

Biokinematic Determinants As An Indicator For The Selection Of Junior Clubs In Dhi Qar Province In Volleyball

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ABSTRACT

The study aimed to identify the most important biokinematic determinants and physical measurements for the selection of junior players in Dhi Qar volleyball clubs for the 2024-2025 sports season. And determine a model for the selection of players according to the biokinematic and physical determinants of young players in the clubs of Dhi Qar province in volleyball for the sports season 2024-2025 using the method of factor analysis. The researcher used the descriptive approach in a survey method and correlational relations, and represented the research community with players clubs in Dhi Qar volleyball province, numbering (98) players and representing clubs (victory - Al-Jabayesh - Al-Shatrah - Souk Al-Shuyoukh - Nasiriyah - confirmed - Marshes). The research sample has been chosen in a deliberate way after excluding (free player - prepared player) to be (72) players who can perform skills (wavy transmission of jumping - receiving the transmission from the bottom - overwhelming beating Qatar), and the researcher used means and tools And appropriate devices in achieving the objectives of the research and concluded the researcher a set of conclusions, the most important, the extraction of (five) factors through factor analysis of biokinematic variables of the skill of wavy transmission of jumping volleyball has neglected some factors for not meeting the conditions for accepting factors.

1. INTRODUCTION

1.1 Introduction and importance of research

The development witnessed by the world in all fields is due to the use and application of modern scientific and technological foundations that aim to raise the scientific level in general, and with the development of contemporary sciences and the overlap of their problems, science has emerged that contains more than one specialization, and physics has become a common denominator in binary sciences such as chemical biological physics, medical physics, mechanical physics and mathematical physics, and access to high achievement has become easy by following the results provided by those sciences, including biomechanics, which linked Human movements in biological terms, focusing his attention on overcoming the mechanical obstacles facing the player or athlete in performing the mechanical requirements of any skill performance commensurate with the performance of the required motor duty. The methods of research in the field of sports varied depending on the type of sport practiced by the individual and the competition moved from athletes to researchers to study sports movements in all its aspects.

The great achievements in sports events came as a result of sound and distant planning and this planning goes through many stages that precede the development of training curricula, the first of these stages is the process of selecting emerging players for the purpose of determining their physical and skill levels, volleyball is one of the events that have received great attention from those concerned and took a large share of development globally through the efforts made by specialists scientifically and practically, As well as the use of tests and measures that help in the process of selecting players for the purpose of preparing them optimally.

Hence, the importance of the study was evident in obtaining accurate scientific information through biomechanical analysis of biomechanical determinants and determining physical measurements in order to use them as a reliable indicator in the selection of emerging players in the clubs of Dhi Qar Governorate for the purpose of advancing the requirements of skill performance according to the biomechanical foundations in line with the required motor duty by diagnosing the minutes of the movement path and its positive aspects and making this information accessible to the concerned and in all fields in order to achieve performance. The perfect technician and then achieving high achievement.

2. RESEARCH PROBLEM

Through the researcher's follow-up to the process of selecting junior volleyball players in the clubs of Dhi Qar Governorate being interested in this field and through her question to those in charge of selecting emerging players from coaches and specialists, she found that coaches focus on physical and skill determinants in the first place without focusing on biomechanical determinants and physical measurements, which are important determinants in the selection of players, which does not lead to the selection of the best players mechanically, physically and skillfully, and thus the selection process is incomplete for some scientific determinants. The task is that the researcher decided to find a solution to such a problem by taking care of the subject of selection (selection) of players from the junior category for the purpose of promoting volleyball, as more experts confirm that the problem of selection is one of the most important topics that have received great attention in recent years, as it represents the best choice for practicing sports in the hope of reaching the upper levels to achieve achievement.

2.1 Research objectives

The research aims to:

Identify the most important biokinematic determinants and measurements for the selection of junior players in the clubs of Dhi Qar volleyball governorate for the sports season 2024-2025.

