

# Assess The Effectiveness Of Skills In Sending And Beating The Overwhelming According To The Analytical Program Using The Computer On Volleyball Players.

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## Abstract

The significant development that occurs in sports, including volleyball, makes the developed countries resort to the development of modern skill methods in confronting the opposing team, and its conviction that these methods represent the most important aspect of the game. In addition to the high physical fitness required by the game, it should be taken care of. It makes it easier for the player or team to know the offensive or defensive tactical aspects of the opposing team. This skill development came using modern scientific methods in the measurement and technical analysis performed by the players, as the analysis during the matches gives more credibility than in training. So, modern devices are used in photography and in the computer, which has become of great importance in the process of skill analysis for players.

**Aim:** Effectiveness analysis of the two types of serving skill (smashing from jumping - fluttering serving from jumping).

**Method:** Population of study: Players from the Al-Ahly volleyball club (women). Duration of the study: The time between (2/5/2022 and 31/5/2022).

The researcher identified the research community represented by the players of the Al-Ahly volleyball team that participated in the African Championship held in Tunisia and their number (13), which represents (100%) of the research community.

**Conclusions:** There is a weakness in the skill of serving in the ace's quality and flutter of the Al-Ahly team players. The effectiveness of the center (2) is better than the impact from the center (4). Variation in the effectiveness ratios for the crushing strike from a position (1) between one match and another according to the effectiveness team.

**Recommendations:** Training in the accuracy, concentration, and speed of hitting the ball in the aces and flutter to increase the effectiveness. Introducing fun and suspense in training transmitter types, as well as increasing motivation. A lot of friendly matches with high-level teams develop the skill level of the players.

**Keywords:** Effectiveness; Serving and Smashing Skills; Volleyball; Computer Analysis Program.

## INTRODUCTION

The significant development that occurs in sports, including volleyball, makes the developed countries resort to the development of modern skill methods in confronting the opposing team and its conviction that these methods represent the most important aspect of the game. In addition to the high physical fitness required by the game, it should be taken care of. [1]

It makes it easier for the player or team to know the offensive or defensive tactical aspects of the opposing team. This skill development came through the use of modern scientific methods in the measurement and technical analysis performed by the players, as the analysis during the matches gives more credibility than in training. So, modern devices are used in photography and in the computer, which has become of great importance in the process of skill analysis for players. [2]

Therefore, it indicates the extent of the individual and collective progress of the team's skills. The method of analyzing matches using the computer is one of the latest methods used by coaches to know the level of performance of their players and teams. Address weaknesses and improve strengths. This makes it easier for the coach to develop a plan and method of playing. [3]

As a result of the delay in the level of volleyball in Al-Ahly, we need to analyze the technical skills of the team to know the weaknesses of the players and the team. To raise the technical level and be on the right path in preparation. Since serving and smashing are among the essential skills in winning the match, the importance of the research came in designing an analytical program for the skills of serving and smashing and evaluating the effectiveness of the performance of the players and the Al-Ahly team during the participation in African Championship held in Tunisia.

## RESEARCH PROBLEM:

The volleyball game consists of many technical skills that perform differently, but they must be interrelated and integrated to reach a high level. Reaching higher and more advanced levels requires a lot of research and analysis to stand on the technical level of players and evaluate the effectiveness of the performance of the players and the team. This requires finding a scientific and advanced program that analyzes the team during matches and records all the weaknesses and strengths of the team to raise the level of the team.

It is done by following the levels of the international teams in volleyball and comparing them with the level of the Al-Ahly team that participates in the African Championship held in Tunisia. We noticed the great delay in the level of the Africa team compared to the Al-Ahly teams. The Al-Ahly team's training staff was contacted to discuss the most important skills they would like to study, and the analysis of the team to strengthen the real skills of the players and the team.

## RESEARCH AIMS:

Effectiveness analysis of the two types of serving skill (smashing from jumping - fluttering serving from jumping).

