The predictive value of the proportion of the contribution of some anthropometric measurements and the speed of the kinematic response to the performance of the wall skill in volleyball

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Abstract

The problem of this study came in the lack of scientific research that dealt with the skill performance in relation to physical measurements and the speed of the movement response and knowledge of the extent of the impact of those variables on the skill performance, and given the importance of these variables in the performance of the defensive wall skill and their important role in being a defensive offensive skill. Delve into this phenomenon, and the problem crystallized by saying that the nature and speed of performance of the wall skill requires physical characteristics and special physical capabilities, and this can be observed through the results reflected in the performance of that skill, so the researchers decided to know the extent to which these variables contribute to the performance of the wall skill Blocking and predicting it, which will be an evidence of the benefit in raising a high mathematical level, while the study aimed to find predictive values of the blocking wall skill in terms of some physical measurements and the speed of the kinematic response and to identify the percentage of the contribution of those variables to the performance of that skill. The researchers concluded that the physical measurements and the speed of the movement response It contributed statistically significant percentages to the performance of that skill, as well as a predictive equation was devised through which the skill of the blocking wall could be predicted in terms of the most important measures. Physicality and speed of movement response and the researchers recommended the necessity of the coaches' attention when selecting players, taking into account the physical specifications, which are among the most important requirements of this sport, and the necessity of conducting tests for motor abilities and regarding the speed of response and its role is fundamental and influential in the performance of that event.

Definition of the research

Introduction and Importance of Research

What we see today is a clear and important progress in the field of mathematics at the global level, which took great and rapid steps forward, and it is only the result of parity and overlap between a large number of theoretical and applied sciences that will provide the mathematical aspect and increase the possibility of achieving the best level in it. It should be noted that the basic aspect and from the researchers' point of view is to make our society live with modern scientific development, and to deal with its scientific tools with understanding and awareness. The great achievements in sporting events were not

the result of chance, but rather the result of sound and remote planning, and this planning passes through many stages that precede the development of training curricula, and this only comes through tests and measurement in addition. To correct the training that must be taken into account when ascending to higher levels, as the individual's arrival at higher levels depends on his physical and physical capabilities appropriate to the type of activity he is practicing, allowing him to succeed and excel when available. Training on sound scientific foundations, which is luxurious clothing that hates the plane, and it is one of the team games that people of the world love in general, and which has been linked to the development of the performance level of its players. With some measurements of physical and movement capabilities, which requires workers in this field to adopt modern, contemporary training methods and exercises on the one hand, and on the other hand, determining the levels of players and their abilities in the game requirements (skills, physical, functional and tactical), the coach and the player have an opportunity to define them. Levels of players, so the importance of research lies in the presence of weakness and insufficient mastery of the mass of the wall and its requirements in terms of response speed and physical measurements, which prompted to delve into or address this subject of study. What is worth this for a skill with a high level of interest in all mathematical levels and creating a predictive value for the percentage contribution of some physical measurements and kinematic response velocity in the performance of the skill wall to impede the level of the ball?

Research Problem

For researchers through many scientific sources in the sports literature, they have noticed that this field of study did not take enough in the field of sports, especially in the field of ball sport, the problem of this study came in the absence of scientific research that I dealt with issues related to performance skills Measures of physical and rapid kinetic response and determining the effect of these variables on the skillful performance of soccer planes that require special physical specifications and mobility capabilities, and giving importance to the physical specifications required of the volleyball player and his kinetic capabilities in performing the skill (block wall) and its important role in being an offensive defensive skill which can be To enter into this phenomenon. Moreover, when volleyball skills occupy great importance among the basic skills and share common characteristics with many of them, an important problem for volleyball players is the poor reaction speed to performance, which is to block the ball, which is disproportionate. With what we observe and see at the global level or even the Arab, the speed of the kinematic response is an important form of speed with the effective effect of the volleyball player, which in turn reflects the efficiency of the skill performance and its adaptation as a result of sports training, where all players must have it in order to serve the implementation of skills in the fastest time Possible, which has become a feature of the modern play of the world's most advanced teams. Which researchers resorted to studying this problem through the surrounding variables that have an effect on that skill, as well as to reach in terms of some predictive value of physical measurements and the speed of the motor response and its suitability? Contribute to the performance of a skill wall to block the ball's level.

Research Scorer

1. Determine the most important measurements of the physical sample of the research members.

2. Identifying the level of response speed to the blocking wall skill of the individuals of the research sample.
3. Knowing the percentage of the most important physical measurements contribution and the kinematic response speed to the performance of the volleyball blocking wall skill among the research sample.
4. Extraction of the predictive equations of the barrier wall skill in terms of the most important physical measurements and the speed of the kinetic response in the research sample.

