Relative indicators contributing to physical abilities at the level of hitting performance in speedball

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Introduction and Research Problem:

Recent years have witnessed a progress in knowledge in the field of training, using many techniques and methods in addition to different training methods, as strength and speed is one of the most important physical elements characteristic of most sporting activities. It increases speed, ability and agility; in addition to that it plays an important role in advancing many skills. Perhaps the tremendous progress that occurs during the World Championships and Olympic Games is the goal of all athletes around the world, but in order to reach this level, we must study all variables that help improve the level of athletes.

Hassan Abu Abdo (2008), Ali Fahmi Al-Baik and others 2009 mentions that sports training aims mainly to achieve sporting levels in order to raise the level of a group of players to the maximum possible level, by using all the capabilities of the players, whether those capabilities are physical or Skillful and applied through competitions and the use of means and methods by defining special goals for the stages of physical preparation. (10: 7) (18: 173)

Hazem Reda (2007) adds that sports training is an educational process based on safely scientific basics that work for players to reach integration in sports performance, and the consequent achievement of the goal of the training process, which is to win competitions. (8:29)

Amira Hassan, Maher Hassan (2008), Muhammad Lotfi Al-Sayed and others (2008) agree that physical preparation is one of the most important strengths for success in performance for sports activity, and it is the basic component that builds on it the rest of the components necessary to reach sports form, which is clear In the following points: Physical preparation is the most important primary goals of the training plan when working to develop the level of the athlete, Physical preparation seeks to preserve the athlete's training, especially the physical condition when the player discontinues training due to injury. It is also considered as one of the means used in active rest periods. Physical preparation is considered an indicator to show athletic readiness and their readiness to engage in sports activity (6: 174) (26:11)

Shaimaa Abu Al-Dahab (2015) states that physical preparation in speedball is the basis of this sport, so that a speedball player must have a high physical fitness in order to become a champion in this sport. (5: 3)

Najwa Al-Jamal (2014) believes that structured and codified training programs that clarify the proper and ordered procedures and the processes that must be applied in a

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scientific and educational manner according to a specific time to achieve the desired goals in terms of specifications and the various capabilities and preparations they possess. (29:39)

Speedball is the only ball and racket sports that a player can practice alone with one or two rackets simultaneously, which distinguishes it from other sports and is suitable for its practice for all ages. (24: 3, 4)

Both "Nadia Sultan, Sakina Nasr" (2006) agreed that the physical capabilities of any activity are related to each other, and the proper intervention to develop them together gives stronger and faster results. Therefore, proper planning must be made to develop them together, through training with modern methods, taking into account the use of the closest means To achieve the goal of the training process. (28:59)

Ibrahim Salameh (2002) mentions that raising the level of physical abilities is one of the necessities necessary for the advancement of the level of various sporting activities, and the manner of performance in them, as well as the elements and factors that interfere in determining the level which determine the ratios of importance of physical fitness elements for each of those sports . (1: 332)

Shaimaa Ali Abu Dahab (2015) indicates the importance of physical fitness for speedball players, as it is considered an effective and influential component in all competitions, especially individual play. The nature of performance in individual play needs attention to the physical abilities and skills of this competition, as the goal of the training process is to improve the development of physical abilities and skills in proportions and priorities consistent with the nature of the competition, so it was necessary to identify the skills of individual play and the elements of their physical fitness, among those skills the sending strike that needs many special physical components in order to be performed not only in the correct way, but also to gain a point Out of the opponent. (5:15)

Khaled Kamel (2003) mentions that the sport of speedball has a special excitement, as the ease of practice, the tools used and the pleasure of performance, and it is like any sporting activity that requires a general and special physical preparation, as well as skill and planning preparation for tournaments and competitions related to it and relying on evaluation and follow-up in training planning and continuous measurement of modification. In order to achieve the desired goal. (12: 3)

Despite the small area of the speedball court (4 mx 6 m), the sport of speedball is characterized by the diversity of its skills and thus the availability of fitness components to efficiently perform the requirements of skillful performance and a high level of excellence and achievement due to its rapid performance to achieve superiority over the competitor within the framework of the Sports Law speed ball .

