

IMPORTANT ASPECTS OF TECHNIQUE IN SERVE-RECEIVE AND CONSTRUCTION OF THE ATTACK IN BEACH VOLLEYBALL GAME

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Abstract: *Beach volleyball is a sports game practiced both by high-performance athletes and the great mass of lovers of movement, for recreational purposes, of lousier. The game of beach volleyball is identical to indoor volleyball in terms of the similarity of the execution of technical procedures and some attack or defense actions, but there are some significant differences between the two sports. Service in volleyball is one of the most important tools that a team can use to win a battle. If a team is very good at the side-out (receiving, setting, and winning attack), they need a point on their service to win the set.*

Key words: *service in beach volleyball, serve-receiving in beach volleyball, construction of the attack in beach volleyball.*

1. Introduction

Beach volleyball is a well-researched sport. The influence of service characteristics on elite beach volleyball performance in both males and females was analyzed [1]. Moreover, psychological factors were investigated [11], as well as the influence of tactical training in anticipating different types of attacks [2], [8]. Also, the effects of court size change have been explored [7], [20].

The game of volleyball is a game of acyclic movement like its older brother basketball [27], in which most of the time the combination of speed-force motor qualities is present, coordinated by

precise movements [14], [25].

The volleyball game has developed in characteristics of speed and strength, being more and more physical [28].

In beach volleyball, each of the competitors needs to know their role during the point dispute [21].

Thus, when the player has hit the ball in action, the players must know exactly what they have to do in the next phase, and the two must have a strategy from the very beginning who is receiving more or less the opponent's service. Usually, if the players are at the same quality level of the game, each occupies 50% of the court.

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If one player is more qualified than the other player, he occupies 60% of the court, and the other will cover only 40%. If the difference of age between the two partners is big, one of them being a player over 65-70 years old, the more mobile player will cover 75% of the court in the receiving position.

Psychological factors were investigated [11], as well as the influence of expertise in anticipating different directions of attack [2], [8].

In a scientific article, Kugler et al. found an incidence of 0.08 injuries per year in beach volleyball, most injuries being in the knee (20%), ankle (17%), fingers (15%), shoulder (13.1%), and pain back (5.7%) (Kugler et al., 2006), compared with indoor volleyball where the most significant injuries appear at the shoulder [30], back pain and knee joint.

An essential aspect refers to the coverage of the middle area of the court, which depends on the player's position in action is most often covered by the receiving player positioned diametrically opposite to the one who serves. The message must be concise and to the point like: (me! Or you!). Most players agree before each point, which covers the middle with short and concise expressions: "I will take the middle" or "you will take the middle." The partner must clearly understand the teammate's message because otherwise, confusion can be created between the two, and comfortable and essential points can be lost. In the figure below, you can see how each player plays a receiving player of the service.

Although in beach volleyball, just two components from the team, cohesion is considerable like in indoor volleyball games where team cohesion is fundamental [22], [26].

The decision strategies of the defensive players have been investigated, Kredel et

al. [15] managed to demonstrate that, in a training situation, and the elite male defenders initiate their movement at 250 ms after the ball's contact with the hand of the opposing attacker. Elite female defensive players start their movement earlier, about 110 ms after the ball comes in contact with their hand. Amateur players initiate their movement even earlier. The decision's correctness was 95% for male elite players and 81% for female elite players. In the training situation, only visual stimuli could be processed. Kredel et al. [15] did not consider any auditory stimulus as an appeal. However, in a qualitative study, Schläppi-Lienhard and Hossner [23] interviewed world-class athletes about their decision-making process in defense situations. Only one of the 19 athletes interviewed mentioned that the opponent's call influenced his decision. Schläppi-Lienhard and Hossner [23] concluded that, for the defending player, the opponent's call played a minor role at best.

Fundamental data are obtained in modern volleyball using statistical programs [34, 35, 36, 37] that identify the opponent team's strong points and weaknesses. Coaches use this data to exploit other teams and get the expected results [29], [31], [32].

In this case, the area covered by the player on the right is marked in light blue, which is responsible for receiving the ball served between the two players.

The two partners must speak at each phase to be very clear to the one who will execute the receiving of service that he is the one who has to do it. If the ball is exact that it will be played by one of the players, the other moves as quickly as possible in the receiving area of the ball and can stand with his hands up, ready for the setting of the ball for the attack, thus giving an extra clue to his colleague it is about where the ball

should reach after setting the ball. Team coordination is the secret to progress in meeting the targets of results.