Determining a model for selecting players according to the biokinematic determinants of junior players in the clubs of Dhi Qar province in volleyball for the sports season 2024-2025 using the factor analysis method.

2.2 Research hypotheses

The equations extracted in the factor analysis matrix can be used to select junior volleyball players.

2.3 Research areas

The human field: junior clubs in Dhi Qar province in volleyball for the sports season 2024/2025

2.4 Time Domain: From 4/9/2024 - 20/2/2025

Spatial area: sports halls clubs Dhi Qar province

3. RESEARCH METHODOLOGY AND FIELD PROCEDURES

3.1 Research Methodology

The choice of research methodology is an urgent necessity to solve the problem according to its nature, and the descriptive approach has been adopted in the survey method and correlation relations for its suitability to the nature of the problem and the achievement of the objectives of the research, ⁽¹⁾.

3.2 Research community and sample

The research population is "the sum of the vocabulary that the researcher aims to study to achieve the results of the study, and he can generalize the results of the study to all his vocabulary" ⁽²⁾, while the research sample is "representing a number of individuals or objects that are chosen according to a rule or method of a particular population that represents this community" ⁽³⁾. Hence, the research community was determined in a deliberate way represented by the players of Dhi Qar volleyball clubs (juniors), who numbered (98) players representing (7) clubs for the sports season (2024/2025). As for the research sample, it was chosen deliberately as well, and they are the players who can perform the skills targeted by the search (sending - receiving - overwhelming beating) as the number of players reached (70) players after excluding the free player and the prepared player from each club, and they represent (71.42%) of the original community and table (1) shows the details of the research sample.

Table (1) Shows the details of the research population and sample

Percentage	Sample	society	Club Name	t
71.42%	10	14	Marsh	1
71.42%	10	14	Shuyoukh Market	2
71.42%	10	14	Algebayish	3

Mohamed¹ Hassan Allawi and Osama Kamel Rateb: Scientific Research in Physical Education and Sports Psychology, Cairo, Dar Al-Fikr Al-Arabi, 1999, p. 132.

(2) Mohamed Abdel Hamid: Scientific Research in Media Studies, 1st Edition, Cairo, World of Books, 2000, p. 130.

(3) Ali Al-Fartousi: Principles of Statistical Methods in Physical Education, Baghdad, Al-Muhaimin Press, 2007, p. 77.

71.42%	10	14	Euphrates	4
71.42%	10	14	Shatrah	5
71.42%	10	14	Stressed	6
71.42%	10	14	victory	7
71.42%	70	98	Total	8

3.2.1 Sample homogeneity

In order to achieve homogeneity between the members of the research sample, and to avoid the impact of factors that may affect the results of the experiment in terms of the individual differences in the sample, the researcher conducted homogeneity for some specifications and anthropological measurements that may have an impact on the results, and these measurements include: (chronological age, training age, mass, length - arm length - leg length), and the coefficient of variation was extracted by the arithmetic mean and standard deviation of anthropometric measurements to ensure the homogeneity of the sample. Table 2 shows:

Table (2) Shows the values of the arithmetic means, standard deviations, and the value of the coefficient of variation for a sample of research:

Significance	Coefficient of variation	Standard deviation	Arithmetic mean	Measurements
Smooth	2.36%	1.65	69.64	Mass (kg)
Smooth	1.98%	3.63	182.83	Overall length (cm)
Smooth	5.17%	0.76	14.68	Chronological age
Smooth	2.71%	2.63	96.86	Leg lengths
Smooth	2.21%	1.776	79.74	Arm length

3.3 assistive means, tools and devices;

The researcher used the means and tools that help achieve the objectives of the research

3.4 Steps to conduct research

3.4.1 Identification of research variables

3.4.1.1 Identification of biokinematic variables

First: the skill of transmitter

Second: the skill of receiving the transmitter

Third: the skill of overwhelming beating

3.4.1.3 Identification of motor skills under consideration

3.4.2.1 Description of the tests that have been applied to the research sample.

First: Transmitter

Volleyball wavy transmitter accuracy 4test :

Shows the performance level test for the skill of receiving the transmitter in volleyball

⁽¹⁾ Aqeel writer and Amer Jabbar: **volleyball technique and modern individual tactics** , University of Baghdad, College of Physical Education, first edition, 2002, p 48.