## METHODOLOGY:

### Research areas:

**The study population:** Players from the Al-Ahly volleyball club (women).

**Duration of the study:** The time between (2/5/2022 and 31/5/2022)

### Sending skill:

(Serving is one of the technical skills of an offensive nature, as its importance is summarized as being the key to obtaining points for the team. But the skill (serving) must be competent and can send the ball to any point on the opponent's court, taking into account the distance, height, and exact location. [4]

This prompts the opposing team in each service to take a defensive position. The players can control the line The match and its result, and then win the game. (Serving) can be defined as 'hitting the ball with one hand or any part of the arm after it is thrown or left from the hand, and before it touches any part of his body or the surface of the playing field', which is one of the most important direct attacks that players use during play. Which may put the opposing team in a weak defensive position. [5]

By mastering the serving strikes, a quick and direct point can be scored for the sending team. The wide execution patch transmission to include all baselines encouraged diversification and increase the effectiveness of the transmission implementation method, and the expansion of the possibility of The tactical (tactic). [6]

The recent study also mentioned the importance of skill (serving) as one of the most important offensive strikes that players use during play for several reasons that cannot be overlooked:

- It is a direct offensive hit if its performance is mastered, and a direct point is obtained from it.
- Difficulty in receiving the successful transmission from the opposing team, A means of safety for the sending team.
- Difficulty in the ability of the opposing team to carry out effective attacks. [7, 8]

### Skill (attack) in volleyball:

The crushing strike is one of the most important technical play techniques that players must master to obtain satisfactory results. Keeps the ball in play, becomes unable to return it with an attack from his side, and (crushing) is usually the final touch for the team. This is an attempt to end the circulation of the ball by hitting the ball so that the opponent cannot return the ball. The technical offensive outdoes the competing teams by getting points. [9]

That the success of the attack depends on good preparation, the more the glory player can prepare the balls in a way that suits the ability of the attacking player, it is possible to build an effective and effective attack, and the smash hit is one of the technical skills in volleyball, the strong offensive weapon, and the result of the team's efforts. The single, most effective, and effective way to outperform rival teams in winning matches is to score points and possess a serve [10].

The smash hit is defined as "the technical and offensive skill in volleyball, as the player jumps, and hits the ball quickly from over the net to the opponent's court, and in a legal manner." [11]

Types of (crushing) in volleyball:

1. Crushing by height (high, low, medium).
2. Crushing by direction (straight, diagonal).
3. Smashing according to the play area (back area, front area).
4. Smashing according to the position of the prepared player (in front of the stomach - behind the prepared).[12]

### Measurement skill level in matches:

By observation, one person can watch each player in his performance of all skills, but it is not possible to watch all team members, and the skill level is also evaluated by observation by calculating the number of successful attempts for each team or for each player or calculating the number of attempts success that led to a point. [13]

Through evaluation, it is possible to know the skills and physical strength of the team, know the results of all teams, and compare them with each other, as well as to know the weaknesses to avoid them and to know the strengths to invest in to achieve the best achievement [14].

### Analysis of volleyball matches:

Volleyball is one of the most popular games that use the system and the method of match analysis, and its practice gives a good opportunity to follow the match moment by moment, through calendar follow-up, through the use of well-known recording methods, and some statistical methods to evaluate players. [15]

The use of information and statistics extracted from statistical analysis helps to increase the effectiveness and motivation of team members. When the player knows that his performance is being recorded moment by moment, that it can be easily retrieved through the analysis process and can be embodied in a way that allows accurate identification of negative and positive, then this has a significant impact on increasing proficiency, which reflects the realistic player who is driven by excellence and supremacy. [16]

### Methods of analyzing skills in volleyball matches:

There are many ways to analyze volleyball matches, including:

1. **Observation and Virtual Evaluation:** This method is one of the easiest and least expensive methods of analyzing matches in the ball plane, and you need to prepare forms, especially since the goal of the analysis is to evaluate any skill, and they are distributed to the observers. It is used for evaluation from both sides: skill and planning. [17]
2. **Flow method (graph):** This method is inexpensive and easy to execute, which is useful for analyzing the lines of the team, the position of play, the attack and defense method, and the progress of the match in hitting and serving, and this method uses a card that is a recording. It is graph paper. [18]
3. **Film and video method:** This method requires expensive tools and costs and requires a long period of Analysis, tools must be prepared in advance, including camera location selection, yet it is an objective, scientific, and useful method for the trainer from a technical and planning point of view. [19]
4. **Statistical Analysis Method with (computer):** This method is used in tournaments to extract special results from the team, in calculating the error rate for each player, as well as knowing the rotation errors, as well as in calculating the points, analyze by slowly re-presenting the movement, and conducting the analysis for each type of skill. [20]

Whatever the method used in the analysis of the match, the choice of the optimal method depends on several important considerations, including the following:

- The objective of conducting the analysis process.
- Cases are to be monitored, evaluated, and subjected to registration and study.
- The number of valuable observations to follow.
- The volume and type of information and knowledge to be obtained.
- The efficiency of the equipment, tools, and possibilities available for use.
- The number of individuals subjected to the analysis process.
- The efficiency of those in charge of the analysis process.