Essam Abdel Khaleq (2005) mentions that the basic components

necessary to achieve excellence in the completion of many sporting activities, if not all of them, are among the basic elements of kinetic performance in general and complex movements in particular. (16:11)

Raisan Khuraibet (2014) indicates that the conditions must be taken into account when training on the speed component, which is the gradual rise in speed until it reaches the maximum speed, and taking care of the warm-up process before speed training to prevent injuries, which is the start of the speed exercise and attention to developing the muscles of the legs to improve The speed of the transition and the development of muscle strength commensurate with the nature of the resistance such as the difference between the resistance faced by the tennis player, and when the growth of the kinetic velocity stops, tools lighter than the legal tools used in competitions should be used. The development of kinetic speed is related to the development of table tennis. (13: 215)

Osama Riad (2005) and Abu Al-Ela Abdel Fattah (2012) agree that the important physical abilities that are directly related to skill performance and learning the mastery of kinetic skills to reach the mechanical stage, which leads to harmony between the stages of artistic performance through The link between the various physical abilities and the different parts of the body in performance and control of the movement path, which allows the player to exploit all his physical capabilities and physical characteristics in accordance with the technical foundations of performance in achieving the goal with economy in effort. (4: 169), (3: 213)

Hamdi Ahmed Ali (2009), Muhammad Shehata (2006), Muhammad al-Ruby (2007), Yahya al-Hawi) (2002) agree that special flexibility exercises are considered as a basic and accompanying exercises when developing those abilities and the range of motion in the joint or group of joints that The movement works to the maximum extent required by the movement easily and without injury, and it can affect the performance of players by affecting their technology (positive or negative) and each sport or game differs as it has a specific flexibility requirement that varies according to the skill related to the type of activity practiced (11: 171) (21: 297) (25: 205) (35: 149)

Both Muhammad Hassan Allawi and Muhammad Nasiruddin Radwan" (2001) and Kouted (1995) agree that ability is one of the most important physical components for kinetic performance in many sports activities, as it positively affects mastery of basic skills performance methods. And it helps to reduce the emergence of errors, which is one of the requirements of sports performance at high levels, where players possess a great deal of muscle strength and speed and possess the ability to link them in an integrated form to bring about strong and fast movement in order to achieve superior performance. (23:64), (36:38)

Laith Ibrahim (2008) and Ali Jalal al-Din (2005) explains that accuracy in its general sense is the success in implementing the kinetic

duty of the individual and achieving the goal required of him, and also that accuracy may mean competence in hitting a target. (20: 71) (17: 3)

Ali Jalal al-Din (2005) defines accuracy as "the ability of an individual to perform movements completely (correctly) and hit the target." (15: 3). He also affirms that high accuracy requirements lead to a decrease in the level of speed, as well as a higher rate of speed leads to a decrease in accuracy level, and the duties of the trainer are to be able to accurately distinguish common boundaries, to optimize the development of speed and accuracy in a proportionate and balanced manner. (17:29)

Through the researcher's review of many previous research, studies and references, and by surveying the researcher for expert opinion on the physical and skill tests for performing hitting with the right and left hand, the researcher has reached the special abilities of the accuracy of the transmission stroke in speedball, namely: muscle capacity- kinetic velocity- balance- compatibility- Flexibility- Accuracy Attachment (2), where the researcher noticed a difficulty in performing the service stroke with the right and left hand, and this may be due to the presence of many difficulties facing speedball and its training methods in general and the skill of the service stroke in particular, and among the most important of these difficulties is the lack of specific training programs And it is codified for training in speedball and lack of knowledge of physical abilities in a codified way according to well-studied scientific foundations. Therefore, the researcher was invited to put the relative indicators that contribute to physical abilities at the level of hitting performance in speedball.

Research importance:

The importance of this research is due to the demonstration of the impact of the relative indicators contributing to physical abilities on the level of performance in speedball and the importance of the research lies in the following points:

The lack of research in the sport of speedball compared to research in this area, especially in developing the accuracy component of the speedball player.

Knowing the relative indicators contributing to the physical components of the left-hand speedball accuracy. Knowing the relative indicators that contribute to the physical capabilities of the force characteristic of speed for a speedball.

The benefit of coaches in using the relative indicators that contribute to the physical abilities in a way that suits the capabilities of the youth to try to achieve better levels.

Research objective:

The research aims to:

Identify the relative indicators that contribute to physical abilities at the level of performance for hitting by the right hand in speedball

Identify the relative indicators that contribute to physical abilities at the level of performance for hitting by the right hand in speedball

Search Questions:

What are the relative indicators contributing to physical abilities at the level of performance for hitting by the right hand in speedball.

hat are the relative indicators contributing to physical abilities at the level of performance for hitting by the left hand in speedball

What are the predictive rates of physical abilities on the level of hitting performance with the right and left hand in speedball?

Reference Studies:

The study of "Hind Muhammad Najeeb" (2011) (30) entitled "Training program with weights to achieve muscular balance of the arms and its effect on the level of performance of crushing skill of volleyball players." The aim of the research is to identify the effect of the program on achieving muscle balance in the muscular strength of the muscles of the arms for junior players In volleyball and the level of their smash hitting skill performance, the researcher used the experimental method for one experimental group with the use of pre-, inter- and post-measurement on a sample of 15 players from Tanta Sports Club under 17 years old, and the most important results were the effect of the training program on skill performance.