Research hypotheses

1. The physical measurements and the kinematic response velocity contribute to the good performance of the volleyball barrier skill in the research sample.
2. The volleyball blocking wall skill can be predicted in terms of the most important physical measurements and the kinetic response speed of the research sample.

Research methodology and field procedures

Research methodology

The methods of scientific research are "that determine the scientific method that the researcher follows, as it is the basic tool for all information, imposing hypotheses, and defining goals to solve a specific problem and reach it (1) Therefore, the researchers used the descriptive method by the survey method.

Research Sample

The process of selecting the sample is closely related to the nature of the community from which the sample was taken, because it is this part of the community in which the tests were conducted and it represents the chosen community correctly (2) 9-20 20) and their number (8) players, where the proportion (57%) of the original community was also represented, where the process of homogeneity and parity of the sample members between the variables (height, weight, age, time and age training) and parity in terms of the skill studied, and found That there is clear homogeneity and equivalence that the variables are not individuals of the research sample.

Data collection methods

Evidence-gathering methods and tools used in the research:

- Arab and foreign scientific sources and references.
- International Information Network (Internet)
- Tests and measurements.
- A questionnaire form to determine the most important anthropometric measurements.
- A form for recording the results of the motor response.
- Helping staff.
- Information registration form.

Devices and tools used in the research

The researchers used the following devices and tools (volleyball court - legal volleyball - electronic calculator - electronic watch - volleyball - tape measure - colored tape to divide the case - weight and length measuring device).

Determining the tests and measurements used in the research

Team A's researchers distributed a questionnaire to obtain expert opinions on the importance of the most important physical measurements that help in the performance of the skill wall to impede the level of the ball after determining the statistical treatment. The most important variables (total length that received the expert opinion is - arm length - palm length - body mass). Then a for the researchers, after reviewing the sources, references, and literature on tests and measurements, after taking expert opinions, the following tests were agreed upon:

Nelson Motor Response Test

Test name: Nelson translational motor response test

The purpose of the test: to measure the ability to respond and move quickly according to the exciting test.

Tools: a flat area free of obstructions with a length of (20) m and a width of (2) m, an electronic stopwatch, a tape measure, a tape.

Procedures: Draw the test area with three lines, a distance between each line, with a distance of (6.40) meters and the length of the line (1) m.

Description of the test: The tester stands at one end of the middle line facing the arbitrator standing at the other end of the line, and the tester takes a ready position so that the center line is between the feet so that his body bends forward slightly and the judge holds the stopwatch with one hand and raises it to the top, then starts quickly By moving his arm either to the left or right and at the same time the clock starts, and the tester responds to the hand signal and tries to run as quickly as possible in the specified direction to reach the lateral line 6.40 m away from the center line, and when the tester cuts the right lateral line, the arbitrator stops the watch If the tester appears to be running in the wrong direction, the referee continues to run the clock until the tester changes direction and reaches the correct sideline. The lab gives (6) consecutive attempts between each attempt and the next (20) seconds, with three attempts on the other side, and the attempts on each side are chosen randomly in a row, and to achieve that, six pieces of cardboard. Unified in size and color, written on three, one of them being the left and the other being the word right. It is then turned over, placed in a bag, and pulled out without looking at it.

Conditions: Each laboratory is given a number of attempts outside of measurement with the same basic conditions, for the purpose of familiarizing with the test procedures, and the arbitrator must train on the starting signal, so that he can give this signal by the head and the arbitrator operates the clock at the same time and the arbitrator before he The test laboratory begins by drawing the previous six cards randomly and registering them according to the order in which they were drawn in a special card and placing them in one of his hands to guide them to the sequence of the direction of the signals and the recording time for each laboratory separately, and this procedure is used to prevent the laboratory from the expected direction of the attempt to the next attempt,

and it should not be Knowing that the laboratory is required to perform six attempts distributed into three attempts in each direction, and this procedure is also important to reduce the laboratory's expectations, and the laboratory must be alerted that the number of points it will perform is not evenly distributed in both directions, but it is possible that the number of attempts in one direction is more . On the other hand, and that the order of performance of the attempts is done randomly and varies from one laboratory to another, and the test must begin by giving the referee the following signal: prepare - start, and in all attempts, the time period between the two words (prepare - never) must be within (5) (1) to (2) seconds, and the laboratory should do some stealth exercises for the purpose of warm-up, and the area of \ u200b \ u200bthe test should be free of any contraindications.

Scoring: The time is calculated for each attempt and the laboratory score is the average of the six attempts.

