

Characteristics and Application of Body Balance in Basketball Offensive Techniques

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Abstract: With the continuous development of basketball technology and tactics, the revision of competition rules and the enhancement of players' ability and defense consciousness, it is easier for players to have physical contact and more intense physical confrontation in the process of competition. Therefore, there are higher requirements for the use of offensive techniques of athletes. This paper mainly studies the body balance and its application in the offensive technology, and analyzes how to use the body balance better in the offensive technology of basketball.

Preface

In modern basketball, confrontation is one of its main characteristics, and in the confrontation, offensive technology is an indispensable factor. In the process of using offensive techniques, the body is first in static balance, then in an alternate process of imbalance and then back to steady balance. When attacking, the attacker needs to shift the center of his body quickly to control the balance of his body and achieve the purpose of attack.

1. The characteristics and mechanism of body balance in basketball offensive techniques

1.1 Characteristics of body balance in offensive techniques

Basketball technical action is a compound sport, which combines the angle movement and linear movement of human body or ball. From the point of view of body balance, it covers two main points, namely steady-state balance and static balance. The so-called steady-state balance means that in basketball, in a certain condition, in order to achieve the tactical purpose or technical effect, the players constantly change their positions and postures on the basis of space-time conditions, and effectively link up multiple technical actions, and rapidly adjust the center of his body and inertia to achieve the dynamic balance of the body. Static balance is a kind of static balance of the body, in which the relative displacement of the human body and the posture of the human body remain unchanged in a certain period of time^[1]. In offensive technology, body balance is actually an alternating process of steady-state balance and static balance. It is a state from balance to imbalance and then back to balance, it is actually a process of cyclic transformation.

1.2 Analysis of body balance structure in offensive techniques

Based on the principles of mechanics, the body balance requires certain necessary conditions to be achieved, including zero total force distance and zero external force. In addition, good body balance requires other parameters to achieve, including the support surface, the center of gravity, and relative factors of projection line of center of gravity. The support surface refers to the distance between the two feet. The support surface is directly proportional to the stability of the body. The larger the support surface is, the better the body stability is. The height of the center of gravity is also directly proportional to the stability of the body. The lower the center of gravity of the body, the better the stability; otherwise, the higher the center of gravity of the body, the worse the stability. The center of gravity projection line should be placed on the relative position of the support surface, and the center of gravity projection line should be placed between the two feet to increase physical

stability^[2]. Based on the characteristics of basketball and its inherent laws, the static balance posture obtained should be standing with your feet on the left or right, or standing forward and backward, the opening distance should be the same as the width of your shoulders, your knees should be in a bent state, and the angle is controlled at about 135⁰, the ankle joint is controlled at an angle of about 70⁰, and the head is always stable. The forefoot touches the ground, so that the center projection line is between the two feet, and the upper body leans forward slightly.

2. How to use body balance in basketball offensive techniques

2.1 To be applied to get rid of and cut in

On the basketball court, basketball-related actions are closely related to body balance and foot movements. However, each offensive technique and its coordination can only be fully displayed through the coordination of foot movements, and when performing rapid escape and cut-in actions, a strong balance ability is required to ensure the successful completion of the action. For example, before moving, you should maintain your own static balance, that is, the head is located in the vertical direction of the center of the support surface, and the center of gravity is placed between the two feet, and the upper body leans forward slightly, to keep the body at a comfortable and stable angle^[3]. When the body moves, the center of gravity leaves the support surface at the same time, while the soles of the feet move forward, the three joints of the lower limbs quickly straighten and the muscles contract rapidly. At this time, the arm should swing vigorously in order to keep the body in a balanced state. It is worth noting that during the movement, we should pay attention to the adjustment of the head position and the center of gravity to ensure the body in a stable and balanced state. At the same time, the body's center of gravity should be kept in the support surface during the emergency stop to ensure the effective connection of the next attack.

2.2 To be applied in the action of getting the ball

The so-called ball-receiving refers to receiving the ball after the end of the action. Only after receiving the ball can a basketball player shoot. A good shooter with a good catching skill is the most basic skill. The catch is divided into an outside catch and an inside catch. The two preparations for catching the ball are different. Before catching the ball from outside, the player should keep a certain distance from the defender's body, so that he has enough space to move, and increase his flexibility. Before receiving the ball from the inside, the player should lower the center of gravity of the body, squeeze his opponent with his back, legs, and side of the body, and maintain static balance. When catching the ball, you must make a pre-judgment based on the height, direction, and landing point of the ball, and then make the body perform forward movement, up jump, and side movement based on the pre-judgment of the ball, and actively greet the ball's buffer, and at the same time boldly use jump or step to catch the ball to approach the opponent. After receiving the ball, in order to achieve the "three threats" posture, the ball should be held firmly on the chest, and the body should remain statically balanced.