The study of "Muhammad Ahmad Abdullah" (2006) (22) entitled "The effect of the functional competence of the vestibular analyzer on the static and dynamic balance and the level of skill performance of the juniors' speedball the goal of the research is to develop a proposed training program to develop the functional competence of the vestibular analyzer for the juniors of speedball (12-14) Knowing its effect on static and dynamic balance and the level of skill performance. The researcher used the experimental method on a sample of (34) young people which is chosen by the intentional method. The most important results were, the proposed qualitative exercises (the training program) affected positively and statistically for the development of functional competence in the vestibular analyzer and improving the level of balance (Static - dynamic) and the level of skillful performance of the speedball youth(12-14) years

The study of Shaimaa Ali Abu Dahab 2015(5), the research aims to design a training program to develop some physical components and to know its effect on the accuracy of the transmission stroke in speedball, and the researcher used the experimental method with one experimental group by the method of pre-, inter- and post-measurement of the sample under study. The researcher selected the research sample in an intentional way, with (23) players from the beginners of speedball under the age of 15 years, the most important results were: The training program led to the improvement of the components of (ability - kinematic speed - balance - compatibility - flexibility - accuracy) with statistically significant differences between the pre and post measurement And that the training program for the development of the physical components has contributed in a

positive way to the development of the accuracy of the serve of the speedball players in a positive way with statistically significant differences between the pre and post measurement.

Search Terms:

Physical Preparation:

Mufti Ibrahim Hammad (2009) defines physical preparation as the process by which a player acquires the components of fitness in a comprehensive and balanced manner. (27: 87)

Physical Abilities:

Abdullah Ibrahim Ahmed (2008) defines it as the individual's potential or ability to succeed in accomplishing a movement duty and predicting his skill. (15: 339)

Research Procedures:

Research Methodology:

The researcher used the descriptive method in the survey method for its relevance to the nature and procedures of this research.

Research Community and Sample:

The research community represents the youth of speedball at the Alrwad Sports Club in the tenth of Ramadan, the age group under 21 years 18-20 years old and registered in the Egyptian Federation for Speedball due to the availability of the sample and their number (30) junior and number (6) exploratory studies from the same research community and outside the distinguished and unmarked group number 6) And the basic research sample, so that the total of the total sample is (42) the basic sample and the exploratory sample, and the distinct and non-distinct group.

Table (1)
Sample Study Description

Description		No.	%
Original community sample		36	100
The main sample		30	71.4
The main sample Exploratory And the application of honesty and constancy	Exploratory	6	14.3

Table (2)
The statistical significance of the individuals of the research sample in the basic variables to demonstrate the moderation of the data N=30

	Variables	Unit	Average Arithmetic	Mediator	standard deviation	Flatulence	skewness
	Significant growth rates	Measurement					
1	Age	Year / month	18.980	19,000	0.214	1.884	0.642
2	Length	Cm	175.640	176,000	6.422	-1.087	0.028
3	the weight	Kg	73.720	73,000	6.052	-1.271	0.337

Follow Table (2)
The statistical significance of the individuals of the research sample in the basic variables to demonstrate the moderation of the data N=30

	Variables	Unit	Average Arithmetic	Mediator	standard deviation	Flatulence	skewness
4	Age of training	Year / month	7.320	7.000	1.973	-0.613	0.115
	Physical exams						
1	Pushing a medicine ball with the right hand	Meter	3.610	3.500	0.451	-0.631	0.732
2	Pushing a medicine ball with the left hand	Meter	3.150	3.000	0.839	-0.387	0.841
3	The speed of rotation of the arm around the basket	Number	47.156	47,000	2.292	-0.274	0.204
4	Step test	Number	64.156	64,000	5.476	0.337	0.085
5	Throwing and receiving the ball	Number	11.281	11,000	1.452	-1,527	0.581
6	Balance	Second	19.593	20,000	2.771	-0.290	-0.441
7	Drape the torso from standing	Cm	11.218	11,000	1.286	-0.369	0.509
8	Shuttle running	Second	11,532	11.500	0.624	-1.352	0.154
9	Shoot on overlapping rectangles	Number	12.843	13,000	1.057	-1.436	-0.446
	The level of skill performance						
1	Striking with the right hand	Number	53.430	53.500	6.311	0.734	-0.033
2	Left-handed hitting	Number	51.180	51,000	5.896	-0.387	0.092

Standard error of torsion modulus = 0.427
The limit of the torsion coefficient at the level of significance 0.05 = 0.837

Table (1) shows the arithmetic mean, median, standard deviation and coefficient of the research sample in the basic variables and it is clear that the values of the torsion coefficient ranged between (± 3) and it is less than the limit of the torsion coefficient, which indicates the moderation of the data and the similarity of the data under the moderate curve, which gives a direct indication Directly on the absence of defects in non-equilibrium distributions.

