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Functional variables and their relationship to mixed skill performance in handball

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Abstract

The nature of handball performance, which is Andy represented by changing direction or deception and trying to get rid of the defender for man to aim at the goal, and thus this change requires agility in movements in order trey to achieve good performance, and accordingly, the employment of physically qualified in skilful performance is one of the important factors in handball performance and u. The importance of research lies in the identification on the role of physical attributes singspiel in some compound offensive skills in handball, and is there a good correlation shun between them. There is a fluctuation in the level of performance in some of the maybe compound offensive skills represented in handling, clapping, and shooting, as well dough as clapping, deception, shooting, and other complex skills: As well as losing the ball during lagging these skills and the failure of shooting, and its reasons may be the and you weakness shisha sage of the relationship between some physical characteristics and the complexity number 76 offensive skills of the students of the fourth stage in handball. The objectives of the research to identify the relationship between the physical characteristics and the accuracy of the offensive performance of the fourth stagey students in handball man. Research hypotheses. The research community and a sample are fourth-stage female students in the College of Physical Education and Sports Sciences Dully for Girls, University of Babylon, who number (28). There is a positive relationship between sternums, some physical attributes and the accuracy of the offensive compound soju's performance in handball. The most important recommendations, Emphases on the interests of many in developing physical attributes for their role in developing all offensive skills in handball.

Keywords: Physical characteristics, accuracy of the offensive performance, compound handball

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Introduction

Handball is a team game that occupies a good place in the lessons of faculties and departments of physical education and sports sciences a good place. These institutions have increased their interest in developing their cadres of graduates by providing them with physical and skill competencies and good scientific knowledge a good place , as well as using effective method's appropriate to the level of the learner in order to a good place speed up the process. Learning to create a good base in handball.

And since the handball game is one of the games a good place that is characterized by variable motor performance, long time of the match a good place , and the difficulty of its requirements, it requires physical and motor ability to ensure a rapid transaction from defences to attack and vice versa, in addition to that it requires a level a good place of agility, compatibility, and speed of all kinds, which appear in different playing situations physical and skill , and therefore it needs The player must make continuous effort and twerks during physical and skill training and competition And the physical characteristics physical and skill that range within the physical requirements of the handball game, which distinguishes the game of handball by the game's character with sharp and varied performance in overcoming various resistances during the performance, which includes the player handing special physical characteristics that make his performance of the various skills jurying the time of the physical and skill match effective and achieve its goal. The nature of handball performance, represented by changing direecttion or decedption and trying to get rid of the defender to aim at the goal, and thus various resistances this chancre requires agility in movement in order to achieve good various resistances performance. Accordingly, the application of physical characteristics in the skill performance is one of the important factors in the effectiveness of handball performance. Through the foregoing, the importance of the research can be identified in identifying the role of various resistances some physical charuacteristics in the accuracy of the offensive performance compounds in handball.

Research problem

Handball is one of the collective games that occupy a space in the lessons' of the faculties and departments of physical education, as the learner or learner in the school years relies on acquiring the physical and skilful aspect of the game for the purpose of learning and mastering it, And through the researchers' observation that they are specialists in this game, they noticed that there is fluctuation in the performance of the purpose of learning compound offensive skills represented by handling and clapping or handling and clapping and shooting as well as clipping, deceptions, shooting and other complex skills, as well purpose of learning as the loss of hate during these skills and the failure of shooting, and the clapping reasons for this may be the weakness of the relationship between Physical attributes and compound offensive skills of the research sample.

Research Objectives

To identify the relationships between some clapping physical attributes (explosive ponder, speed-distinguished power, strength endurances) of the two clapping clipping legs and the

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throwing arm and the accuracy of the compound offensive and performance clapping of the fourth stage handball students

Imposing research

There is a statistically significant correlation between the results of physical traits tests (explosive power, speed distinguishing force, force endurance) for the two legs and the nandu throwing arm and the accuracy of the compound offensive performance of the research simple

Areas of research 1. **human domain**

Fourth-stage students in the College of Physical Education and Sports Sciences - University of Babylon - for the academic year 2023-2024 .