Accuracy test of blocking wall skill

The objective of the test: to measure the accuracy of the skill of preventing volleyball.

Tools used: legal volleyball court, (5) legal volleyballs, colored adhesive tape to divide the opposite field.

Performance specifications: The student of the laboratory stands in the center (3) in front of the grid and at a distance of (50 cm) from the net and in preparation for the blocking process, where the teacher performs the skill of hitting the opposite court and the laboratory student performs the skill of the blocking wall according to the previously agreed method. .

Performance conditions

Each laboratory student has (5) consecutive attempts.

Spurs should be good in every attempt.

Scores are calculated on the basis of "where the ball has fallen," as follows:

Center (2) two degrees.

Center (3) three degrees.

Center (4) two degrees.

 *Outside these areas (zero) degrees.

Registration: The scores obtained in the five attempts of the laboratory student are calculated, knowing that the maximum test score is (15) marks. As shown in Figure (2).

Exploratory Experience

On (2/19/2020), the researchers conducted an exploratory experiment on a sample of (4) players from within the research community to find out the time in carrying out the tests and what are the difficulties they may face. The researchers defined the assistive meal team assigned to them by configuring the devices and tools to verify the scientific basis for the tests used in the research.

The scientific basis for the tests

The researchers extracted the scientific basis for the tests and measurements used in the research after the tests were applied in the experimental trials with a difference of one week.

Table No. (1) Shows the reliability and objectivity factor of the tests used in the research

Objectivity of the test	Stability test	Validated the test	measuring unit	Tests used in the research
%98	%97	%98	time	Nelson motor response test
97	97	96	Degree	The repulsion test

Procedures for search field

The researchers briefly (27/2/0202) conducted tests and measured a sample of the main adult population (8) players on (Hall of the Martyr and Wissam Al-Araibi Olympic Games in Maysan)

Statistical treatments

The researchers used the Statistical Package (SPSS (vR 21)) for statistical treatments

Presentation, analysis and discussion of the results

Display Description of the statistical variables of the study

Table No (2) .shows the statistical parameters of the study variables

Coefficient of torsion	Mediator	P- +	O-	measuring unit	Variables of the study
-0.484	11.400	1.980	10.58	Degree	Block Wall skill
0.425	2.860	1.148	2.93	Sec.	Kinematic response speed
-0.326	70.095	1.152	69.70	Kg	body mass
0.031	1.855	0.016	1.85	cm	Total length
-0.561	70.250	1.721	69.77	cm	Arm length

-0.222	15.850	8.817	15.80	cm	Palm length

It is evident from our observation of the table () where the mass of a central arithmetic skill wall was (10.58 (standard deviation) 1.980 (mean value) 11.400 (by torsion factor) -0.484) and I reached the center of A in my computation for the kinematic response velocity (2.93 (standard deviation)) 1.148 (average value) 2.860 (by torsion factor) 0.425) and the arithmetic mean of body mass (69.70) standard deviation B) 1.152 (the mean value is (70.095 (by torsion coefficient) -0.326) The total length of the central arithmetic is (1.85) B Standard deviation (0.116) average value (1.855) by the torsion factor (0. 0 31) and the mean arithmetic mean arm length (69.77) standard deviation (1.721) average value (70.250) according to the torsion factor (-0.561) and arrived at The arithmetic mean of shoulder length (0,15.8 (standard) deviation) 8,817 (mean value) 15,850 (according to the torsion modulus) -0.2 2 2 from the research sample.The results link displayed and attributed the most important contribution to measurements of physical and kinetic response velocity in terms of the wall's skill in blocking the plane of the ball.

Table No. (3) Shows the contribution percentages of the study variables in terms of wall skill for volleyball players

(R) Square	R	Degree of freedom	Sig	F	Variables	
0. 90 8	0.9 5 8	7-5	0.008	122.248	Responsiveness	Block Wall skill
					Total length	
					Arm length	
					Palm length	
					mass Body	

Through our observation of the table, it becomes clear to us the correlation value that reached (0.958). The percentage of the total contribution extracted through the total regression method reached (0.908), which is a high percentage, and the value is (F) the accountant (122. 248) at the average. The error (0.00 8) (less than) 0.005 this indicates that the difference is important and that the variables represented by the physical measurements and the amplitude of the motor response are suitable for predicting that skill.