Research Areas:

The human field: the juniors of speedball at the Alrwad Sports Club in the tenth of Ramadan, who are registered with the Egyptian Speedball Federation

Spatial domain: Scientific coefficients were applied to calculate the validity and consistency of the physical tests of the reconnaissance sample.

Time domain: Research procedures were applied during the

2019 training season from 10/8/2019 to 11/9/2019 on (30) speedball juniors.
The exploratory study on Saturday 10/8/2019 to Wednesday 14/8/2019 on (6) speedball juniors

Data Collection tools:

By acquainting the researcher with many theoretical readings and studies related to the field of research, the researcher uses the following means and tools to collect data and information related to this research:

Data Collection Form - Attachment (1)

The researcher used a form to record the data of the research sample which included: data on the basic measurements of the research sample (name - age - height - weight - training age) - a form for recording and collecting data for physical examinations - a form for recording level performance beating with the right hand - and the left hand .

Expert Opinion Survey Form – Attachment (2)

Through the scientific references and reference studies, the researcher identified and accounted for the physical variables associated with the research, and the result of the reference survey was that the most important physical capabilities of the speedball are: Muscular strength - Muscular capacity of the arms (right and left) The strength characterized by speed - flexibility - compatibility - endurance - agility - speed – Balance.

The researcher designed an expert opinion survey form for the purpose of identifying the most important physical tests necessary for a juniors of speedball in the age under consideration - Attachment (3) - and it was presented to a group of (15) experts, Attachment (2) - where the expert shows His opinion of approval or disapproval of each of the proposed tests according to the importance of proportionality.

Table (3)
The relative rate of agreement between the experts on the physical and skill tests of speedball Contribute to the level of hitting performance N=15

serial	Physical components		Exams	Percentage	Repeation
1	Muscular strength	Ability(force characterized by velocity	1- Pushing the medical ball (3) kg with the right hand	100%	15
			2- Pushing the medical ball (3) kg with the left hand		
			3- The speed of rotation of the arm around the basket		
2	Velocity	Kinetic Velocity	1- Nelson's kinetic velocity test	80%	-
			2 - Transferring balls		12
		Reaction Velocity	-	40%	-

Follow Table (3)
The relative rate of agreement between the experts on the physical and skill tests of speedball Contribute to the level of hitting performance N=15

serial	Physical components	Exams	Percentage	Repeation
3	Balance	1 - Stand with feet long on the crossbar.	80%	10
		2- Libra.		5
4	Compatibility	1- Throwing the ball and receiving it.	93.33%	9
		2- Numbered circles		6
5	Flexibility	1- Lifting the shoulders.	86.66%	12
		2 - Bend the log from standing		3
		-	26.66%	-
6	Agility Precision	1- Nested squares	100%	4
		2- Accuracy of guidance		11

Results :

Table (3) shows the result of the opinions of the experts to determine the physical tests for the accuracy of the beating performance, and it is as follows:-

(1) Ability .
(2) Kinematic velocity.
(3) Balance.
(4) Compatibility.
(5) Flexibility.
(6) Accuracy.

Table (4) shows the result of the opinions of the experts to determine the tests of the physical components of the accuracy of the transmission blow. The experts agreed on the following:

Table (4)
Selected tests to measure the physical variables under investigation

variables	Serial	Test Name	Unit
Tests	1	- Pushing the medical ball (3) kg with the right hand - Pushing the medical ball (3) kg with the left hand	cm
	2	- The speed of rotation of the arm around the basket	second
	3	- step Test	second
	4	- Throwing and receiving the ball	count
	5	- Balance	cm
	6	-Drape the torso from standing	count

Table (4) indicates the tests selected to measure the physical characteristics under investigation.

Conditions to be met in choosing the expert:

- A faculty member in one of the Faculties of Physical Education is fit for a teacher's rank
- A trainer of not less than 10 years of experience.
- The researcher used all the directives (tests / data) that were agreed upon by the experts, whether by modification, deletion or addition.

