International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 01, 2020
ISSN: 1475-7192

Analytical study of the highest height of the player and the ball according to some biokinematic variables of the approximate run of the skill performance of spiking with a volleyball

[1]Dr. Ali. M. Ahmed Alhamrani

Abstract

The importance of research in the study of high player and the ball according to the steps approximate the skill of beating crushing the ball plane to get to the number of appropriate steps with a high ball for a disease skill beating overwhelming study aimed to: 1. Identify Biocinematics variables for a high ball and the player depending on the number of steps for the skill of beating overwhelming. 2. Identify the optimal number of steps in the kinematic variables for spiking for each player. As for the research procedures: The researcher used the descriptive approach The research sample consisted of 5 captain players from the team of Al-Mustansiriya University participating in the Iraqi Universities Championship in Kirkuk 2018, which was chosen by the deliberate method . The study variables were determined, and the overwhelming tests were conducted (one step, two steps, 3 steps), filmed, analyzed and recorded data for each player. The results were processed by the statistical packages. The following conclusions were reached: 1. Most of the players relied on increasing the height to jump on increasing the preparatory speed by increasing the number of steps, especially the first player. 2. It cannot be asserted openly that the greater the number of preparatory steps (the approximate run) for the jump, the greater the height of the jump because some players mainly rely on bending and extending (upward thrust) and increasing the starting angle in the vertical direction.

Keywords*: player, ball, biocinematics variables, skill performance, spiking, volleyball*

Introduction

The plane game is one of the differential games that are characterized by special physical characteristics that enable the athlete to perform duties effectively, such as high jumping and muscular strength of the upper and lower extremities. It must be based on accurate scientific foundations that depend on simulation for the requirements of skilled performance and this is what Muhammad Jassim Muhammad confirmed that rapid performance depends The movement of the lower limbs, the torso and the upper limbs are linked in a harmonious manner by the athlete (Muhammad, 2012), that is, there is a movement sequence that begins with the foot and ends with the striking arm. Har also confirms the specification is a good approach speed, accuracy and consistency and through the player gets higher upgrade (Harald, 2009) In spite of the good performance offered by the players in the performance of diverse skills , but we still need to study the variables that the evolution of the performance of the players in order to achieve the highest levels and keep up with Arab levels, regional , and this was not a fluke , but came several extensive studies as a result most of the aspects it included related skills, including Percept for a game of volleyball , and this was confirmed (from realizing a sense of the ball, and time, distance, location, speed, and muscle strength) (Abdul Sattar, 2000) , Not surprisingly resorted researcher to study the skill of beating the overwhelming importance and contribute to the two big as a skill that through which the team can from the events of the difference and score points through the kinetic analysis of the exact parts of this skill of several steps as the researcher to extract the variables in order of each step with the high ball facilities for those with skill beating overwhelming steps , and this is what (Don, 2010) , as it is aware mechanics of science taught motor athlete 's track tool accurately and extract variables performance and get accurate scientific data and submit them for coaches and players to find out the strengths and weaknesses of the base Players' performance and this is confirmed by (Hay, 1988) (Don, 2010), and this reached by the researcher through the use of modern technologies to see the movement required and analysis slower and clearer picture of this is mentioned (Yasser, 2015), as well as performance skills requirements for the overwhelming hit and this was confirmed (Schmidt, 2000) Of the importance of the consensus and the accuracy of the three kinds (the time, the place,

[1] Mustansiriyah university- College of physical education & sports science
alhamrani2003@gmail.com, Dr.ali.m.aau0mustansiriyah.edu.iq

and timeliness) (Schmidt, 2000), as is stated where he said it would "mean efficiency in the target injury or guide the ball to arena exposed to a competitor , as in tennis and volleyball " (Saad, 2004)

The importance of research in the study of high player and the ball according to the steps approximate the skill of beating crushing the ball plane to get to the number of appropriate steps with a high ball for a disease skill beating overwhelming. So wanted researcher through the research problem that stands at this point , and watched through the study and analysis of the variables biocinematics and performance of technical skill beating overwhelming players during the preparatory stage to reach the number of steps Percussion my endodontic best to have the highest high achievement of the player and the ball in the flight phase to work on Adding a qualitative leap to get a good smash hit that guarantees a point score which requires good performance and victory in the match by identifying a good and appropriate model and this is what was confirmed (Adel, 2004) where he mentioned the general rules for biomechanical analysis, which include several points (determining an accurate name for the skill, setting a goal or targets for analysis, selection of appropriate measuring devices, detection of relationships and correlations between the characteristics, the formulation of appropriate evaluation skills on the conclusions of the sport and the development of recommendations according to the results of the analysis. (Adel, 2004)

As for ***the research objectives***, they included:

1- Identify the kinematic variables of A at the height of the player and the ball according to the different number of steps for the spiking skill.
2- Identify the optimum number of steps in the kinematic variables of spiking for each player.