3.5.3.4 Underneath reception skill accuracy ^{test (5)}

Fourth: Accuracy test skill Receiving transmission from below volleyball:

Objective of the test : Measuring the accuracy of the skill of receiving volleyball transmissions, Appendix (13).

Tools used: Legal volleyball court, 10 legal volleyballs, tape measure

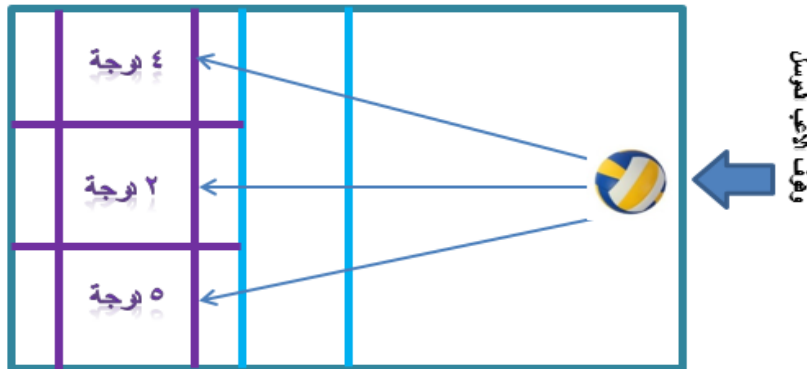


Figure (1) Demonstrates volleyball wavy transmitter skill test

Second: Receiving the transmitter from below

Test Name Bottom Reception Skill Accuracy Test ⁽⁶⁾

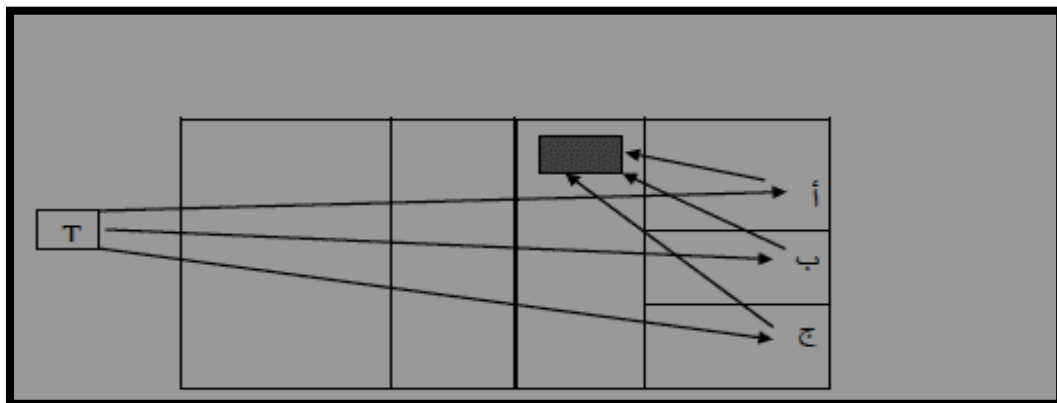


Figure 2 Shows the skill test of receiving transmitters from below with volleyball

Third: The overwhelming Qatari beating

Test name: Overwhelming Beating Accuracy Test (diagonal) ^{0.7}

⁵¹⁾Nagham Saleh Nehme: The effect of computer-based feedback on learning the skills of preparation and receiving volleyball transmitters., Master Thesis / Faculty of Physical Education and Sports Sciences, University of EI , 2004, p 100.

⁶²⁾Nagham Saleh Nehme: The effect of computer-based feedback on learning the skills of preparation and receiving volleyball transmitters., Master Thesis / Faculty of Physical Education and Sports Sciences, University of EI , 2004, p 100.