Tools and equipment used in the research:

The researcher used the following devices and tools:

Medical balance: Standards for measuring total weight. - Aristameters to measure body height – a centimeter tape measure - Medical balls - stopwatch to count time (w) - Table tennis balls and their containers - Tennis ball racket - Adhesive tape - Legal speedball devices - Speedball bats and balls - Photo camera - Free weights - Ropes - Plastic cones - Basketball balls and a hand

Exploratory study:

The exploratory study was conducted on Saturday 10/8/2019 to Wednesday 14/8/2019 on a sample consisting of (6) speedball juniors from outside the main research sample and from the same research community and has the characteristics of the research sample The aim of this study was:-

- Ensure the validity of the devices used for measurement.
- Ensure the proper implementation and application of measurements and related procedures in accordance with the conditions set for it
- Arrangement of the conduct of tests and their performance and legalization of trial breaks.
- Verify the suitability of the data registration form for collecting the results of physical exams.
- The suitability of the tests under investigation to the research sample.

Validating physical tests:

Table (5) shows that there are statistically significant differences at the level of significance .05 Between the averages of the distinctive group and the undistinctive group of the physical tests under consideration. Also it clear that all the tests have high impact strength and validity coefficients

Table (5)

The significance of the differences between the averages of the discrete group and the indiscriminate group for a statement Validity factor for the physical tests under investigation N1 = N2 =6

Serial	Physical Tests	Distinctive Group		Indistinctive Group		Average Differences	T Value	ETA2 value	Validity coeff.
1	Pushing a medicine ball with the right hand	3,500	0.272	2. 440	0.219	1.060	I. 787	0.822	0.906
2	Pushing a medicine ball with the left hand	3,280	0.211	2. 160	0.181	1.120	P. 09	0.890	0.944

Follow Table (5)

The significance of the differences between the averages of the discrete group and the indiscriminate group for a statement Validity factor for the physical tests under investigation N1 = N2 =6

Serial	Physical Tests	Distinctive Group		Indistinctive Group		Average Differences	T Value	ETA2 value	Validity coeff.
3	The speed of rotation of the arm around the basket	48.970	3,263	37.390	2. 677	11.580	I. 135	0.790	0,889
4	Step test	65.100	4.116	52,800	2.879	12,300	5. 476	0.750	0.866
5	Throwing and receiving the ball	12,820	1,124	8. 900	0.758	3. 920	6. 466	0.807	0.898
6	Balance	20,000	1.857	12.760	1,326	7. 240	7. 095	0.834	0.913
7	Drape the torso from standing	13.850	1,258	I. 210	0.689	7. 640	11.911	0.934	0.967
8	Shuttle run	9.990	0.744	13,630	0.891	3. 640	7,012	0.831	0.912
9	Shoot on overlapping rectangles	13.200	0.896	Z. 210	0.511	4.990	10.818	0,921	0,921

Tabular t value at .05= 1.812

T-test impact strength levels according to ETA 2

- 0 to less than 0.30 = weak effect
- From 0.30 to less than 0.50 = moderate effect
- From 0.50 to higher = strong impact

Stability of physical tests:

The researcher applied the physical tests under investigation to an exploratory sample from outside the main research sample that belonging to the same age stage of the main sample and its consistency was (12) juniors, where the test was performed and re-applied with a time difference of one week, and the study shows that the stability coefficients for physical tests are statistically acceptable The following table shows these results.

Table (6)

Correlation coefficient between implementation and re-implementation to indicate the stability coefficient in Physical exams are under investigation N = 12

s	Physical Tests	Implementation		Re-implementation		Correlation Coefficient
1	Pushing a medicine ball with the right hand					
2	Pushing a medicine ball with the left hand	2.970	0.452	3.130	0.414	0.949
3	The speed of rotation of the arm around the basket	2.720	0.286	2.800	0.318	0.937

Follow Table (6)

Correlation coefficient between implementation and re-implementation to indicate the stability coefficient in Physical exams are under investigation N = 12

s	Physical Tests	Implementation		Re-implementation		Correlation Coefficient
4	Step test	43.180	4.117	43.270	4.462	0.951
5	Throwing and receiving the ball	58.950	5.281	59.100	4.879	0.918
6	Balance	10.860	1.452	10.890	1.326	0.973
7	Drape the torso from standing	16.380	2.447	16.560	2.190	0.939
9	Shuttle run	10.030	1.548	10.120	1.117	0.944
9	Shoot on overlapping rectangles	11.810	1.389	11.790	1.264	0.953
1	Pushing a medicine ball with the right hand	10.705	1.125	10.720	1.083	0.964

The tabular (t) value at the level of 0. 05 significance. = 0.576

Table (6) shows that there is a statistically significant correlation between application and re-application of the physical tests under investigation, at a significance level of 0.05, which indicates the stability of these tests.

