

comparison between the skill performance of high and medium height of the skill. of the volleyball game.

Research objectives

1. Identify the kinematic variables of the skill of high and medium height numbers in volleyball.

2. Comparing the values of some kinematic variables between the skill performance of high and medium height numbers in volleyball .

1-4 Research Hypotheses

There are significant differences in the values of some kinematic variables between the skill performance of high and medium height volleyball numbers.

1-5 Research Areas

Human field: Youngplayers in the Iraqi Volleyball League clubs

Spatial scope: Sports halls for clubs participating in the Iraqi League

Time Range: From 15/9/2023 to 25/12/2023

2- Research methodology and field procedures

2-1 Research Methodology

The researcher used the descriptive approach in the method of correlational relations to suit it with the nature of the study, as each research has a scientific approach in which it is possible to reach the best way to solve the problem that the research consists of (93:1).

2-2 Research Population and Sample

The research community included the 32 players prepared in the Iraqi League for the season (2023-2024). As for the research sample, it was selected on the scientific basis in order to accurately represent the community, as identifying the

sample well and appropriately for the nature of the community and the study to be conducted gives results as close as possible to what is in the community(24:6) and it was selected in a deliberate way and their number was (10) players clubs , where they make up a percentage of (31.25) of the total community where the sample is representative of the original community.

The researcher conducted homogeneity for the sample members with the following variables (height , weight , age) that may affect the results of the main experiment. The researcher used the coefficient of difference, which whenever it is less than 30%, the sample is homogeneous (161:11). It was found that all variables achieved a coefficient of difference of less than 30%, which means that the sample is homogeneous in those variables , and as shown in Table (1), which shows the homogeneity of the sample members.

Table (1)

Shows the arithmetic media, standard deviations and values of the coefficient of variation in the research sample

#	Orthopaedic measurements	Unit of Measurement	Arithmetical mean (Maths.)	Standard deviation (Maths.)	Coefficient of variation
1	Height	poison	186	4/166	239
2	Block	kg	82	920	6
3	Age	Year	25	162	648

2-3 Used means, tools and appliances

2-3-1 Means of collecting information



- Arabic Resources
- World Wide Network

2-3-2 Appliances and tools used

1. Video camera (2) type (sony) with a frequency of (100images/s)
3. Drawing scale
4. Electronic Calculator
5. HP computer with processor speed (cor i7)
6. Software and applications used in the computer
7. Camera tripod (2)
8. CD-DVD
9. Medical scale to measure weight
10. Measuring tape with a length of (20) m.
11. 24 Legal Volleyballs
12. Legal volleyball court
13. Colored adhesive tape

2-4 Tests Used

2-4-1 Testing the performance accuracy of the volleyball preparation skill (182:7)

Objective of the test : Measure the accuracy of the preparation skill.

Tools Used

A carrier at the end of which there is a loop and the loop is not fixed, as it can be made horizontal and vertical, as well as the height of the loop can be controlled, (24) legal volleyballs, a registration form.

Method statement of Performance

The laboratory player stands facing the stand , and the coach throws the ball at the prepared player to prepare the ball towards the ring , trying to pass it inside the ring, as shown in Figure (1) , giving each player (3) attempts .

Registration

- The ball away from the ring (2) points .
- Touching the ball for the loop (3) points .
- Passing the ball inside the ring (5) points .
- * The maximum score of the test is (15) points .

2-5 Scientific Basis for the Modified Skill Test:

2.5.1 Validity of the test:

The researcher used the guaranteed honesty and to ensure that the test achieves the desired goal, the test was presented to ensure the validity of the test to experts and specialists in the field of tests and volleyball. They stated that each test measures the quality or ability that was developed to measure it, and on this basis the validity of the tests was confirmed and approved in the research , and this is confirmed by Mustafa Sibahi "that honesty is an estimate to know whether the test measures what we want to measure with it, and nothing but what we want to measure with it"(26:9).

2-5-2 Test stability:

Since stability means " which gives similar results or the same results if applied more than once in similar circumstances" (145:10). Therefore, the researcher took advantage of the results of the exploratory experiment and after (7) days the test was repeated and then the results were statistically processed using a simple correlation coefficient, including the researcher concluded that the test has a high morale, which indicates

that the test has a high degree of stability . As in Table (2)

Table (2)

Statistical Parameters Test Name	Quiz 1		RETAKE QUIZ		Correlation coefficient (Maths.)	Significance
	Arithmetical mean (Maths.)	Standard deviation (Maths.)	Arithmetical mean (Maths.)	Standard deviation (Maths.)		
Volleyball Setup Skill Performance Accuracy	11.3	3.465	10.6	3.025	.839	corporate

2-5-3 Objectivity of the test:

Objectivity means "all tests that take out the corrector's opinion or judgment, from the correction process because the answer is specific and it is not affected by the subjective and personal factors of the corrector and means that the ability to judge something does not differ.... Or on a specific topic "(131:8), and the test used in the research has a high degree of objectivity because it is clear and easy to understand and apply by the sample and far from self-assessment and the method of registration is clear and this is confirmed by (Durgham Abdul Sada) "describing the capabilities of the individual as they actually exist and not as we want them to be .One of the most important qualities of a good test is that it is objective to measure the phenomenon that was originally prepared to measure it, that there is a full understanding by all those examined of what they will do, that there is one explanation for all, and that

there is no opportunity to understand another meaning other than what is intended(51:5).