^{1.} Nahida Abd Zaid Al-Dulaimi: The Effect of Interference in Exercise Methods on Learning the Skills of Overwhelming Serve and Overwhelming Volleyball Hitting, PhD thesis, University of Baghdad, College of Physical Education, 2002, p. 58.

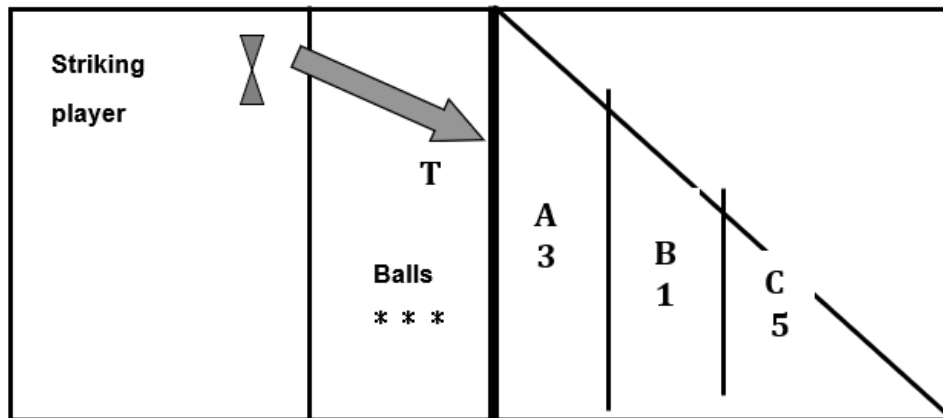


Figure 3 Demonstrates the skill test of overwhelming volleyball beating

3.4.3 Biokinematic variables:

First: Transmitter variables

It included the following variables:

Approach speed - Variable angle of the knee joint at the maximum during: - Angle of rise: - Starting angle of the center of mass of the body: - Starting speed of the body: - The maximum height of the center of mass at the moment of hitting the ball: - The angular velocity of the trunk at the moment of hitting the ball: - The circumferential speed of the arm at the moment of hitting the ball: - Elbow angle at the moment of hitting the ball: - Ball starting speed: - Total performance speed:

Second: Transmitter reception variables

Horizontal distance of the center of mass of the body: - Vertical distance of the center of mass of the body: - Angle of the ankle joint: - Angle of the knee joint - Angle of the hip joint: - Angle of the shoulder joint - Height of the ball from the ground Moment of contact:

Third: Qatari Overwhelming Multiplication Variables

Approach speed: - Variable angle of the knee joint at the maximum during: - Angle of rise: - Starting angle of the center of mass of the body: - Starting speed of the body: - The maximum height of the center of mass at the moment of hitting the ball: - The angular velocity of the trunk at the moment of hitting the ball: - The circumferential speed of the arm at the moment of hitting the ball: Elbow angle The moment of hitting the ball: The speed of the ball starting: - The speed of the overall performance:

3.5 Main experience

The main experiment was conducted on Thursday (52/10/2024) for a period of seven days after the end of the exploratory experiment and to ensure the validity of the devices and tools. This experiment was conducted on the halls of sports clubs in Dhi Qar Governorate. The test was applied to the research sample and with the help of the assistant team by (3) player attempts and for each skill, the experiment was filmed with a side camera and another back.

3.6 Statistical methods:

The researcher used the statistical bag (SPSS) to process the data and it was used in the topics.

4. PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.1 Determination of the matrix of factors after rotation of biokinematic variables for the skill of wavy volleyball transmission

The main goal is to obtain the simple factor structure of the correlation matrix that was not achieved by the factor matrix before rotation, and for the purpose of reaching the raising of high saturation values and reducing low saturations, the researcher rotated the factors orthogonally by Kaiser Varimax method (Kaiser Varimaxmet hod) ⁽¹⁾ This method gives an opportunity to explain the factors more clearly than the initial matrix before rotation.

From Table (3), we notice that the values of saturation factors have changed if compared to the results of the factors before rotation and these meet the conditions of simple structure of the matrix.