The statistical programs used in volleyball:

#### 1. The first program is the Volleyball Information System (VIS).

\* The International Volleyball Federation (FIVB) has developed the (VIS) system for the volleyball information system during the past years, since the (VIS) program has been used to manage results during international championships, and the main purpose of the (VIS) program is to give results and statistics on teams and players to the national and international media. In addition, analysis of the results of individual players. To develop the (VIS) program, the International Federation designed reports, especially to give a clear picture of those results to the teams and players, as well as the (VIS) system prepares data ready to press and media for display.[21]

The International Federation is aware that the VIS system is one of the global programs developed to provide all media, experts, teachers, and researchers in the field of volleyball with matches, results, and statistics. Through these procedures, we are confident that the volleyball game will succeed if the press and the public are informed about what is happening during the match. As well as if the fans anticipate what will happen during the match, and we as an international federation try to make the fans understand what is happening during the match as we have to analyze to understand.[22]

#### 2. Programs designed by international federations and international coaches:

One of these programs is the (data volley) program, which is a famous Italian program that specializes in drawing the direction lines of the ball, the place of its fall, and the most influential players in the team or the opposing team. It has the possibility of integrating video with analysis and giving each player the videotape to identify errors or defects. This she did after the match, as it is a fun program and has many techniques.

There are statistically significant differences in the level of skill effectiveness and tactical formations between the Al-Ahly team and some African teams.

The study population: some African women's volleyball teams participating in the African Championship, which was held in Tunisia in 2022 for the group (D).

Duration of the study: 3/2022 to 6/2022

### Study Location:

The closed hall in which the Al-Ahly volleyball matches were held.

(4) affected specialized skill exercises according to an analytical program using the computer on the skill effectiveness ratio of volleyball players.

1. Preparing an analytical program to analyze the effectiveness of volleyball skills
2. Develop a set of specialized skill exercises to develop the skill effectiveness rate for the research sample.
3. Recognize the effect of specialized skill exercises on the percentage of skill effectiveness of the players (the research sample) during the match.

### 3- Research methodology and field procedures:

The researcher used the descriptive method for its relevance in achieving the research objectives.

### Research community and sample:

The researcher identified the research community represented by the players of the Al-Ahly volleyball team that participated in the African Championship held in Tunisia and their number (13), which represents (100%) of the research community.

### Tools and devices used in the research:

- Arabic and foreign sources.
- The analytical program was designed using the computer to analyze the effectiveness of skills. Dell electronic calculator, digital camera (Sony RX100 VI - broad zoom range and super-fast AF). CD-type Imation 4-3

### Search procedures.

exploratory experience. The researchers conducted an exploratory experiment on 2/3/2022.

The Al-Ahly team, during the exercises, aimed at the following:

1. Diagnose the obstacles and disadvantages that the researcher encounters when conducting and implementing the main experiment.
2. The researcher's ability to use the analysis method within the electronic calculator.
3. The validity of the results of extraction form.
4. The researcher's accuracy and ability to quickly record and enter information.
5. Ensure that the shooting location is suitable for a purpose.
6. Record player numbers and skills Performed by players

### Statistical Analysis

Data were fed to the computer and analyzed using the SPSS software package version 20.0. (Armonk, NY: IBM Corp). The Kolmogorov-Smirnov system was used to verify the normality of the distribution of variables, Paired t-test was used to compare two periods for normally distributed quantitative variables, while ANOVA with repeated measures was used to compare the different studied periods for normally distributed quantitative variables and followed by post hoc test (Bonferroni adjusted) for pairwise comparison. Pearson coefficient to correlate between two normally distributed quantitative variables. The significance of the results obtained was judged at the 5% level.

## RESULTS AND DISCUSSION OF THE RESULTS:

### Analysis tools:

- Percentage
- Standard deviation.
- Simple correlation coefficient (Pearson).
- Effectiveness: extracted directly from the analytical program using the computer.
- Effectiveness score for each skill = The sum of the repetitions of the skill below the first degree level of the skill assessment  $\times 1 +$  Sum of repetitions for skill below level 2 of Evaluation  $\times 2 + \dots$  To the last total of repetitions Skill level.

$$\bullet \text{ Effectiveness ratio} = \frac{\text{The degree of effectiveness}}{\text{Total number of skill} \times \text{The highest degree of effectiveness}} \times 100$$

**Table (1)** Presentation, analysis, and discussion of the results of the level of effectiveness of jumping aces according to skill levels for the Al-Ahly club.