2.3 To be used in shooting

The only way to score in basketball game is shooting, which shows that shooting is important in basketball skills, which determines the ownership of the game. The shooting action is mostly used in the confrontation, mainly in the way of taking off and throwing the ball to the basket. The dunk or shooting between walking needs to ensure that the body is in a relatively stable state of balance. At the same time, it also needs to grasp the control of the body and the sense of balance after taking off. In addition, the movements such as dribbling stop jump shot, turn around jump shot, catch jump shot and in-situ jump shot need to keep the static balance of the body, the toes and the basket are facing each other, and the focus is on the supporting surface. In addition, when you take off, you need to jump up with both feet at the same time, raise your head slightly and use both hands to lift the ball, and quickly move your body's center of gravity up^[4]. After taking off, keep your feet in a state of natural relaxation, keep your eyes on the basket, and throw the ball at the near high point of

taking off. When landing, the distance between the feet shall not be narrower than the shoulder width, and the knees shall be bent for landing buffer to reduce the center of gravity, and the arms shall be bent on both sides of the body to maintain the balance of the body after shooting. If the shooter has physical contact with the defender, the shooter should take the initiative in the rules and keep the body balance in the confrontation to ensure the shooting rate.

2.4 To be applied to transfer and advance

Transfer and push movement refers to the process of controlling and controlling the ball between players in the attack from the back to the front, which combines the skills of dribbling, passing and catching. Before pushing forward, the body should be kept in a state of static balance; when pushing forward, the body should be quickly out of balance; in the process of transferring and pushing forward, the body should be kept in a state of steady balance, and each technology should be effectively connected, and its own center of gravity and balance should be controlled. Only in this way can we ensure the rapidity of transfer and promotion to effectively avoid certain mistakes.

2.5 To be used in the breakthrough of ball holding

The so-called breakthrough technology of ball holding refers to a strong offensive technology that the players quickly surpass the opponent's defense through the combination of dribbling technology and footwork. Although it is important to choose the breakthrough route and time, the preparation before breakthrough and the control of balance in the breakthrough can not be ignored, which has a great impact on the breakthrough results. Before breakthrough, it should keep the static balance of the body and ensure the feasibility of fast forward^[5]. Therefore, when holding the ball to break through, the center of gravity should be lowered and the general posture, and the upper body should be tilted forward at a larger angle. The projection point of the center of gravity should be placed on the front edge of the support, and the two feet should be in the oblique standing posture, and the distance between the two feet should be controlled within 10-15cm greater than the shoulder width. When breaking through, the back foot should be pushed back and up to the ground to move the center of gravity forward quickly, and then close to the opponent after exceeding the supporting surface, and then carry out the active force, and maintain the dynamic balance of the body. At the same time, it is far lower to release the ball at the defender's side. After the breakthrough, we should adjust the center of gravity according to our own situation and control the body balance. If you need to break through the layup, you can keep the weight forward to maintain the dynamic balance of your body; if you need to break through the emergency stop jump shot or split shot, you should keep the weight of your body in the supporting surface.

2.6 To be used for offensive rebounds

Rebounding is one of the important sources of control when playing basketball. Offensive rebounds usually use cross-steps to get rid of the opponent, and then take a two-footed or one-footed jump. Before taking off, it needs to bend your knees to lower your center of gravity when taking off with both feet, and quickly get rid of your opponent in an unbalanced state to seize a more favorable space range and maintain your own static balance; if you take off with one foot, you should have accurate judgment against the scope of snatch, and the body and move quickly with the judgment. In the last step, the one-foot support should bend your knees and raise your head, the upper body should lean back slightly, and control the center of gravity on the support feet. If there is physical contact with the opponent before take-off, the contacted part should actively bear against the opponent to facilitate himself to take off first. When you take off with your feet, you should kick hard, lift your waist, and swing your arms quickly to make your body fully stretch. When you take off with one foot, it needs to focus on the supporting point for your feet, and swing your knee with the other leg, and swing your arms to keep your body balanced^[6]. When the ball hits the ground, the forefoot should be the first to be touched, the knees should be bent, the body's center of gravity should be placed between the feet, the ball should be held in front of the chest, and the upper body should be leaned forward while maintaining the balance of the body, to make preparation for an offensive action.

Conclusion

In summary, body balance is an important factor in basketball, and body balance is closely related to offensive techniques. Controlling and using body balance well in the game can effectively improve the performance of technical movements and make basketball technical action be more practical and reasonable. Further exploring the physical balance of basketball offensive techniques can further understand the inherent laws of basketball offensive techniques, and make more reasonable and effective use of offensive techniques.

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