⁽¹⁾ Zakaria Zaki and Abdul-Jabbar Tawfiq: Introduction to factor analysis, Baghdad, Press Foundation of Labor Culture, 1977, p. 81.

Table (3) Post-rotation factor matrix for biokinematic variables for volleyball wavy transmission skill

Saturations after recycling							
Special contrast	Explained contrast	The fifth factor	Fourth factor	The third factor	Second factor	The first factor	Variables
0.255	.745	0.39	0.367	0.035	0.302	0.865	Approaching speed
0.166	.834	0.43	0.318	0.413	0.737	0.425	Angle of the knee joint
0.111	.889	0.851	0.092	0.083	0.072	0.024	Angle of advancement
0.279	.721	0.493	0.061	0.722	0.021	0.054	Starting Angle of M.K.J.
0.233	.767	0.412	0.042	0.060	0.459	0.831	Cruising speed of m.k.g
0.155	.845	0.822	0.06	0.048	0.025	0.436	Max height
0.055	.945	101.0	0.068	0.398	0.482	0.763	Angular velocity
0.225	.775	105.0	0.843	0.017	0.045	0.387	Circumferential velocity
0.177	.823	125.0	0.834	0.078	0.092	048.0	Angle Attachment
0.128	.872	098.0	0.058	0.856	0.064	078.0	Ball starting speed
0.15	.850	095.0	0.030	0.082	0.739	079.0	Overall Performance Speed

Interpretation of the first factor

Through Table (3), which represents the order of saturation of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (3) variables representing (27.27%) of the total number of variables and all these saturations are positive, while (3) variables were saturated in an average form and (5) variables weakly (zero) and the percentage of factor variance explaining this factor was (16.120%) and this factor was saturated with variables for speed, namely (approach speed – Starting speed of the center of mass of the body – the angular velocity of the arm at the moment of hitting the ball

Explanation of the second factor:

Through Table (17), which represents the order of saturations of variables on the second factor in descending order, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (3) variables were saturated in an average form and (6) variables weakly (zero) and the percentage of factor variance explaining this factor was (14.276%) has saturated this factor variables for variables, namely (angle of the knee joint - speed of total performance)

"If this angle increases, it causes a rise in the centre of mass of the body that causes the centre of mass of the body to move away from the gravitational line, which reduces the resistive moment and means good performance at the moment of thrust,

with great force and good kinetic momentum."⁸

Interpretation of the third factor:

Through Table (17), which represents the order of saturations of variables on the third factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (2) variables were saturated in medium and (7) variables weakly (zero) and the percentage of factor variance explaining this factor was (11.952%)) has been saturated on this factor variables for variables, namely (the starting angle of the body - the speed of the launch of the ball)

The increase in the starting speed of the body depends on the increase in the starting angle of the body, which is also a good value, and since the skill of transmitter requires achieving the maximum vertical height, this requires exerting a speed and a large starting angle commensurate with the reality of the skill, and mentions Qasim Hassan and Iman Shaker) "There is a positive correlation between the speed of departure and the extension of the body, which entails synchronization in performance and kinetic compatibility between body parts and propulsion at the same⁹ time."

Interpretation of the fourth factor:

Through Table (17), which represents the order of saturations of variables on the third factor in descending order, we find that the major saturations on this factor after rotation perpendicular to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (2) variables were saturated in medium and (7) variables weakly (zero) and the percentage of factor variance explaining this factor was (11.819%)) has saturated on this factor variables variables, namely (elbow angle - circumferential velocity)

As the researcher explains that this is the existence of a direct relationship between the angle of the elbow and the circumferential speed of the arm, so the correct movement of the striking arm must be exploited, i.e. enlarging the angle of the elbow joint to obtain a high circumferential speed according to the law of circumferential velocity, which is directly proportional

This was confirmed by (finch):(Alfred) The main goal of the players taking the correct position of the angle of the elbow is to exploit the correct movement of the striking arm through the angles and joints of this arm in obtaining a good motor speed at a time commensurate with this speed and in order for the circumferential speed to be good, there must be an appropriate value in the elbow joint, which can be observed through the following equation:

Circumferential velocity = angular velocity * radius (10).