2-6 Kinematic Analysis

The researcher used a Japanese-made (Sony) video camera with a frequency of (25) images/ second to film the research sample in the exploratory and main experiments.

The camera was placed on the left side of the player at a distance of (9 m) and the height of the lens from the ground (1.30m) from the ground. The researcher used a drawing scale with a length of (1m) and then the photographed material was transferred from the camera to a computer type (HP) (core i7) to convert the video formats to suit the analysis program.

The kinetic analysis program (dart fish 2005), which is installed on the computer (HP), one of the programs specialized in kinetic analysis, was used to analyze the video clips in order to extract the kinematic variables.

2-7 Exploratory experiment

The experiment was conducted on Thursday, 12/10/2023, on the hall of Shatra Sports Club, during which the devices and tools used in the news were confirmed, and the distance of the camera from the player and the height of the lens from the ground were confirmed, including the extraction of the results of the biokinematic variables, as well as the distribution of the duties of the auxiliary work.

2.8 Key Experience:

The main experiment for the period from 14/11/2023 to 20/11/2023 was conducted on the halls of clubs (Bahri , South Gas, Industry, Marshes , Muqdadiya) at 2:00 pm. Three attempts were given for each type of preparation skill used(

high and medium) in the search, then the best attempt was selected from the three attempts for each player .

Study variables

1. The **angle of the shoulder is the moment the ball is touched**: it is the angle between the torso and the humerus.
2. The **angle of the elbow at the moment of touching the ball**: It is the angle that is confined between the humerus and the forearm.
3. The **horizontal distance between the ball and the longitudinal axis of the body** : It is the horizontal distance that is between the longitudinal axis of the body and the center of the ball.
4. The **starting angle of the ball**: It is the angle confined to the track of the ball for five consecutive images from the last moment of touching the ball with the horizontal line Telmar at the center of the ball the last moment of touching.
5. The **speed of the ball's start**: It is measured from the moment the ball is left to a distance of 1 meter divided by the time it takes .
6. **Performance time**: Calculated from the moment the ball leaves the preparer's hand to the moment it reaches the ring

2-10 Statistical Methods

1. The researcher used the statistical program spss version 20
2. Arithmetical mean (Maths.)
3. Standard deviation (Maths.)

4. T-test for associated samples
5. Coefficient of Variation(161:11)

Presentation and Analysis of the Results.

3-1 Presentation and analysis of the computational media, standard deviations and differences in some biokinematic variables of the skills of high and medium height numbers.

Table (3)

Variables	Skill of high preparation in front		Front Average Numbers Skill		calculated T
	Arithmetical mean (Maths.)	Standard deviation (Maths.)	Arithmetical mean (Maths.)	Standard deviation (Maths.)	
Shoulder Angle Moment Touch Ball	141	419	139	8.99	0.495
Angle of elbow Moment of ball touch	133	227	725	7.025	3.383

Horizontal distance between the sphere and the longitudinal axis of the body	0.16	0.03	0.21	.036	2.542
Velocity of the ball	5.01	1.136	6.3	1.136	2.169
Starting angle of the ball	52-85	987	38.80	654	498
Performance Time	2.70	0.737	1.43	.347	4.395

3. Discussion of the results

Through the above results, it is noted that there are no significant differences in the angle of the shoulder at the moment of touching the ball, while there are significant differences in the angle of the elbow. The researcher believes that the reason for the lack of differences in the angle of the shoulder is the similarity of performance at the



angle of the shoulder, while it appeared at the angle of the elbow, due to the difference in the requirements of the height of the ball, the horizontal distance and the speed of the ball travelled by the ball, which is greater in the skill of medium–height forward preparation, so it requires flexion , as "the degree of flexion depends on the height of the ball and its path and looking towards the ball"(161:2).

There were also significant differences in the angle of departure of the ball and in the interest of the skill of high forward preparation. The reason for this is due to the difference in the maximum height reached by the ball, as the angle of departure is the one that determines the course of the ball, where the lower the angle of departure, the less the vertical distance and the greater the horizontal distance and vice versa, as confirmed by the express Abdul Karim and Wahbi Alwan, "as the angle of departure is one of the factors that affect the achievement of horizontal and vertical distance." (125:4) For this same reason, significant differences emerged in the horizontal distance between the ball and the longitudinal axis of the body in favor of the skill of medium–height forward preparation.

It is also noted that there are significant differences in the speed of the ball's launch. The researcher believes that this is due to the amount of force resulting from the amount of flexion in the joints of the body and that the force exerted from bending and extending the joints of the body, which led to the conversion of the potential energy in the body into high kinetic energy that affected the speed of the ball. This energy was greater in the skill of medium–high numbers than in the skill of high–altitude numbers. Therefore, the force generated in the skill of medium height forward preparation is greater as this force will leave its impact on the speed of movement because "speed is the movement of the result of the force with its relationship to the time variable and is linked to the movement of the center of gravity, the greater the

force exerted, the faster the movement according to it" (27:3) , so this speed of movement will turn into the ball.