Methodology

The researcher used the descriptive approach so as to the suitability of the research problem and objectives either a sample of the search B players elected the University of Mustansiriya B Volleyball specifically cap sins of them and their number only five players as shown in Table (1)

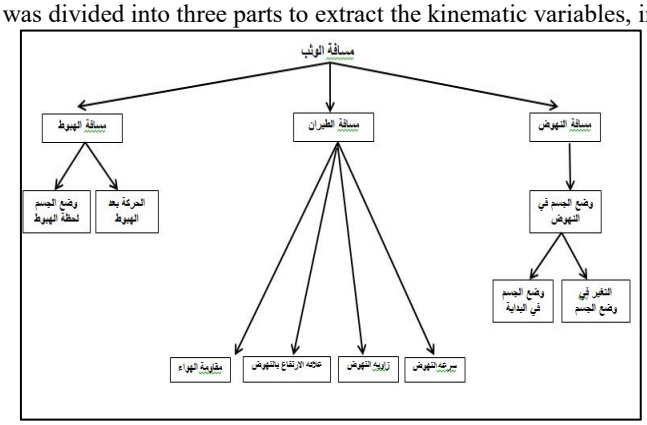
Table (1) shows specifications of the research sample (age, height and weight)

T	Names of players	Length	Age	the weight
1.	Seggad Diaa Hussein	188	22	90
2.	Mohamed Samir Douai	187	23	85
3.	Mutlaq ,Flowered, Mutlak	185	25	80
4.	Mohammed Abdul Wahid	188	32	95
5.	Haider Adel	194	22	85

***As the variables were identified through*:**

The selected skill is divided into stages: The skill was chosen hit overwhelming in three cases, according to the number of steps in the situation to prepare me her namely: *One-step, Two steps, three steps*

Accordingly, the skill was divided into three parts to extract the kinematic variables, including:



The Leap Model Used To Prepare For the Qualitative Analysis

Kinematic variables according to skill stages

First - Preparatory stage:

- Preparation distance: It is the distance that the researcher used before performing the standing up.
- The average speed of the player: It holds the Department of distance preparatory move divided by the time of her.

- The player's momentary velocity before standing up: It is the result of dividing the minimum distance before the first touch of the advancement stage by the minimum time for this distance.

Second - the recovery stage:

- The time of standing up: the time taken to perform standing up from the first touching until the last touching the feet .
- Maximum flexion of the knee: It is the angle between the thigh and the leg, and the minimum angle was measured during the standing stage .

Third - the flight stage:

- The angle of departure: It is the angle between the paths of the body after leaving with the horizontal line passing through the center of gravity of the body at the moment of abandonment.
- Cruising speed: is the case of his department less Massa in it's for the launch for its time .
- Highest altitude: It is the vertical distance between the center of gravity and up to the ground level, and then measured for the player and then his highest altitude during flight. **(**Aqeel, 1987**)**

Research experience: And on Wednesday 28/2/2019 At 3 pm, where the researcher conducted the final imaging of the sample in the stadium volleyball in the hall father of a cell to extend the years of specialized in volleyball / Ministry of Youth and Sports, Collaboration was good between the sample and the researcher. The skill was photographed for a player, as three attempts were given to each player with different number of steps (one step, two steps, 3steps) The imaging process took full form for a period of two hours, as the researcher finally a CD well imaging and see the videos again for a take due precautions before lifting the camera and leave the pitch**.**

Results

Table (2)shows the mean, standard deviations, and ranges of the highest height of the player and the ball

variable	no	1	2	3	4	5	s	P	Top	Less
Player Height (m)	a step	1.7	**1.71**	1.67	**1.46**	1.7	1.648	0.11	1.71	1.46
	Two steps	1.74	**1.79**	1.6	**1.49**	1.75	1.674	0.13	1.79	1.49
	three	1.81	1.89	1.76	**1.46**	**1.9**	1.764	0.18	1.9	1.46
The highest height for the ball (m)	a step	3.13	2.76	2.97	**2.71**	**3. 14**	2.942	0.2	3.14	2.71
	Two steps	**3.18**	3.14	3.14	**2.73**	3.14	3.066	0.19	3.18	2.73
	three	**3.24**	3.12	3.08	**2.74**	3.07	3.05	0.19	3.24	2.74