Interpretation of the fifth factor:

Through Table (17), which represents the order of saturations of variables on the third factor in descending order, we find that the major saturations on this factor after rotation perpendicular to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (4) variables were saturated in medium and (5) variables weakly (zero) and the percentage of factor variance explaining this factor was (11.256%)) has saturated on this factor variables for variables, namely (angle of rise - maximum height of the center of mass of the body)

This variable is the basis for converting the mechanical variables of the player's body from the horizontal direction to the upper forward direction that the body is traveling represented by its center of gravity in the stage of rise determines the amount of vertical and horizontal speed components and therefore the appropriate angle of advancement is the one that achieves the best outcome of the speed of the center of gravity (as the direction of the center of the body during the rise depends on the conversion of horizontal speed to vertical speed commensurate with the nature of the particular effectiveness) (5).

Sareeh⁸ Abdul Karim Al-Fadhli: *op. cit.*, 2010, p. 156.

(1) Qasim Hassan and Iman Shaker: *op. cit.*, 1998, p. 226.

¹⁰Finch, Alfred, Training For speed and accuracy, landanastat, university, U.S.A. Internet, 2001, p31.

(⁵) Samir Muslat Al-Hashemi: *source already mentioned* , 1999, p 267.

Table (4) Post-rotation factor matrix for biokinematic variables Receiving the transmitter from below with volleyball

Dendrites before rotation					
Special contrast	Explained contrast	The third factor	Second factor	The first factor	
0.251	.749	.840	0.330	0.072	Horizontal distance of the body mass center
0.185	.815	0.050	0.060	0.780	Vertical distance to the center of mass of the body
0.252	.748	0.335	.803	0.429	Ankle joint angle
0.194	.806	0.077	0.320	0.750	Angle of the knee joint
0.121	.879	-.621	0.355	0.450	Hip angle
0.196	.804	0.028	0.077	0.702	Angle of the shoulder joint
0.227	.773	0.050	0.830	0.060	The height of the ball from the ground at the moment of contact

Explanation of the first factor:

Through Table (25), which represents the order of saturations of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (3) variables representing (42.85%) of the total number of variables and all these saturations are positive, while saturated (2) variables in medium and (2) variables weakly (zero) and the percentage of variance factor explaining this factor (28.129%) has saturated on this factor variables for variables (vertical distance of the center of mass Body – angle of knee joint – angle of shoulder joint)

Explanation of the second factor:

Through Table (25), which represents the order of saturations of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (28.57%) of the total number of variables and all these saturations are positive, while saturated (3) variables in an average and (2) variable weakly (zero) and the percentage of variance factor explaining this factor (16.940%) has saturated on this factor variables (ankle joint angle - ball height for Earth moment of contact)

Explanation of the third factor:

Through Table (25), which represents the order of saturations of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (28.57%) of the total number of variables and all these saturations are positive,

while (1) variables were saturated by (14.28%) in an average and (4) variables weakly (zero) by (57.14%) and the percentage of factor variance explaining this factor was (15.976%) and this factor was saturated with special variables BThe variables of speed, which are (horizontal distance of the center of mass of the body - angle of the hip joint)

The researcher explains these saturations within this factor that the hip joint connects the trunk and thighs is the largest mass in the body and always represented in the performance of skill center of mass of the body so the flexion achieved in the value of this variable explains to us the ideal indicator of the horizontal distance of the center of mass of the body at the moment of collision, which moves away from the base of the basis in proportion to get the value of the radius at least what it is in the stage before the collision with the ball, as well as the foregoing, the Take such a position in which the body is squat-shaped and helps to absorb the momentum and strength of strong balls with a rebound movement with the ball in the defense of the field¹¹.