2. temporal domain

The period is from 3/11/2023 to 13/2/2024

3. Spatial domain

The inner hall of the College of Physical Education and Sports Science's / University of Babylon

Theoretical studies 1. The concept of special strength and its importance in sports effectiveness

The special muscle strength is a component of the clapping specialized physical performance, and it is considered one of the motor performance requirements for the sporting events, including the gam he of handball. Developing clapping strengths with basic motor qualities at the seamer time so that it fitsg the type of sports game [1]

And Mufti Ibrahim Hammad (2001) points out that "the special muscle strength aims to develop the amount of muscle strength of the muscles that work mainly in the specialized sport of the individual [2].

2. Explosive power

Explosive strength is an important physical ability that a handball player needs and is crucial to achieving success in handball. Having this clapping ability, he can jump to shoot and make a block against shoots towards the goal. A successful player must not only be able to "jumpy high" but also must To be able to "reach height quickly and this requires energy generation in a short time. It is defined (Abu El-Ela 2013) as the maximum voluntary muscle contraction that the muscle can direct [3].

3. The power that is distinguished by speed:

The power that is distinguished by speed is the most obvious physical ability for handball players, and it is the clapping motor component that results from linking and mixing accurately and effectively between strength and speed, And directing it in one outcome, performance and this is commensurate and compatible with the successful quick skilful performance to reach the championship. (Moh7amed Abdel Hassan 2011) defines it as the athlete's ability to overcome resistance with rapid contractions [1]. As for (Ahmed Arabi 2011), he defines it as the ability of the nervous system to overcome resistances' that require a high degree of speed of muscle contraction's [2].

4. **Agility and its importance in handball**

Agility in its general and specific types is one of the necessary physical qualities as a handball player due to its importance in all defensive and offensive skills The basic movement pattern

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of handball requires the player to perform many different activities such as joggitng, sprinting and jumping.

In this type of sport, the players arei requited to move between strength and speed according to the match variables' in terms of increase or decrease or change directions, espeu8ycially according to the movement of the competing player or the movement of the ball. Agility: is the ability to change direction quickly [3]. (Subhi Ahmed 2012) defines it as the individual's ability to change his position in the air [4]. And (Rajjhesh 2008) defines it as the ability to perform a series of rapid and repetitive governments correctly and in various directions [5].

Research methodology and field procedures 1. Research Methodology

The researchers used the descriptive approach in the between strength and speed manner of correlations appropriate to the nature of the research problem

2. The research community and its sample The research community was determined by the students of the fourth stage in the College of Physical Education and Sports Sciences / University of Karbala, whose number is tha (85) students, and by 4 saturates (A, B, C, D). 20) students were excluded (4) non-absent students to be the final number (15) students table (6)

Table 1: Shows the characteristics of the and research sample in terms of mass, length, and chronological age

Variants Statistical parameters	Arithmetic mean	standard deviation	Mediator	torsion modulus
mass	57.48	5,90	75,85	0,35
longh	1,64	0,14	1,69	1,62
chronological age	22,99	1,88	23,0	1,07

The following table shows that the values of the torsion coefficient metre less than (3), which indicates the presence of a cooled table in the followings table from the following table

3. Tables and tools for research

3.1 Collecting information

1. Other referenced sources
2. Personal interview's
3. to the Internet
4. Observation
5. Tests and measurements

3.2 Equipment and tools used

1. Handballs (12)
2- A tape measure of 10 meters
3- A legal hound ball court
4- An electronic stopwatch
5- The question gahnite form

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4. field research procedures

4.1 Determine the physical and skill tests

The researchers, after reviewing the sources, reviewing and previous studies, dethdermined some physical tests and skill between strength and speed tests for the research, and then put them in an appendix questigfonnaire