Through what was shown in Table (2), we can see the general line of the path of the heights of the players and the height of the point of hitting the ball in the skill of spiking and according to the number of steps he used in the preparatory stage of the jump. It is clear who was the weakest among the players and he was the fourth player only, who was the lowest in terms of the body and the point of hitting the ball, and in all three attempts, according to the number of steps. Although the second player was the best in achieving the highest body height when jumping, the first player was the best because he achieved the highest hitting point of the ball in the spiking skill, which is the desired goal of this skill.

Table (3)shows the arithmetic mean, standard deviations, and ranges of the kinematic variables of the preparatory stage according to the multiplicity of steps

variable	the number	1	2	3	4	5	s	P	Top	Less
Preparation distance (meters)	a step	1.42	1.27	1.09	1	1.21	1.198	0.16	1.42	1
	Two steps	2.84	2.55	2.18	1.69	2.42	2.336	0.43	2.84	1.69
	three	4.66	3.22	3.84	2.6	3.33	3.53	0.77	4.66	2.6
Preparation speed (meters)	a step	1.6	1.43	1.27	1.15	1.38	1.366	0.17	1.6	1.15
	Two steps	2.12	1.79	1.52	1.91	1.86	1.841	0.22	2.12	1.52
	three	3.68	2.1	2.45	2.04	2.44	2.542	0.66	3.68	2.04
Preparatory speed (m/s)	a step	1.6	1.43	1.27	1.15	1.38	1.366	0.17	1.6	1.15
	Two steps	1.21	1.36	1.37	1.51	1.56	1.402	0.14	1.56	1.21

	three	2.04	1.29	1.72	1.22	1.45	1.544	0.34	2.04	1.22

Through what was presented in Table (3), we can see the extent of the use of the kinematic variables during the preparatory stage to achieve the highest height of the player and thus the highest height to hit the ball according to the number of steps. The results here were identical to what was mentioned in the previous table for the highest height, so we find the lowest values reflected in the identification of the weakest player, which is only the fourth player. This is the case for the first player, so it was best to achieve the highest values in most of the variables of the preparatory stage, which was the reason for achieving the highest hitting point of the ball in the skill of spiking.

Table (4) shows the arithmetic mean, standard deviations and ranges of the kinematic variables of the rise and start phase according to the multiplicity of steps

variable	the number	1	2	3	4	5	s	P	Top	Less
Maximum knee flexion (Degree)	a step	104	100	111	106	104	105	4	111	100
	Two steps	94	111	116	125	121	113.4	12.05	125	94
	three	93	112	133	115	115	113.6	14.21	133	93
Rise time (sec).	a step	0.58	0.79	0.58	0.72	0.72	0.678	0.094	0.79	0.58
	Two steps	0.37	0.46	0.36	0.36	0.37	0.384	0.043	0.46	0.36
	three	0.36	0.35	0.36	0.33	0.32	0.344	0.018	0.36	0.32
Departure angle(°)	a step	73	58	63	58	57	61.8	6.686	73	57
	Two steps	71	45	59	57	43	55	11.4	71	43
	three	54	53	58	64	52	56.2	4.919	64	52
Cruising speed (m/s)	a step	2.03	3.96	4.31	3.27	3.62	3.438	0.877	4.31	2.03
	Two steps	4.83	5.17	3.96	4.48	4.65	4.618	0.448	5.17	3.96
	three	5.17	5.34	5	2.93	5.17	4.722	1.009	5.34	2.93