Table (5) Post-rotation factor matrix of biokinematic variables for the skill of diagonal overwhelming multiplication with volleyball

Saturations after recycling							
Special contrast	Explained contrast	The fifth factor	Fourth factor	The third factor	Second factor	The first factor	
0.202	.798	0.070	.720	0.040	0.030	0.062	Approaching speed
0.139	.861	0.028	0.440	.757	0.044	0.430	Angle of the knee joint
0.298	.702	0.088	0.419	0.450	0.400	.792	Angle of advancement
0.16	.840	.841	0.084	0.033	0.060	0.050	Starting Angle of M.K.J.
0.125	.875	0.412	0.065	.894	0.430	0.425	Cruising speed of m.k.g
0.148	.852	0.320	0.416	0.335	-.810	0.330	Max height
0.094	.906	0.066	0.090	.728	0.344	0.070	Angular velocity
0.236	.764	-.705	0.055	0.410	0.032	0.455	Circumferential velocity
0.116	.884	0.060	-.895	0.080	0.320	0.350	Angle Attachment
0.135	.865	0.052	0.050	0.370	0.787	-.074	Ball starting speed
0.197	.803	0.040	0.455	0.076	0.050	0.856	Overall Performance Speed

Explanation of the first factor:

Through Table (5), which represents the order of saturations of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal in a way to maximize variance and the value of (± 0.5) or more

¹¹ McCain H., Iksron Ofach Saxasen: *op. cit.* , 1990, p. 42.

amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (5) variables were saturated by (45.45%) in an average and (4) variables weakly (zero) by (36.36%) and the percentage of factor variance explaining this factor was (15.262%) and this factor was saturated with variables for variables Speed, which is (angle of advancement - speed of total performance)

Explanation of the second factor:

Through Table (5), which represents the order of saturation of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (4) variables were saturated by (36.36%) in an average and (5) variables weakly (zero) by (45.45%) and the percentage of variance factor explaining this factor was (13.617%) and this factor was saturated with variables for variables Speed, which is (maximum height - ball starting speed)

Explanation of the third factor:

Through Table (5), which represents the order of saturation of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal to the method of maximizing variance and the value of (± 0.5) or more amounted to (3) variables representing (27.27%) of the total number of variables and all these saturations are positive, while (4) variables were saturated by (36.36%) in an average way and (4) variables weakly (zero) by (36.36%) and the percentage of factor variance explaining this factor was (13.064%) and this factor was saturated with variables for variables Speed, which is (angle of the knee joint - starting speed of the center of mass of the body - angular velocity of the trunk)

Interpretation of the fourth factor:

Through Table (5), which represents the order of saturation of variables on the first factor descending, we find that the major saturations on this factor after rotation orthogonal in a way to maximize variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (4) variables were saturated by (36.36%) in an average and (5) variables weakly (zero) by (45.45%) and the percentage of factor variance explaining this factor was (12.191%) and this factor was saturated with variables for variables Speed, which is (approach speed - elbow angle)

Interpretation of the fifth factor:

Through Table (5), which represents the order of saturations of variables on the first factor descendingly, we find that the major saturations on this factor after rotation orthogonal in a way to maximize variance and the value of (± 0.5) or more amounted to (2) variables representing (18.18%) of the total number of variables and all these saturations are positive, while (2) variables were saturated by (18.18%) in an average and (7) variables weakly (zero) by (63.63%) and the percentage of factor variance explaining this factor was (11.635%) and this factor was saturated with variables Speed, which is (the starting angle of the center of mass of the body - circumferential velocity)

5. CONCLUSIONS

- 1- Extracting (five) factors through factor analysis of biokinematic variables for the skill of wavy transmission from volleyball jumping and some factors have been neglected for not meeting the conditions for accepting the factors.
- 2- Extracting (three) factors through factor analysis of biokinematic variables for the skill of receiving the transmitter from below in volleyball has neglected some factors for not meeting the conditions for accepting the factors.
- 3- Extracting (five) factors through factor analysis of biokinematic variables for the skill of beating the Qatari crush volleyball has neglected some factors for not meeting the conditions for accepting the factors.

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