There are also significant differences in the performance time in favor of the high forward preparation skill, due to the high height of the ball above the level of the net and the large vertical and horizontal distance traveled by the ball in the high forward preparation skill, which led to an increase in the performance time.

From the above, the researcher believes that good preparation plays a great and distinct role in determining the victory in the game, because the success of the overwhelming batting skill is linked to good preparation and is also linked to the level of performance of the prepared player. Whenever he is at a high level of performance, his team can thwart the defensive plans (the block wall and the defense of the pitch) of the opposing team, as good preparation gives the team the opportunity to make different offensive combinations that weaken the block wall. The preparation has evolved a lot from what it was before , as well as the prepared player preparing the ball from jumping to reduce the time period before the opposing team prepares to defend and then make a quick attack. The accuracy of the preparation is the main element of the good high front numbers, and without mastering it, it is not possible to continue playing. The prepared player needs continuous training until

As well as being able to master this skill and perform it with high accuracy in all stages of the game and using every type or form of preparation at the right moment.

Conclusions and recommendations:

- 1- . Lack of appearance in the differences between the skill of high anterior high and medium height preparation in the angle variable of the shoulder joint,



while the differences were in favor of the skill of high preparation in the angle variable of the elbow.

- 2- The moral differences between the skill of high front and medium height numbers were in favor of the skill of medium height numbers in the horizontal distance between the ball and the longitudinal axis of the body and the speed of the ball
- 3- The moral differences between the skill of high frontal numbers and medium height were in favor of the skill of high frontal numbers in the corner of the ball, and in favor of the skill of high numbers in the performance time variable.
- 4- The medium–high preparation skill was characterized by a shorter time than the high–high preparation skill.

4-2 Recommendations:

- 1- Emphasis on moving away as much as possible from high altitude numbers and using medium high numbers in training units and competitions
- 2- Emphasis on reducing the performance time and getting the ball to the batter's hand for as long as possible .
- 3- The need to emphasize that the performance of the preparation skill is always jumping in the training units and competitions.
- 4- The researcher recommends the trainers and researchers to take advantage of the results reached to identify the differences between high and medium height numbers as well as the fine details of technical performance.
- 5- Paying attention to building basic skills according to correct scientific foundations, which saves effort and time and improves performance better in the future.



6- The need to emphasize the knowledge of trainers and workers in the field of training to know the mechanical aspects of the skill of preparation .

Sources

- 1.Haidar Abdul Redha Al-Khafaji: The Applied Guide to Writing Psychological and Educational Research, 1st Edition , Baghdad, The Good Word, 2014 .
- 2.Saad Mohammed Qutb and Louay Ghanem Al-Sumaidai: Volleyball between theory and practice , Directorate of University Press, Mosul ,1985.
- 3.Sulaiman Ali Hassan and Awatef Mohammed Labib: Muscle Power Development, Dar al-Fikr al-Muasar, Cairo ,1979.
- 4.Sareh Abdul Karim and Wahbi Alwan : Sports Biomechanics, Baghdad, Al-Ghadeer for Modern Art Printing,2012 .
- 5.Durgham Abdul Salem Nehme : The impact of a proposed educational curriculum using some means to help learn the skills of the front and back ground strike with ground tennis, Master Thesis,University of Basra ,Faculty of Physical Education, 2007.
- 6.On Sumum al-Fartusi: Principles of Statistical Methods in Physical Education, 3rd Edition , Baghdad, Al-Muhaimen Press, 2016 .
- 7.Ali Mustafa Taha: Volleyball History – Education – Training – Analysis – Law , 1st Edition, Egypt, Dar Al-Fikr Al-Arabi for Printing, Publishing and Distribution , 1999.
- 8.Qais Naji and Bastawisi Ahmed: **Tests and Principles of Statistics in the Mathematical Field**, Baghdad, Higher Education Press, 1987.
- 9.Mustafa Hussein Bahi: Scientific Transactions between Theory and Practice(Persistence, Honesty, Objectivity, Criteria), 1st Edition, Cairo, Book and Publishing Center, 1999.
- 10.Nader Fahmy Al-Zayoud and Hisham Amer Alyan: Principles of Measurement and Evaluation in Education. Al-Maliki, Shams al-Din Abu Abdullah Muhammad bin Muhammad bin Abdul Rahman al-Tarabulus al-Maghribi, known as Al-Raini woodcutter.(1992).Galilee's talents in a brief explanation of Khalil.:i3 للنشر الفكر دار عمان، |||UNTRANSLATED_CONTENT_START|||،2005. والتوزيع، |||UNTRANSLATED_CONTENT_END|||



11. Wadih Yassin Al-Tikriti and Hassan Mohammed : Statistical Applications and Computer Uses in Physical Education Research, Dar Al-Kutub for Printing and Publishing, Mosul, 1999.