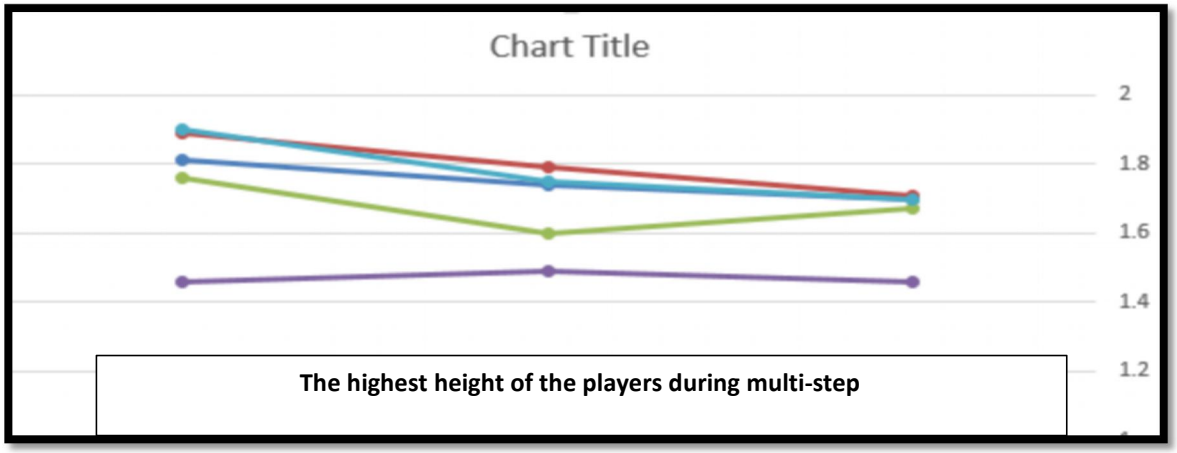
Through what was presented in Table (4) we can see the extent of the dispersion in these two stages, which is the rise and start between the players. Values were not going with a specific player in terms of higher and lower, on the basis that the high and low values affect the values of the heights of the players and the point of hitting the ball, so we find it was distributed among the players, meaning that it was not shortened to the fourth (weakest) and first (best) player, as determined in the previous two tables (2, 3)

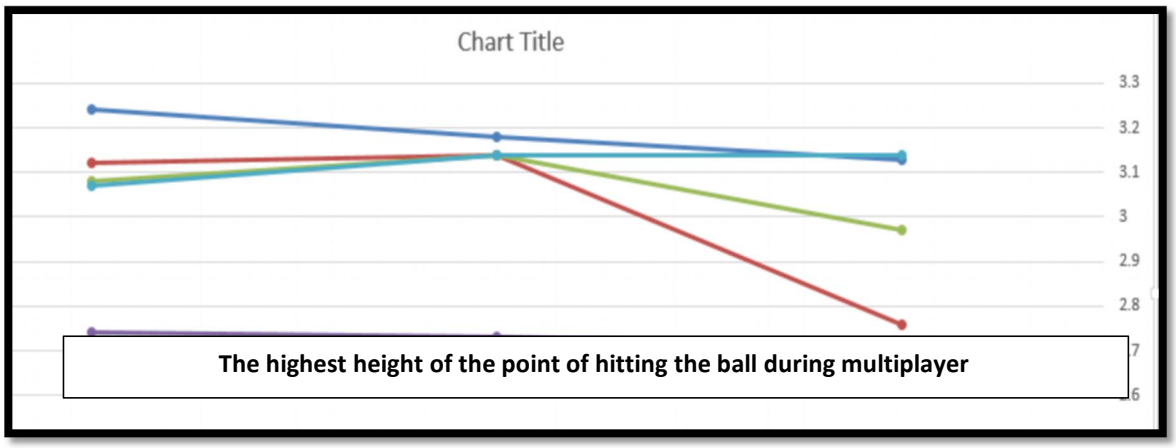
Discussion

What has been presented and analyzed from the raw values of the players to the kinematic variables during the technical performance stages of the skill of the crushing hitting in the three attempts according to the number of steps that the player takes in the preparatory stage to jump and hit the ball, we find its paths clear in the preparatory stage which highlighted the best among the players and he is the first player While the fourth player was the weakest among them. However, these paths for the variables were not clear during the two phases of rise and launch, as they were distributed between the players in terms of the best and the weakest. The researcher attributes this to several reasons, including the importance of the preparatory position, which is the first key to the performance of the jumping skill, which depends on an important principle, which is the initial velocity, so the importance of the preparatory distance appears, which expresses an increase in the acceleration of the player. As for the variables in the two stages (rise, start), whose importance is distributed among the players, which expresses the extent to which the players invest these variables during these two stages to achieve the best height for them, and in return it is an expression of potential weaknesses in some others except that some variables do not mean their continuous rise or decrease is the best, such as Maximum knee flexion or rise time, both of which must have a specific number because an increase in it more than the specified has a negative impact on the performance and the same case applies when the value of the variable decreases less than the specified and is negative on the goal of performance. When a plane player wants to jump, whether the number of steps is one or more, we find that it is necessary to bend the elbow joint to prepare for the pushing process up, but the value of this angle is less whenever the player comes at a higher preparatory speed because of the difficulty of converting the horizontal speed to vertical in the framework of maintaining it from Loss and attempt to benefit from it at its highest value in starting speed, which is one of the most important variables that make the player get the