The skill levels of the ace jumping serve for the Al-Ahly club's							
Skill Effectiveness							
Aces jump	levels.	Zero	1	2	3	4	Effectiveness ratio
	Al-Ahly and Ghana's El-Wak Wings	5	11	12	2	1	36.60%
	Al-Ahly and Nigerian Customs	2	8	7	1	2	25.80%
	Al-Ahly and Kenya Pipes	7	13	6	2	2	35.17%
	Al-Ahly and Ivorian ace mimosa	6	2	1	2	1	28.60%

Table (1) The appearance of low effectiveness rates for Al-Ahly matches with the teams of Ghana's El-Wak Wings, Nigerian Customs, Kenya Pipes, and Ivorian ace mimosa) for jump aces and the players who performed this type of service, as this serve did not have a good effect or morale on the players receiving from the four other teams.

The researcher attributes the reason for this weakness to the lack of accuracy and the correct focus on performing this service. If the exercises in the special exercises of the African team should focus on using the serve in a focused manner. And at a high hitting speed and hitting the ball straight, strong, and directed at a particular player or between two players or in the void points or on the player with weak reception. Researcher advise training this type of transmission, which is one of the closed skills that depend on the technician for the player only, to train consistently and try to isolate the player from external influences when performing the service.

In addition, following the gradual method and repeating the exercise according to different playing situations where the libero player must be avoided. If he is good at performing the overwhelming serve from the jump, as Lin et al. remember, 'The goal of serving is to try to score a point.' The researcher agrees with this opinion that the ability to serve as an effective offensive skill in the tactical, technical, and psychological aspects is important, especially after the advanced teams used the jump serve for most of the match. [23]

**Table (2)** Presentation, analysis, and discussion of the results of the level of effectiveness of flute transmission by jumping according to the skill levels of the Al-Ahly club.

Flutter jump skill levels							
Flutter jump	levels	Zero	1	2	3	4	Effectiveness ratio
	Al-Ahly and Ghana's El-Wak Wings	11	22	21	12	8	22.60%
	Al-Ahly and Nigerian Customs	5	8	7	1	6	63.70%
	Al-Ahly and Kenya Pipes	2	21	5	2	2	32.30%
	Al-Ahly and Ivorian ace mimosa	7	11	6	-	2	27.80%

The researchers found, through Table (2), the emergence of low effectiveness rates in the skill performance of flutter transmissions from jumping in the I of Al-Ahly with the teams of Ghana's El-Wak Wings, Nigerian Customs, Kenya Pipes, and Ivorian ace mimosa), where the number of players who use this type of transmission reached (8) players.

The researchers attribute the reason for This weakness shows that as well as the prevailing thinking of the players of the team when the points converge between the two teams or reach the last points of the game that this skill is just crossing the ball over the net and where the player must consider in the filter's performance of jumping distance, height, and specific place and trying. He played the ball on the weak player in the reception skill or the center player (4).

In the match between Al-Ahly and Nigerian Customs, it was of good effectiveness, reaching (63.7), which is considered a good percentage compared to the effectiveness of the skill of serving in other matches.

The researchers attribute the reason for the appearance of this good percentage to the poor reception skill of the Jordanian team. In addition to the high level of effectiveness of the skill of serving for the Al-Ahly team players, the thrill of performing the serve exercises, as well as the increase in motivation in the exercise. In addition, the age of the team players is appropriate in the speed of learning and training these skills, as well as in the giving of seriousness in the sending exercises where the focus is on performing exercises seriously. [24]

**Table (3)** Presentation, analysis, and discussion of the results of the level of effectiveness of the smash center (2) according to the levels of the Al-Ahly club

Smash skill levels for the Al-Ahly club's							
The effectiveness of smash hit center 2							
smash hit	levels	Zero	1	2	3	4	Effectiveness ratio
	Al-Ahly and Ghana's El-Wak Wings	2	2	5	2	13	67.00%
	Al-Ahly and Nigerian Customs	3	2	7	2	12	67.30%
	Al-Ahly and Kenya Pipes	6	3	1	1	12	61.80%
	Al-Ahly and Ivorian ace mimosa	1	2	1	-	6	71.00%

Depending on the skill levels of the Al-Ahly club team. the researcher showed through Table (3) the emergence of good morale ratios for the skill of crushing the center (2). The researcher attributes the reason for the appearance of these good percentages to the that the center player (2) always when performs the skill of crushing and beating; she has a blocking wall comprising only one player; She has an R club that does not have two players in front of her; the reason for this is due to the difficulty of movement by the center player of the opposing team who is in position (3) and then moves to position (2) where when the reception is good and the player can prepare for the high crush by the center players and the batting players, the movement of the center player is slow or difficult to a position (2), so when a center player (2) is characterized by the speed of hitting and the ability to change the direction of the smash hit, he has a more effective rate in scoring points than other players in other positions.