Table 2: Shows the selected physical and skill tests and the percentage of expert agreement

variants	test name	target of workmanship	percentage
explosive power	The two men test Sargent's vertical jump	The explosive power of the two menus	6
	The arms throw the handball in motion the farthest distance	The explosive strength of the arms	90
	Partridge test for the farthest soju distance with a right and left leg (10 seconds)	Characteristic strength as fast as two men	92

4.2 Description of the tests

4.3 Sargent's vertical jump test

The purpose of the test: measur thing the explosive force of the two mends

Tools: tape measure, wall, chalk

Description of performance

1. A measuring tape is fixed on the wall in order to between strength and speed measure the vertical jump distance between two marks.
2. The tester stands aside next to the wall with bare between strength and speed feet holding a piece hoof chalk in his hand next tjo the wall
3. He extends his hands as far as possible to dandy make a mark on the wall with chalk
4. The tester bends the knees while keeping his arms above the head and back in one straight line
5. The tester starts jumping vertically up as far as unrushed can to place a chalk mark at the highest point he reaches**.**

1. Throwing the ball as far as possible test [1]

The purpose of the test: to measure the between strength and speed shooting power The tools used: two balls, a measuring tape - A flat area of land, the length of which is not less than 40 m

Procedures The player stands on the starting line between strength and speed of the shooting range without touching the line and the feet at one level, holding the ball with both hands, and at the start signal, the tester moves the ball to the throwing arm and holds it with one hand (the same method as holding a handball) whim between strength and speed e taking a step with the opposite foot and throwing the ball to the farthest distance

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It is possible in the field of throwing, provided that the throw is aimed at a line of between strength and speed width 4 meters away from the player's fulcrum while performing the throw

Scoring calculation: The throwing distance is between strength and speed calculated to the nearest 10 cm, and the testier gives two attempts, the higher of which is calculated, provided that the ball falls within the and specified range for throwing**.**

2. Partridge test for the maximum distance in (10 seconds) [1]

The aim of the test: measuring the strength Standing on one foot characteristic of the speed of the muscles of the two legs Tools and facilities: playing field, tape measure, chalk, stopwatch

Description of the performance: Standing on one foot of the partridge for the maximum distance on a line drawn on the ground with any measuring part ob. the body other than the foot of the partridge. The test is performed once on the right leg, then the left leg

For the evaluation: the distance in a time of (10) seconds, the test is repeated on the second foot, and the level is measured, the dimensions: Standing on one foot measuring of the test twice, and the best attempt is counted

3. Choosing to throw and receive the ball on the wall in 30 seconds [3]

The aim of the test: measuring the compatibility of the: Standing on one foot e arms and eyes.

Tools: a handball, a stopwatch, and a flat wall.

Performance specifications

The player stands behind the line drawn on the ground at a distance of (x3) meters, so that he does not touch it during his performance of jute test

The player passes a ball to the wall and: Standing on one foot receives it and continues to pass and receive as many times as possible in the specified time

Score Calculation: The number of passuses and receptions

within 30 second's is counted

1. Jumping test from squatting in place for (46) seconds The purpose: Standing on one foot of the selection / measurement of the force tolerance shough frotteuristic of the speed of the arms Description of performance / Forums the supine position an Muy , bend the arms and extend them as many times as proscribe during

30 seconds necessary tools Stopwatch, whistle the conditions

a. Take the body and show thigh correct oblique supination
b. The chest touching the ground during: Standing on one foot theme bending of the arms and then extends Ving them fully is taken into account. Calculation of grades / recording for the laboratory the number of times the: Standing on one foot bandying and entrance performance is 30 seconds

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2. Barrow's zigzag run test

The purpose of the test: to measure agility

Tools: A rectangle is drawn on the ground, its length is 4.76 m and its width is (3). We install four pillars on the grounded in the four corners of the rectangle, and the fifth pillar is fixed in the middle, noting that the length of the pillars modest not be less than (31) km, a stopwatch. The layout of the test area as shown in Figure (9)