highest altitude, provided that the starting angle is maintained in the desired direction. Here is the problem for players, mechanically, we find it difficult for the player to increase all the variables in one direction because the increase in the horizontal speed, from which we obtain an increase in the starting speed, is matched by the process of converting this speed in the vertical direction for the purpose of increasing the starting angle, which plays a major role in increasing the height as it is directed at a path The movement of the body, and it is known that there is a loss in the horizontal velocity when it turns into a vertical velocity and this loss depends on the angle of the angle, that is, the greater the angle of departure, the lower the speed of the launch, and vice versa, the acceleration of the launch increases as the angle of departure decreases (if we assume that the horizontal velocity increases). Therefore, the values of the variables differed among the players in the rise and flight stage, because each player has a way to choose the best for him to increase his height. Some of them depend on increasing the starting angle at the expense of the starting speed, and some of them work to increase the starting speed at the expense of the starting angle. That the approach of been central in the steps of the preparatory stage for the performance of the skill of overwhelming beating is the performance by a distance in the shortest game the ladies, so the curved arm style translates into a better transfer of momentum to the top; While throwing the arms back in the preparatory stage of the jump translates into a forward momentum transfer (wide jump). We want the middle arms to rise in the air faster to set a faster tempo, so the back of the fast elbows allows the hands to rise in the air faster.

In the following, we review the graphic figures of the variables and how they proceed with the highest height achieved according to the number of steps he took in the skill of spiking.





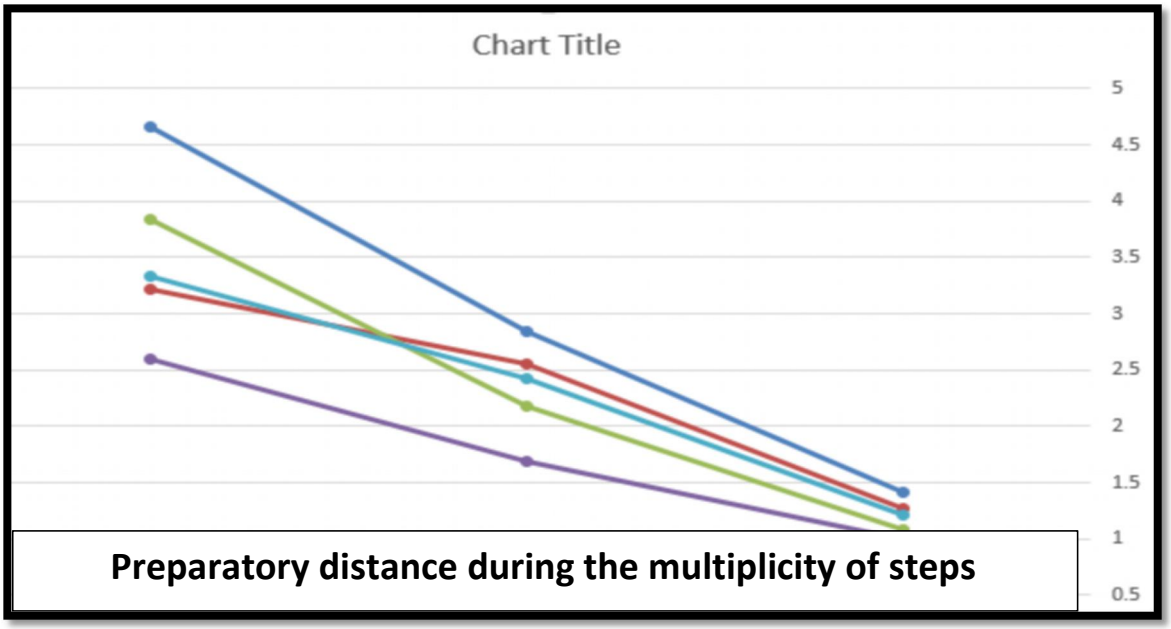


Chart Title
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
Preparatory distance during the multiplicity of steps