Basic study:

The researcher performed the basic study from 9/4/2019 to 11/9/2019 in the racket game and the physical preparation halls at the Alrwad Club in the tenth of Ramadan by applying physical tests and the level of performance on the basic research sample consisting of (30) juniors with an age group under 21 years of age from 18-20 years old and registered with the Egyptian Speedball Federation

Statistical processors:

The researcher used the SPSS program to perform the following measurements:

1. arithmetic mean- median- standard deviation - flatulence - torsion coefficient- correlation coefficient- value (v) variances- (ETA 2)
2. value (q) - standard error- interconnection matrix- regression analysis - contribution ratio.

Results Discussion

Table (7)
Interconnection matrix between the physical tests under consideration and the level of performance of hitting with the right hand

Variables	Pushing a medical ball with the right hand	Pushing a medical ball with the left hand	The speed of rotation of the arm around the basket	Step test	Throwing and receiving the ball	Balance	Drape the torso from standing		Shoot on overlapping rectangles
Pushing a medicine ball with the right hand									
Pushing a medicine ball with the left hand	0.224								
The speed of rotation of the arm around the basket	0.318	0.156							
Step test	0.130	0.062	0.032						
Throwing and receiving the ball	0.217	0.218	0.108	0.390					
Balance	0.073	0.485	0.380	0.077	0.140				
Drape the torso from standing	0.342	0.411	0.417	0.050	0.190	0.673			
Shuttle run	0.153	0.381	0.123	0.160	0.040	0.550	0.480		
Shoot on overlapping rectangles	0.074	0.287	0.261	0.098	0.060	0.407	0.270	0.479	
	0.826*	0.312	0.748*	0.621	0.734*	0.672*	0.297	-0.089	0.795

Tabular t value at 0.05 = 0.361 D at 0.05 *

Table (7) shows the correlation coefficients between the level of hitting performance with the right hand and some physical tests among the members of the research sample, and it is evident that there is a statistically significant correlation at the level of significance 0.05 in six (6) tests that ranged between (0.826 to 0.621) while there is no statistically significant correlation in Three (3) tests.

Table (8)
Regression analysis for the physical tests under investigation on the level of hitting performance with the right hand

Contributing indicator	F value	Standard error	Constant amount	Regression coefficients					R^2 Adjusted Contribution
Pushing a medicine ball with the right hand	117,322	0.851	13,453	0.542					56.70
Pushing a medicine ball with the right hand + aiming at overlapping rectangles	128.256	0.742	18.787	0.528	0.412				77.30

Follow Table (8)
Regression analysis for the physical tests under investigation on the level of hitting performance with the right hand

Contributing indicator	F value	Standard error	Constant amount	Regression coefficients						R^2 Adjusted Contribution
Pushing a medicine ball with the right hand + aiming at overlapping rectangles + the speed of rotation of the arm around the basket	146.174	0.733	29.271	0.469	0.376	0.289				88.80
Pushing a medicine ball with the right hand + aiming at overlapping rectangles + the speed of rotation of the arm around the basket + throwing and receiving the ball	179.282	0.689	29.674	0.429	0.328	0.251	0.196			94.10
Pushing a medicine ball with the right hand + aiming at overlapping rectangles + the speed of rotation of the arm around the basket + throwing and receiving the ball + test move	234.57	0.693	30.867	0.417	0.285	0.227	0.153	0.132		96.90
Pushing a medicine ball with the right hand + aiming at overlapping rectangles + the speed of rotation of the arm around the basket + throwing and receiving the ball + test move + scale	251.940	0.674	31.931	0.369	0.211	0.187	0.111	0.079	0.043	98.10

After the theoretical conditions are met for the regression coefficient in terms of the logic of the signs and the value of the regression coefficients,

where the stator has achieved a positive value greater than zero in addition to the regression coefficient having a positive value and ranges between (zero and one)

Table (9)
Correlation matrix between the physical tests under investigation and the performance of hitting with the left hand

Variables	Pushing a medical ball with the right hand	Pushing a medical ball with the left hand	The speed of rotation of the arm around the basket	Step test	Throwing and receiving the ball	Balance	Drape the torso from standing	Shuttle run	Shoot on overlapping rectangles
Pushing a medicine ball with the right hand									
Pushing a medicine ball with the left hand	0.278								
The speed of rotation of the arm around the basket	0.267	-0.372							
Step test	0.117	0.308	0.049						
Throwing and receiving the ball	0.010	0.214	0.171	- 0.16					
Balance	0.033	0.049	0.032	0.074	0.084				
Drape the torso from standing	0.209	0.405	-0.392	0.090	0.104	- 0416			
Shuttle run	0.029	0.130	0.194	-0.354	0.139	0.260	- 0.16		
Shoot on overlapping rectangles	0.217	0.245	0.179	0.021	0.070	-0.398	0.280	0.150	
	0.162	0.809	0.72 *	0.621	0.612 *	0.618 *	0.217	0.091	0.849

Tabular t value at 0.05 = 0.361 D at 0.05 *

Table (8) illustrates a summary of the multiple regression model in a stepwise manner, and the table displays the square of the multiple correlation coefficient or Adjusted R^2 in six cases for physical tests on the level of multiplication performance with the right hand.