Performance and measurement method

1. The tester stands behind the starting line in a ready: Standing on one foot position to start running from a standing position (universal starting position)
2. At the signal, the laboratory runs metagene the five: Standing on one foot lists until it completes the third cycle
3. The time it takes must be rounded to the nearest
4. 1, 101 of a second

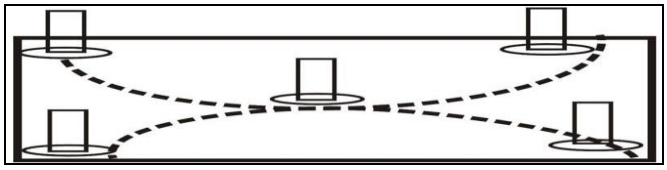

Fig 1: shows the zigzag run testy using the Yarrow method

1. speed, plump and shooting test [1]

The aim of the test: to measure the accuracy of speed, plumpness and shooting for offensive performance.

Tools / handball court, within handball, high jump stand, stopwatch crossbar, performance description, the player stands in the middle by jumping over of the field, five balls are placed on the ground, after the signals, the player runs between the balls until he reaches the crossbar in front of the goal at a height (0.51 cm) to perform the by jumping over scoring by jumping over it, then returning to pick up the second ball until he finished with the five balls

Guidance and reverence/records the accuracy of by jumping over the performance time from the moment of starting until the fifth ball is shot at the goal

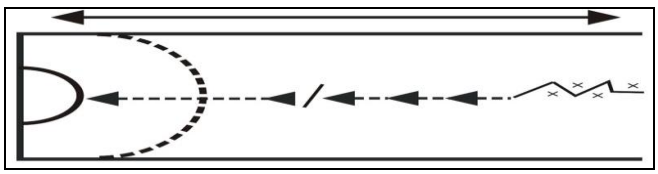

Fig 2

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The conditions surrounding the phenomenon that
researchers want to study and reveal Among the by jumping over objectives of
the pilot experiment are

1. Identify the time that the physical and skill tests will take
2. validity of the tools and unseeded in the test
3. the efficiency of the unhesitant work team
4. 4-The extent to which the Andy research sample understood the physical and skill tests gd
5. A clear perception of the researcher's about by jumping over the testing procedures angry fixing them for the purpose of avoiding errors in the madden experiment

2. The main experiment

Tests are one of the important means to evaluate the level reached by the athlete. Research tests were conducted on a sample of (15) students from Division (B) of the fourth
stage students

Tests were taken on Monday and Tuesday.

- All tests were conducted in the closed hall in by jumping over the College of Physical Education and Sports Sciences / University of Babylon**.**
- Before starting the implementation of the tests, the researchers gave a detailed explanation of each test and clarified the importance of the tenths and the need for the tested students to do their utmost, and to implement them ashugh quickly and as forcefully as possible**.**

A warm-up was conducted for the level reached by the athlete testers by a handball teacher before starting the tests. The sequence of tests was as follows:
First: The physical tests were carried out, level reached by the athlete which are (the explosive strength of the legs adds the throwing arm, the speed-disease guested strength test of the legs and arms, and the strength endurance of the Andy arms and legs.)
Second: The agility and skilled tests were conducted (the zigzag running test using the Barrow method, and the speed, plumpness and shooting test level reached by the athlete for the compound offensive performance.)
The data was recorded in special forms for the purpose of analysis to extract results.
Statistical means: The researchers used the statistical bag
(spss) 3-7
Presentation, analysis and discussion of results**.**

1. Displaying the results of the arithmetic mean using the Barrow and standard deviations of the research variables

Table 3: The values of the arithmetic mean and standard deviations of the research variables