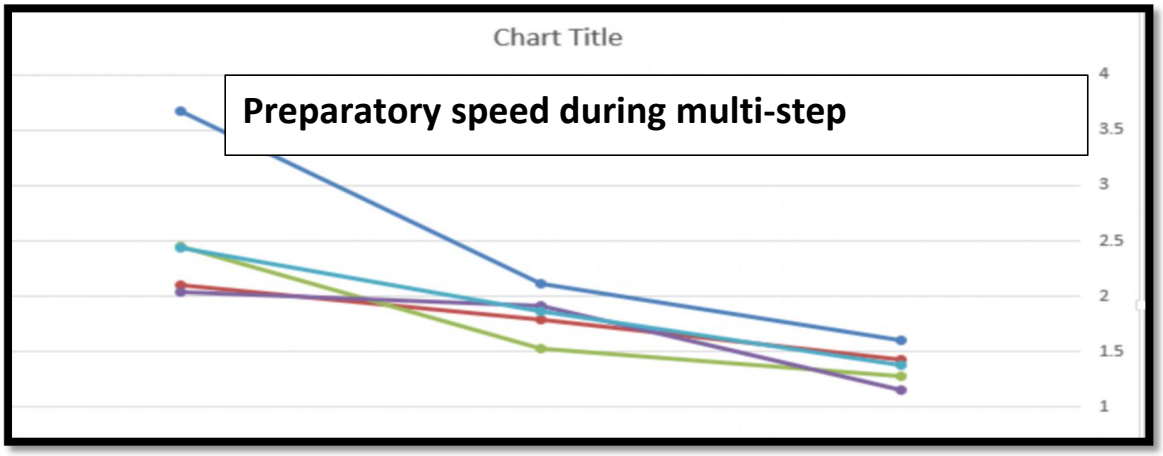


Chart Title
Preparatory speed during multi-step
4
3.5
3
2.5
2
1.5
1

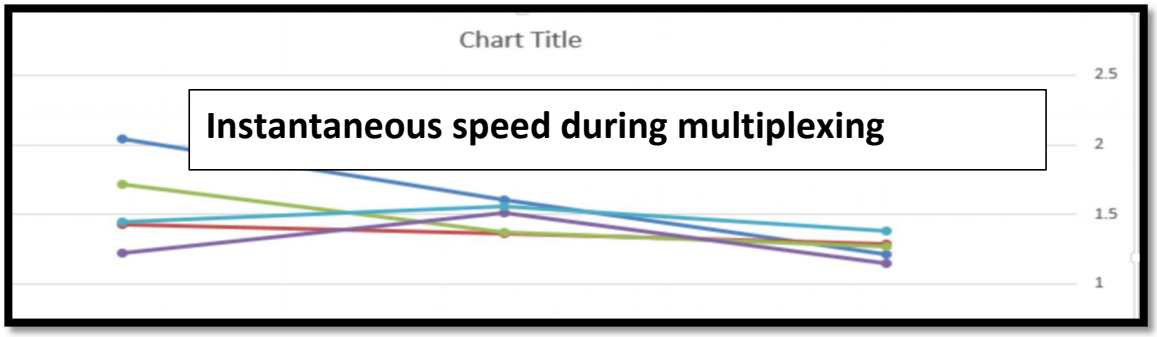