Table (9) shows the correlation coefficients between the level of hitting performance with the left hand and some physical tests among the members of the research sample, and it is evident that there is an inverse negative correlation at the level of significance 0.05 in six (6) tests that ranged between (0.849 to 0.612) while there is no statistically significant correlation in Three (3) tests.

Table (10)
Regression analysis for the physical tests under investigation on the performance of hitting with the left hand

Contributing indicators	Ph value	Standard error	Constant amount	Regression coefficients						R2 Adjusted
Shoot on overlapping rectangles	109.692	0.938	18.476	0.434						53.40
Aiming on overlapping rectangles + pushing a medicine ball with the left hand	117.548	0.894	22.880	0.418	0.340					74.20
Shooting on overlapping rectangles + pushing a medicine ball with the left hand + the speed of rotation of the arm around the basket	136.404	0.703	28.616	0.378	0 002	0.278				85. 60
Shooting on overlapping rectangles + pushing a medicine ball with the left hand + the speed of rotation of the arm around the basket + throwing and receiving the ball	169.260	0.617	32.00	0.366	0.251	0.244	0.155			91.50

Follow Table (10)
Regression analysis for the physical tests under investigation on the performance of hitting with the left hand

Contributing indicators	Ph value	Standard error	Constant amount	Regression coefficients						R2 Adjusted
Shooting on overlapping rectangles + pushing a medicine ball with the left hand + arm rotation speed around the basket + throwing and receiving the ball + step test	209.1117	0.587	31.810	0.357	0.245	0.236	0.142	**0.124**		94.90
Shooting on overlapping rectangles + pushing a medicine ball with the left hand + arm rotation speed around the basket + throwing and receiving the ball + step test + scale	109.692	0.938	18.476	0.434	0.239	0.206	0.113	**0.085**	**0.071**	97. 10

After meeting the theoretical conditions for conducting the regression coefficient in terms of the logic of the signals and the value of the regression coefficients, where the stator achieved a positive value greater than zero in addition to the regression coefficient having a positive value and ranges between (zero and the one)

Table (10) illustrates a summary of the multiple regression model in a stepwise manner, and the table displays the square of the multiple correlation coefficient or Adjusted R^2 in six cases for physical tests on the level of performance of playing with the left hand.

Results Discussion :

The researcher reached an interpretation of her results as follows: Table (3) clearly shows that the most important physical capabilities of the

speedball in order according to what the results of the expert opinion poll showed are: Muscular Strength- Muscular Capacity (Force characterized by speed)- speed-endurance- balance- compatibility-flexibility - agility - accuracy.

Discussing the first question, what are the relative indicators contributing to physical abilities at the level of performance for hitting the right hand in speedball.

Table (7) shows the correlation coefficients between the level of hitting performance with the right hand and some physical tests among the members of the research sample, and it is evident that there is a statistically significant correlation at a significance level of 0.05 in the right-hand medical ball push test with a correlation factor of (0.826), and in the arm rotation speed test About the basket with a correlation factor of (0.748), and in the step test with a correlation factor of (0.621), in the throw and reception test with a correlation factor of (0.734), and in the scale test with a correlation factor of (0.672), and in the aiming test on the overlapping rectangles with a correlation factor of (0.795) and there was no statistically significant correlation in the left-hand medical ball pushing test with a correlation factor of (0.312), and in the torso bending test from standing with a correlation factor of (0.297).

This shows that achieving higher levels of sports in speedball requires the availability of some physical determinants that are compatible with their nature, and determinants are considered as the basic powers to reach high levels of sport, and the availability of these determinants among young people gives a better opportunity to understand and practice the technical performance of the basic skill in speedball, and the determinants are considered (The basic general physical characteristics of sports practice at its various levels and in all its stages, each sporting activity requires a certain type of physical determinants that differ in its quality depending on the type of activity practiced, and the physical determinants needed by the beginner of speedball so that the component of arm muscle strength in the right hand, followed by the component of the muscle strength of the two legs , Followed by the Muscular Endurance component, followed by the Flexibility component, followed by the Agility component.

Abu Al-Ela Abdel Fattah, Hazem Hussein Salem (2011) and Muhammad Hassan Allawi (2008) stress the need for strength, which falls within the final goals of the physical preparation of speedball players, in addition to being one of the basic physical requirements. (2: 210), (24:35).