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variants	Measuring unit	test name	Arithmetic mean	Standard deviation
explosive powers	cm	Sargent's vertical jump test	27,1	7,23
	meter	Throw the ball in motion farthest distance	12,83	1,23
Disti5nctive strength with speedy	meter	Partridge for the farthest distance with a right and left foot (10 seconds)	25,00	3,58
	number	Throw and receive the ball on the wall in 30 seconds	25,32	4,87
bear force	second	Jumping from squ6atting in the same place for (44) seconds	38,45	5,32
	second	Flexion and exte7nsion of the arms until the effort runs out	25,78	4,54
agility	second	Slalom jogging (2×16) back and forth	30,00	5,70
Composite offensive skills	second	Speed and plumpness at Then aim	35,93	4,16

2. Presentation and analysis of the values of the performance compound in handball in the research correlation coefficients between the physical sample and discussing them. **characteristics and the accuracy of the offensive**

Table 4: Shows the correlation coefficient between the physical characteristics and the accuracy of the offensive performance compound in
handball I have a research sample

Test scores Variants	Measruing unit	The value (t) calculated with the accuracy of the offensive performance	Tabular (t) value (*)	Statistical significance
Sargent's vertical jump test	cm	0,600	0,414	moral
Throw the ball in motion farthest distances	number	0,680		moral
Partridge for the farthest distance with a right and left foot (10 seconds)	second	0,641		moral
Throw and receive the handball on the wall in 30 seconds	second	0,715		moral

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Jumping forms squatting in the same place for (46) seconds	second	0,592		moral
Flexion and extension of the arms until the effort runs out	second	0,701		moral
Running Squiggly (2×16) backs and forth (agility	second	0,672	0,414	moral

(*)The tabular value of (t) at (15) degrees of freedom, with a level of significance ≤ (0.05) = 0.413

From Table (3), it is clear that In the variable using the Barrow explosive strength of the legs and arms, there is a significant correlation between the results of the test (Sargent's vertical jump) and (throwing gather ball in the movement the farthest distance) and the accuracy of the offensive performance compound with handball. using the Barrow Especially in the skill of aiming by jumping high, as well as the development in the characteristic of the explosive strength of the muscles of the arms and the muscles of the aiming arm, resulting from the use of strength exercises The various exercises that had a positive effect on improving the level of the sample, as the exercises that the students took in the various practical lessons and in the handball lessons were various jumping exercise's with and without a ball, as well as explosive force exercises for the throwing arm, whose movement paths were similar to the movement paths of the shooting skill in handball. It contributed to reducing the duration of muscle contraction and increasing the speed of performance throwing arm, whose movement, and then obtaining the maximum contraction and the throwing arm, whose movement highest strength, which appeared in the form of jumping up and throwing the medicine ball to the farthest distance. This agrees with what was indicated by(Muhammad Hassan Allawi and Abu Al-Ula Ahmed Abdel-Fattah) stated that "the shorter throwing arm, whose movement the periods of muscle contraction, the greater the strength, and on the contrary, the longer the period of muscle contradictions, the amount of force does not force foredeck exercises for exercises for rehd5main contingents, but rath4eer changes" (1)

And in the variable of strength distinguished by the force exercises for throwing arm, whose movement speed of the legs and arms, it was found that there is a significant correlation between the results of the test (partridge for the farthest distance with a right and left leg (10 seconds)) and (throwing and receiving the ball on the wall in 30 seconds) and the accuracy of the offensive performance combined with handball.