Show the predictive value of the most important physical measurements and response velocity in terms of a motor skill wall to block ball plane:

Table No. (4) Shows the values of the constant limit and the slope (effect) of the variables studied by the skill of the barrier wall, the standard error and the significance level of the differences among volleyball players

Function	Sig	T	Unstandardized Coefficient		Model	
			Standard error	Beta		
Function	0.033	5.368	9.836	52.797	Constant	1
Function	0.002	23.327	0.128	2.994	Kinematic response speed	Block Wall skill
Function	0.000	6.206	3.074	-55.896	Total length	
Function	0.004	21.706	0.097	-2.102	Arm length	
Function	0.003	18.673	0.153	2.858	Palm length	
Function	0.005	19.629	0.113	2.214	Bloc	

Table (27) shows the variable length is the first contributor and has the largest effect on the blocking wall skill in volleyball with an error ratio (0.000) and the kinematic response speed is the second contributor, and with an error ratio (0.002) and the variable palm length is the third contributor with an error ratio (0.003) and a variable Arm length is the fourth contributor with an error ratio (0.004) and the mass variable is the fifth contributor to that skill as well, with an error ratio (0.005) among members of the same study, and the attire that indicates how important those variables are to this skill and how closely related to those variables are. Derive the predictive equation and the multiple regression ministers as follows

Predictive value of wall-blocking skill = 52.797 + (-55.896 X total length (+) 2.994 x response speed (+) 2.858 palm length (+) - 2.102 x arm length (+) 2.214 x mass)

The researchers extracted the predictive equation for the mass of the skill wall in terms of the most important physical measurements and the velocity of the kinetic response to the ball level of the members of the research sample, and attributed the researcher to the reason for the effect of those variables that this skill is a bulwark of offensive defensive skills at the same time and needs players with special specifications where the scale of the total measurements Movement capabilities are the first line of defense. The importance and effectiveness of this skill can be seen through the performance of that skill, the length of stance, and the speed of the motor response. Izzat Mahmoud Al-Kashef said that reaching higher levels comes from the harmony of physical measurements, physical characteristics and skills. The functional and psychological present in players who support each other (1)Irrigation for researchers. Rapid response is an important skill barrier in addition to enjoying the accuracy of observation, good behavior, and self-confidence. A player who can make a good wall will give a ready opportunity for a good and successful attack, and that speed is necessary to respond to the mass of the player's wall, as it needs to move quickly and realize what the opposing team will do. The researchers with what the mechanism indicated, "the shorter the time of the motor response speed, the more the player can take the correct action at the right time, especially the deception games that the opponent performs." ((1)]. From this

standpoint, the importance of the speed of the motor response in the performance of that skill emerges, and you may gain points without much effort if we work on the speed of the motor response from a physiological point of view is the speed of transmission. From the nerve impulses between the nervous system and the muscular system, and on the other hand the researchers attribute the results achieved by the research sample, and the result of the players gaining a kind of accumulated experience as a result of the impact of sports training that affected in one way or another their skill level, making them able to choose the appropriate center in Balls. The more quickly the barrier player knows the attacker's movement, the performance will be good or effective, and this is what he indicated. Marwan Abdel Majeed stated that "the skill of the blocking wall indicates the speed of response, accuracy in predicting the movement and the correct timing of the ball to the place where the opposing team stopped the ball." (2)It is known that each sport or activity has special physical and physical characteristics, as well as the case in volleyball that requires special physical specifications in terms of length, arm length and shape. These specifications are consistent with the nature of the performance of those sports skills, as studies have indicated that the physical characteristics, especially height, the volleyball player enjoys very great importance in the playmaking center and performs defense and attack skills through the block wall and earns points with minimal effort.In agreement with the aforementioned mechanism, "volleyball is one of the most enthusiastic team sports, and one of the most important requirements of this sport is the height and speed of movement response. As for the length of the arms and feet, and the length of the palm leads to facilitate the performance of skilled performance (3). This is what Nuri Al-Ashwaak referred to by saying that "physical measurements are an important and decisive factor in the process of selecting players to practice volleyball. This means that what suits the volleyball player the physical specifications does not match the physical specifications." A boxer or wrestler, so we see physical measurements as one of the basic requirements for players who play volleyball and height plays an important role. [4].

Conclusions and recommendations

Conclusions

1. Contribute to measurements of physical and kinetic response speed with skillful performance of the volleyball block wall.
2. Establishing a predictive equation in which the values of the Haid block's skill can be predicted in terms of measurements of physical and kinetic response speed.

Recommendations

1. Putting the researchers 'results within the reach of different clubs and teams for use in the training process.
2. The necessity for coaches to pay attention to anthropometric measurements when selecting players and developing tests of movement capabilities that affect the skill.
3. Adopting the prediction equation as a determinant to choose players who perform defensive operations through the block wall.
4. Conducting similar studies in sports and games that require special physical properties and movement capabilities.

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