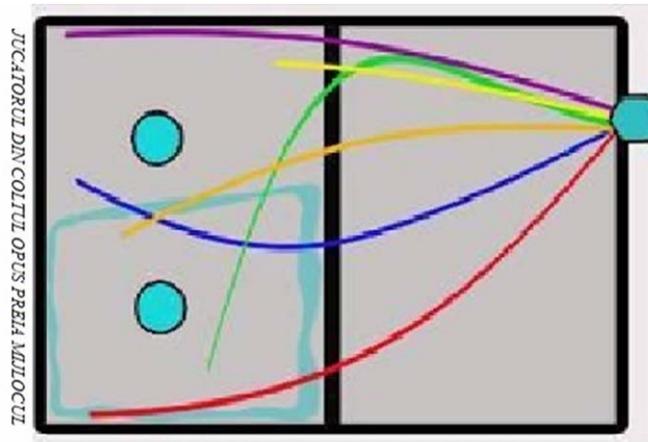


Fig. 1. *The position of the players on the court at receiving the service* [19]

Numerous studies have investigated the relationship between service delivery factors, the effectiveness of service acquisition, and communication between partners, discovering the kinematics of service and service reception [17], [33].

Without this fully functional aspect, players will find themselves in certain situations where everyone does not know what to do, so it is recommended the dialogue between the two even on clear actions that seem simple, as this increases players' confidence in the next action. Communication must be concise but friendly, as it is known how harmful it is to have an angry or non-communicative partner in the court with you. If, however, quarrels occur within a team, it is clear that everyone needs a different partner.

Setting the ball for the attack

Once the ball has left the hands of the setter, his teammate must already be positioned in the middle of the court and wait for the ball to be set for the attack from the service receiver. There are two types of passes for attack (setting): setting the ball with two hands from above the

overhand pass or setting the ball with two hands from below the underhand pass. Beach volleyball players often use their forearms or underhand pass for setting the attack ball instead of setting with two hands from above the head due to the risk of a technical error due to incorrect movement, although setting the attack ball with two hands above the head is more accurate [12]. Hernandez et al. [9] analyzed the kinematics of setting the ball for attack with the overhand pass in indoor volleyball; however, kinematic analysis of this beach volleyball process is missing. A good player must master both. A good setter will be able to put the ball in the attacking position no matter where it bounces from the colleague's hand after the receiving, and for this, the setter must have the ability to execute the following technical elements, in the following order:

Deciphering the opposing defense

Even before the ball reaches the receiving court, the setter must study very quickly how the opposing defense is preparing to play the next defensive phase. Depending on how the opponents

are arranged, the setter must decide in a short time where he will send the ball for the attack. It has several possibilities, depending on the opposing block's approach in the first place, whether it is executed or not by the opponents. One question, which has not been investigated so far, is whether failure in one side-out affects players' behavior in the next side-out. In beach volleyball, a team is more likely to end up receiving the service than in a situation of defense from attack [6], [13].

The reason is that receiving a service is much easier and more controllable than defending an attack [4] because the ball is hit closer to the net, and the reaction time is shorter.

In principle, even if in the game of beach volleyball there are only two components in a team, and a player at the block can do nothing but execute this technical element and eventually self-defend, leaving his partner alone on the entire surface of the court behind him, the vast majority of defense phases require one of the two components to jump to the blockade. Thus, the lifter must adapt his pass for the attack according to the qualities of the one who jumps to the block and the weather conditions where the wind plays a significant role in beach volleyball. Another impressive quality that the setter must have is the ability to move on the court very quickly and in any direction and to position himself very well in the court, to always know exactly where he is, which can be quite tricky given that outdoors the landmarks of a player are fewer than in the indoor game.

Receiving anticipation

To execute the setting for the attack, the setter must be very careful in the direction that the ball gets after the execution of the receiving by his colleague. Ideally, the receiving will be a perfect one, and the

ball will get a direct trajectory to the place where the setter is located.

It happens very often that the receiving is less successful or even wrong, and then the setter must be prepared for a swift move, so that when he comes in contact with the ball to be in a firm position, static, for him to have a chance of sending the ball to where his partner wanted it to go. To do this, the setter must be in a low position. The knees are flexed, and so are the ankles. The setter's hands are positioned upwards to give his teammate an extra clue about where to make the receiving. If the receiving is less successful, the setter benefits from this prior training and moves quickly in any direction. The advantage of playing beach volleyball is that it allows direction changes to be made more comfortable than indoor games by only implanting the foot deep in the sand, which provides stability regardless of the direction to follow. In the indoor game, the players must always be with support on the tip of their feet and with support inwards for a swift movement. The hands are the ones that apply the direction on the ball in particular and not the force on it, only to a minimal extent [5].