Players in this position should be characterized by height and high explosive power to be fast, and this comes through a period of practice that increases the improvement and development of accuracy in all basic volleyball skills. [25]

**Table (4)** Presentation, analysis, and discussion of the results of the effectiveness level of the smash center (4) according to the levels of the Al-Ahly club

Smash skill levels for the Al-Ahly club's							
The effectiveness of smash hit center 4							
smash hit	levels	Zero	1	2	3	4	Effectiveness ratio
	Al-Ahly and Ghana's El-Wak Wings	7	1	2	3	18	62.30%
	Al-Ahly and Nigerian Customs	5	1	1	3	13	62.50%
	Al-Ahly and Kenya Pipes	15	2	-	1	8	35.50%
	Al-Ahly and Ivorian ace mimosa	2	1	1	2	2	26%

The researchers were shown through Table (4) the emergence of good morale ratios concerning the level of performance of the skill of crushing from the center (4) in the matches of the Ghana El-Wak Wings, Nigerian Customs). Where the Al-Ahly team has center (4) players who have the physical, skill, and tactical abilities and are distinguished by strength in execution and speed in approaching and agility in jumping, and accuracy in directing. In addition, the players of Center (4) have good experience in the outgo posts.

Regarding the matches of the Al-Ahly team with the national teams (Kenya Pipes, Ivorian ace mimosa), the results showed low or weak effectiveness rates in the skill of crushing from the center (4). The researchers attribute the reason for this to the difference in skill and tactical level between our team and the Ivorian ace mimosa team, as well as the lack of focus of our players in our match with the Kenya Pipes team and the lack of good behavior during the match and dealing with the ball and behavior when the level of preparation is far from the net and when it is also close, dealing with the high and low blocking wall, dealing with the void points in the stadium of the opposing team, how to act and the concentration of the back line players of the opposing team where the two teams were The Kenya Pipes and the Ivorian ace mimosa are distinguished by their defense, good coverage, and correct positioning.

**Table (5)** Presentation, analysis, and discussion of the results of the effectiveness level of the smash center (1) according to the levels of the Al-Ahly club

Smash skill levels for the Al-Ahly club's							
The effectiveness of smash hit center 1							
smash hit	levels	Zero	1	2	3	4	Effectiveness ratio
	Al-Ahly and Ghana's El-Wak Wings	1	2	-	3	12	81%
	Al-Ahly and Nigerian Customs	2	1	3	2	11	75%
	Al-Ahly and Kenya Pipes	2	1	-	2	6	52.60%
	Al-Ahly and Ivorian ace mimosa	8	2	2	-	6	22.50%

The researchers showed through table (5) the emergence of good effectiveness ratios for performing the skill of crushing from the center (1) in the matches of Ghana's El-Wak Wings and Nigerian Customs).

Center (1) to understand the importance of smashing in scoring points more than the rest of the skills, as this player is called the player (opposite), that is, the player who is the opposite of the stomach in the spinning paper, and that most of the balls prepared for the attack are for him, and he is a player who does not operate on receiving the serve, that is, it has the greatest weight in scoring points if it is executed correctly. In my matches (Kenya Pipes, Ivorian ace mimosa), the effectiveness of performance appeared little or low due to A very good blocking wall for the Kenya Pipes team, as well as the difference in the skill and tactical level between our team and the Ivorian ace mimosa team. No good effectiveness was shown for the backline player from the center (1) for our team during those two matches, and the Kenya Pipes team also had a good defense and a good Libro was able to defend all the offensive strikes of the center player (1) for our Al-Ahly team.

## CONCLUSIONS

1. There is a weakness in the skill of serving in the quality of the ace and flutter of the Al-Ahly team players
2. The effectiveness of smashing from the center (2) is better than smashing from the center (4)
3. Variation in the effectiveness ratios for the crushing strike from a position (1) between one match and another based on the effectiveness of the opposing team

## RECOMMENDATIONS

1. Training in the accuracy, concentration, and speed of hitting the ball in the aces and flutter to increase the effectiveness
2. Introducing fun and suspense in training transmitter types, as well as increasing motivation
3. A lot of friendly matches with high-level teams develop the skill level of the players.

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