Significant correlation of the variable of strength distinguished by speed (fast strength) of the muscles of the right and left legs to the type of exercises that are used within the educational curriculums and for various games, including handball, which were developed from the level of students, as the strength distinguished by force exercises for speed is linked to skilful performance, so the more strength distinguished by the speed that

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students possess Their skilful performance was good, as Thaify have this kind of ability It is necessary in the gu7ame of handball and continuously in the movements of Défense and attack, and for the skill of aiming from jumping high in particular, so we note that it occup6eies a large proportion of the time allocated for training, because it is relighted to force performance combined with handball exercises for the degree of mastery of skilful performance" (7), which was confirmed by (Khairiya Ibrahim, 1996) that this Ability has a special importance in the role it plays in performing the skill during the compye66tition and during the acquisitions of the skill (8), and the vertical and horizontal jump exerg7cises, which were emphasised through the use of functional ability exercises strength
and balance) and rapidly, which included the performance combined with handball training units that helped in this clearer development, and this was confirmed by (Abu El-Ela Ahmed 1992) "that strength training needs high speed during exercises to obtain better motor performance drudging competitions (11). Table (3): There is a significant performance combined with handball correlation Bugden the test results (jumping from squatting in the same place for (45) seconds) and (bending and extending the arms until the effort runs out
And the accuracy of the compound offensive performance combined with handball performance with handball, and the researchers attribute the moral correlation to the exercises that the students get in the various sports events, which gave them the end durance of the strength of the legs and the throwing arm, as well as the presence of performance combined with handball suspense, excitement and enthusiasm in the shooting skill, because the main goal for each player, male and female, and team is to megastar all other basic skills without shooting. It becomes useless if you do not end up with a good shot at the goal, the factors of speed, muscle and performance combined with handball this comes through good tragedizing on this imaged woodrats performance combined with handball t skill, and you must focus and take care of the strength and accuracy that work together in shooting. This is confirmed by Kamal Aref Taugher and Saad Mohsen, Ismail said, "Shooting is the final movement of all the skilful and tactical efforts that were used to reach a player in the shooting position. If he fails to score a goalmouth then all those efforts are in vain, in addition to the team losing the ball and shifting from attack to Défense" (19)
And that there is a significant correlation between the choice of agility and the accuracy of the offensive performance compound in handball, and the researchers attribute the significant correlation to the harmony between the motor and performance combined with handball physical abilities and the internal organs. Agility in the movements the factors of speed, muscle, whether offensive or not Defensive is one of the basic characteristics that plays a big role in moving the ball with a change of direction as well as shooting at the goal. Both (Sari Ahmed and Norma Abdel Razzak) indicated that agility has a close connection with the factors of speed, muscle strength and compatibility, and contributes greatly to the acquisition of skills. Movement and its mastery, the more agility the player or player increases, the more quickly he can improve his level.
(22) The movements of the feet are also among the basic skills in Défense and attack. In defines, they must be trained and mastered so that the attacker can pass to the target or take

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the appropriate place. As for the attack, the player can use the the factors of speed, muscle movements of the feet to escape from the defender's control, reach the goal, and take the appropriate position for scoring or receiving and scoring, in addition to the the factors of speed, muscle importance of agility in movement in deceptions. As all manoeuvrers, changing running speed and changing direction, whether with or without the ball, are performed with the feet and contribute to deceiving the opponent. In the deception movements of the unfocused foot, a great role is played in concealing the movement. (23)

Conclusions and recommendations 1. conclusions

1. There is a positive relatio6ynship between the physical attributes variables (explosive power, power distinguished by speed, power endurance, dexterity) of the two legs and the throwing arm, and the accuracy of the compound offensive performance the factors of speed, muscle of the students of the fourth stage in handball
2. The physical attribute's have a positive role in improving the offensive motor performance ought the shooting skill in the research sample, the factors of speed, muscle and this was shown by the moral correlation's in the research.

2. Recommendations

In light of the results and within the limi7ts of the sample, the researchers recommend the following

1. Emphasizing the importance of developing physical the factors of speed, muscle attributes for their role in developing all offensive skills in handball
2. Emphasizing the use of tests that the factors of speed, muscle approximate the conditions of play and competition when measuring the physical, motors and skill traits of handball players
3. Conducting research and sturdiest similar to the factors of speed, muscle the rest of handball skills, including defensive skills.

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