some important points.

To describe projectile motion completely, we must include velocity and acceleration, as well as displacement. We must find their components along the *x*- and *y*-axes. Let's assume all forces except gravity (such as air resistance and friction, for example) are negligible. Defining the positive direction to be upward, the components of acceleration are then very simple:

$$a_y = -g = -9.8 m/s^2 (-32 ft/s^2).$$

Because gravity is vertical, $a_x = 0$. If $a_x = 0$, this means the initial velocity in the *x* direction is equal to the final velocity in the *x* direction, or $v_x = v_{0x}$. With these conditions on acceleration and velocity, we can write the kinematic (Figure) through (Figure) for motion in a uniform gravitational field, including the rest of the kinematic equations for a constant acceleration from Motion with Constant Acceleration. The kinematic equations for motion in a uniform gravitational field become kinematic equations with $a_x = -g, a_x = 0$:

Horizontal Motion

$$v_{0x} = v_x, x = x_o + v_x t$$

Vertical Motion

$$y = y_0 + \frac{1}{2}(v_{0y} + v_y)t$$

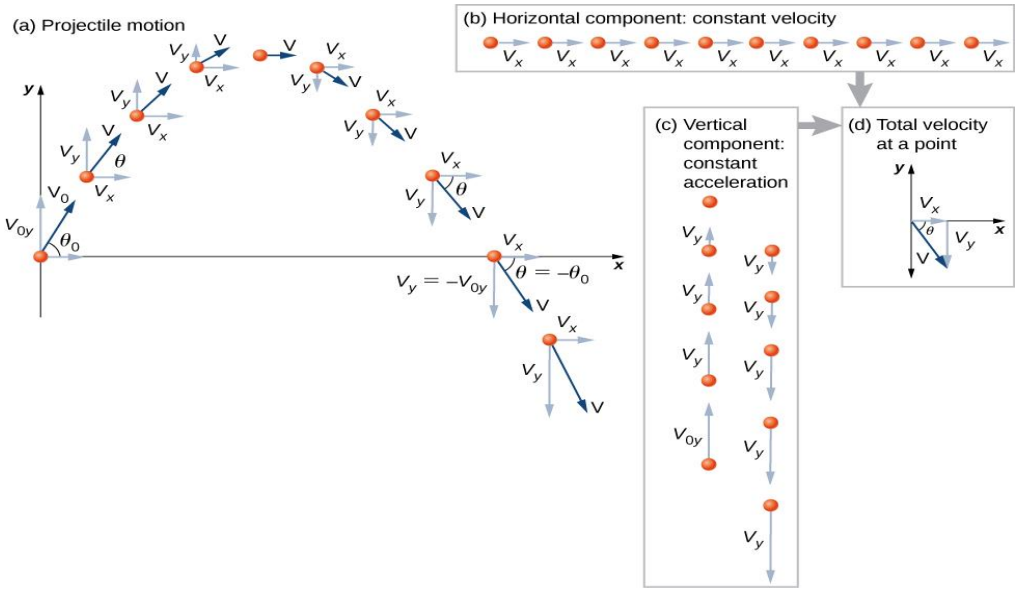
$$v_y = v_{0y} - gt$$

$$y = y_0 + v_{0y}t - \frac{1}{2}gt^2$$

$$v_y^2 = v_{0y}^2 - 2g(y - y_0)$$

Using this set of equations, we can analyze projectile motion, keeping in mind some important points.

We analyze two-dimensional projectile motion by breaking it into two independent one-dimensional motions along the vertical and horizontal axes. (b) The horizontal motion is simple, because $a_x = 0$ and v_x is a constant. (c) The velocity in the vertical direction begins to decrease as the object rises. At its highest point, the vertical velocity is zero. As the object falls toward Earth again, the vertical velocity increases again in magnitude but points in the opposite direction to the initial vertical velocity. (d) The *x* and *y* motions are recombined to give the total velocity at any given point on the trajectory.



3 Conclusion and Discussion

3.1 Discussion

There are two distinct differences in advanced competition. One, dunks are more frequent in the NBA, and two, hook shots are less common than in European basketball. Part of the reason both can be done is that NBA players are more athletic and able to dunk a higher percentage of the time in more situations. However, the hook shot isn't just a really good shot. Difficult to block but also difficult to change (that is, it is also difficult for defenders to interfere with this type of shot), which is enough to allow the shooter to take the shot at ease. Shots have always played an important role in basketball, especially for centers, so they are relatively rare. Shots can also be partially explained by the fact that today's NBA centers are at least less skilled in this area. Observations confirm a common belief that hook shots are disappearing from the NBA. Almost nothing was gained. That said, individual races may have different base preferences for the effect of situational variables on shot selection appears to be consistent across all games. Although this is not the main purpose of the research, the situational changes during the game are a comprehensive evaluation of the players in

the entire game, and it is difficult to estimate the overall team with good variables.

3.2 Conclusion

According to the force effect theory, the basic force effect of twisting should be maintained in the rumba choreography, and the proper integration of other force effect elements will make the rumba dance more charming. If it is necessary to express tender feelings, the gravity factor is weakened, and the extension of the spine and the push of the caudal and thoracic vertebrae are transformed into "pressing" and "twisting". If it is necessary to express dramatic fluctuations or ups and downs of emotions, using the explosive power of the human body can quickly transform into "slashing" and "shocking". This change in time factors can show a strong contrast in competition. If you need to add a sense of spatial extension and variety of movements, use the extension of the spine and the tension of the legs to turn twisting into "sliding" and "floating". This change in spatial factors can increase the control of the site. Show your partner internal space and body control if required. When using the stability of the pelvis and the push and release of the thoracic spine, the twisting gradually transitions to "bounce" and "tap", making the dance partners more intimate and more rhythmic.

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