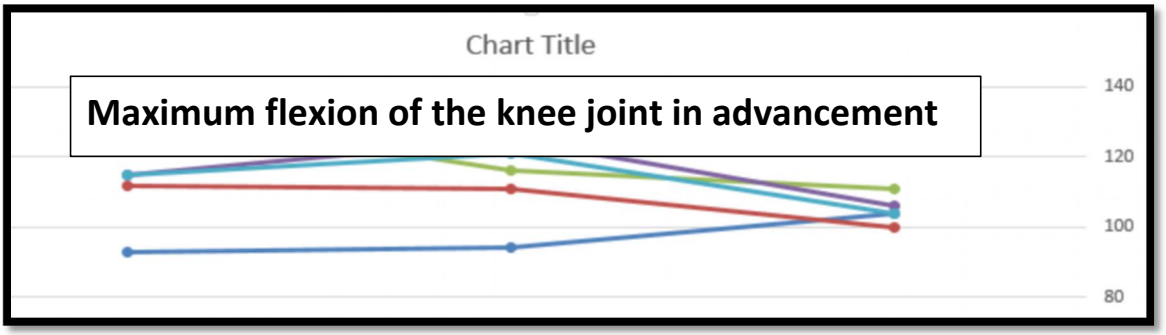
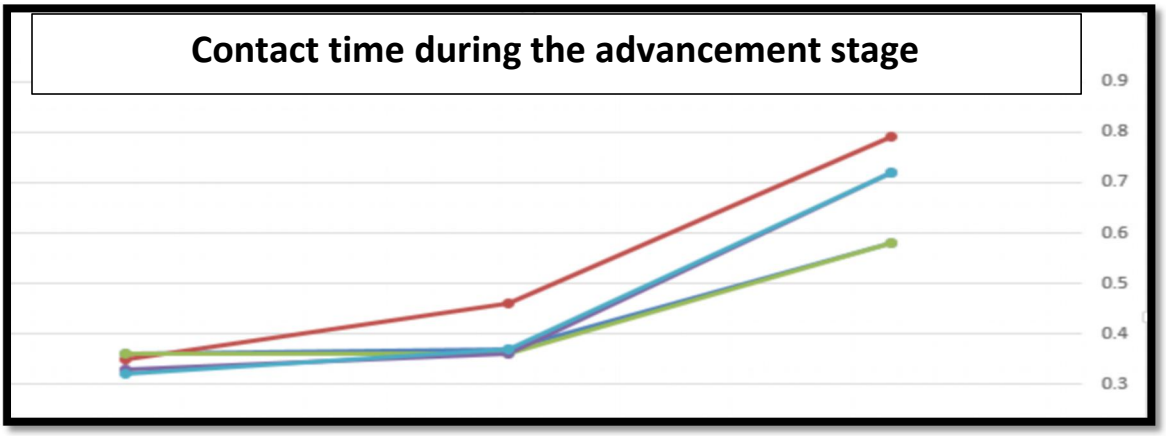
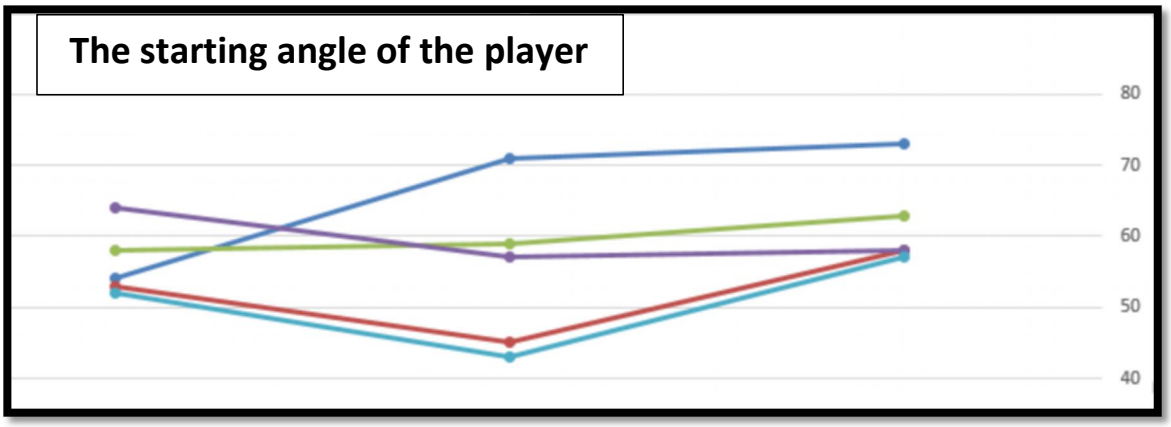
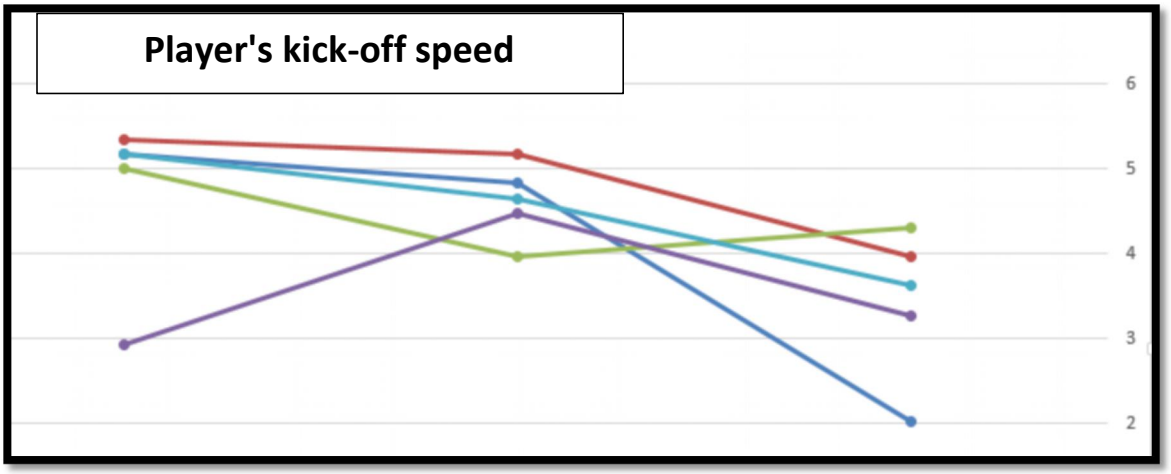