Attacker isolation

Beach volleyball is a structured game with two basic situations. A team receives the opponent's service in a typical action, passes the ball, and tries to score with an attack [12]. The attacking player can usually choose between a healthy or tip attack, which is preferably played over the block to the open part of the field [18].

Entering a stable position (planting)

Just as in the case of the receiving position and this case, the setter's swift movement is needed to position itself on the ball's downward trajectory (with the hope that it will land in the target area

desired by both players). The feet must be firm and firmly embedded in the sand to give a solid base to the absolute position, which requires the legs to be apart, the knees bent, the body bent forward so that it can smoothly perform a vertical movement to come into contact with the ball quickly or sometimes even to make a jump in order to prevent the ball from passing over the net following an imperfect receiving. Emphasis is imposed on the use of muscles in the leg, and of course, special attention is needed on the ball that should not be overlooked at any time. The movement of feet is the most crucial aspect of preparing the correct execution position of the setting. The shoulders should be close to the net, forming an ideal angle of 90 degrees, so that the ball can be quickly sent both forward and backward, and the foot that is closest to the net should be placed approx. 10-15 cm further than the one from the center of the court. This aspect is essential because applying this positioning on the sand of the feet results in a body position that will make the shoulder from the net to be oriented when extending the legs in contact with the ball very quickly inwards, thus not letting the ball either raised to the edge of the net or his net even worse, to cross the net into the opponent's field.

Bending the legs

If, as in most cases, a setting is made with the help of the overhand pass, the legs must be bent at the beginning of the movement to execute the attack's ball setting. This aspect makes the overhand pass difficult, which differs from the one used in the indoor game, precise, strong enough, and sent precisely where the teammate wants it. The force gives the power with which the ball leaves the setter's hand that the legs develop at the moment of their extension when

returning from flexion. The hands are the ones that apply the direction on the ball in particular and not the force on it, only to a minimal extent.

The actual setting of the ball

It has reached the stage where the ball is in a downward trajectory, the body is positioned just below it, and it is observed that the ball has much rotation around its axis and the downward movement that we anticipate. At this point, in order not to make a mistake, namely double contact on the ball, much prior preparation is needed. The training pieces are essential both for setting, attack, and physical training but also for the ball set. The palms are positioned in the shape of the volleyball ball, and the movement that the setter will perform is to push his hands towards the ball, thus cancelling the effect received by the ball after receiving. Therefore, the forearms should be bent at the elbow joint and positioned with the palms just above the forehead, with the thumbs oriented parallel and opposed to the setter's eyes, who will pass the ball to his attacking colleague.

The body is positioned by a rapid movement under the ball's downward trajectory resulting from receiving with the hands positioned so that if it did not hold them in this position, the ball would hit the setter exactly in the forehead. Then, when the ball is about 10 cm to the contact with the forehead, the extension of the arms and legs is triggered, which will push the ball to the desired area. This technical process is called an explosion. In this phase, the palms and wrists should be held rigidly, as they were before contact with the ball, in the phase preceding it. Untrained or amateur players bend their wrists during contact with the ball, thus losing much of the applied force. Believing that it imposes additional force, the effect is

precisely the opposite. We can think of a workout in the gym, where when we push from the supine position on the unique bench to train the chest muscles, in no way bends the wrist near the weight bar—all the sufficient force only from the extension of the arms and our case, of the legs.

Also, an essential aspect is related to the actual contact of the fingers with the ball. Under no circumstances is it recommended and allowed the ball to be touched with your fingertips. It should be touched with the inside of the thumb, forefinger, and middle finger. Another extremely unpleasant mistake is that some players set the ball in contact with the palms, which is wrong and not allowed by the referees.

2. Conclusions

The integration of six primary skills characterizes beach volleyball and beach volleyball matches: service, service reception, lifting, attack, blocking, defense, and control [24] developed in a succession of events. This sequential nature of volleyball puts much pressure on the human memory system because only after a critical moment in the game does a previous event becomes significant [10].

Beach volleyball is a practical sports game practiced both by the high-performance athlete and by the great mass of lovers of movement, for recreational purposes, of lousier. Beach volleyball is identical to indoor volleyball in terms of the similarity of the execution of technical procedures and some attack or defense actions, but there are some significant differences between the two sports. The game of volleyball is relatively simple; once, through the training of players and the speed of multilateral actions, it enjoys a broad acceptance of this in a larger audience [3].

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