Chart Title
Instantaneous speed during multiplexing
2.5
2
1.5
1









Conclusions

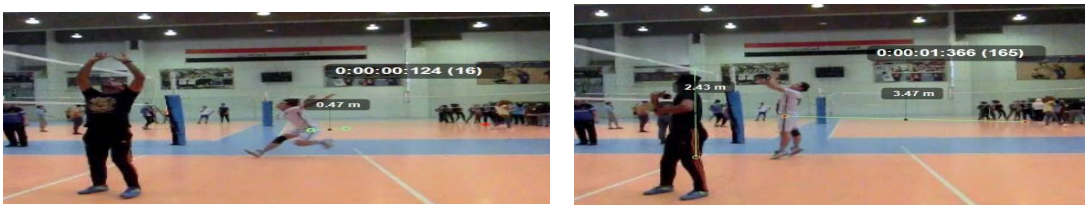
Through what was presented, analyzed and discussed, we can summarize the entirety of this research with the following conclusions:

1- Most of the players relied on increasing the height to jump on increasing the preparatory speed by increasing the number of steps, especially the first player.
2- The results of the height differed with the fourth player, and he was the lowest among them, because of the May reasons, and it may be physical as well.
3- There is a special style for each player to achieve the highest height through the different trends of the values of the kinematic variables during the rise and start phases.
4- It cannot be asserted openly that the greater the number of preparatory steps (the proximity run) for the jump, the greater the height of the jump because some players mainly rely on bending and stretching (pushing upward) and increasing the starting angle in the vertical direction.

References

1- Abdul Sattar Jabbar Al-Damad. 2000, Physiology of mental processes in sports, (Amman, Arab Thought House,).
2- Adel Abdul Basir Ali; 2004, Biomechanical analysis of human body movements) Alexandria, The Egyptian Library).
3- Aqeel Abdullah Al- Katib (and others); 1987, Technique and tactics of individual pal care of the plane: (Baghdad, Press Education Higher).
4- Don F. Condeson and Karge S. Marion translation, Sareeh Abd al-Karim al- Fadhli and Wahbi Alwan; 2010, Qualitative analysis in kinesiology: (Baghdad, Silicon Printing Office,).
5- Harald Muller and Wolfgang Reitzdoroff; 2009, International Athletics Federation Run, jump, throw translation: Regional Development Center; (Cairo, Regional Development Center Press,).
6- Muhammad Jassim Muhammad; 2012, Biomechanics in Physical Education and Sports, Edition 1: (Baghdad, Library and Documentation House).
7- Saad Mohsen Ismail; 1996, the effect of training methods for developing the explosive power of the two men ... in handball, PhD thesis, University of Baghdad).
8- Schmidt & Wrisberg; 2000, Motor Learning and performance.
9- Yasser Najah Hussein and Ahmed Thamer; 2014, Kinetic-Mathematical Analysis: (Al-Najaf Al-Ashraf, Dar Al-Diaa for Printing).

Appendices



Preparatory distance velocity and preparatory & Speed Instantaneous
Appendix (1) Pictures of the preparatory stage variables

Maximum flexion of the knee while getting up & Departure angle, cruising speed
Appendix (2) photos of the advancement stage

The highest height of the player, the height of the ball at the moment of hitting
Appendix (3) Pictures of the upgrade stage variables

The highest height of the player & the height of the ball at the moment of hitting
Appendix (4) Pictures of player and ball height variables