Muhammad Hassan Allawi and Muhammad Nasiruddin Radwan (2008) considers the importance of muscle strength in that it affects the development of some physical characteristics or some components of physical performance, such as speed, endurance and agility. Muscular strength is related to speed to produce strong rapid movement, or what we can call strength Characteristic of

speed, and muscle strength is an influencing factor in the speed of running, because the (fast running) requires more muscle strength to gain maximum speed and maintain this speed (24: 15,16).

Abu Al-Ela Abdel Fattah and Hazem Hussein Salem (2011) mentioned that training operations for strength development aim to develop various components related to strength that work to raise the athlete's ability to use the best strength, which requires a link between the performance requirements for striking and the ability to use muscle capacity, whether training or competition. (2: 121, 122).

Hassan Al-Sayed Abu Abdu (2006) indicates that flexibility is one of the basic and necessary physical determinants in order to perfect physical and kinetic performance, as flexibility determines the range of motion in a joint or a successive group of different body joints. (9: 162)

These results was agreed with the results of Shaimaa Ali Abu Dahab 2015 study (5), whose results indicated that there is a percentage of the contribution of some elements of physical fitness to the level of performance of hitting with the right hand, such as (ability - kinetic velocity - balance - compatibility - flexibility - accuracy).

The study performed by Safia Jazar Al-Ajami (2002) (14), whose results indicated that there is a correlation between each of (reaction speed - accuracy - grip strength) and the level of striking performance with the right hand.

Table (8) shows the square of the multiple correlation coefficient or the coefficient of determination R^2 in six cases, and it is clear that the first case determined the test of pushing a medical ball with the right hand at a rate of (56.700%), while the second step of the tests of pushing a medical ball with the right hand and shooting on the overlapping rectangles together achieved a ratio of Interpretation of (77.300%) of the total variance, and thus correction on the overlapping rectangles achieved a contribution rate of (20.600%) as the case or the third step of the three tests illustrated, pushing a medical ball with the right hand and shooting on the overlapping rectangles and the speed of rotation of the arm around the basket, together with an interpretation ratio of (88.800%) of the total variance, and thus the test of the speed of rotation of the arm around the basket achieved a contribution of (11,500%) as the case or the fourth step of the four tests shows that, pushing a medical ball with the right hand + aiming on the overlapping rectangles + the speed of rotation of the arm around the basket + throwing and receiving the ball Collectively, an interpretation ratio of (94.100%) of the total variance, and thus the throwing and reception test achieved a contribution of (5.300%) as the case or the fifth step of the five tests shows, which is a medical ball push with the right hand, shooting at the overlapping rectangles, the speed of rotation of the arm around the basket, throwing and receiving the ball, and the step test combined, an interpretation ratio of (96.900%) of the

total variation, and thus the step test achieved a contribution of (2.800%) as the case or the sixth step of the six tests shows Pushing a medical ball with the right hand, aiming at the overlapping rectangles, the speed of rotation of the arm around the basket, throwing and receiving the ball, the step test and the balance combined, an interpretation ratio of (98.100%) of the total variance, and thus the balance test achieved a contribution of (1.200%).

Table (8) also shows the Analysis of the variance of multiple regression for the six models, it becomes clear that there is a statistical effect of the independent variables, as the table shows the coefficients of the multiple regression equation, which are represented by the value of the a_n parameter, the value of (P) and its significance, as well as the value of the fixed amount and multiple regression equation that aid in predicting the degree of dependent variable can be formulated as follows:-

$Y = a_0 + \sum_{n=1}^{6}(a_n x_n)$ (1) Where

Y = dependent variable

a_0 = constant amount

a_n = the regression coefficient

x_n = The independent variable

From the above it is clear that there are relative indicators that contribute to physical abilities at the level of performance for hitting the right hand in speedball.

Discussion of the first question: What are the relative indicators contributing to physical abilities at the level of performance for hitting the left hand in speedball.

Table (9) shows the correlation coefficients between the level of hitting performance with the left hand and some physical tests among the subjects of the research sample, and it becomes clear that there is a reverse negative correlation at the level of significance 0.05 in

- The test of pushing a left-hand medical ball with a correlation factor, the performance ratio was (0.809).
- The speed of rotation of the arm around the basket test with a correlation factor of (0.721).
- The step test with a correlation factor of (0.621).
- The test of throwing and receiving the ball with a correlation factor of (0.612).
- The scale test with a correlation factor of (0.618).
- The aiming test on the overlapping rectangles with a correlation factor of (0.849).
- There was no statistically significant correlation in the test of pushing a medical ball with the right hand with a correlation factor of (0.162).
- The test of bending the torso from standing With a correlation coefficient of (0.217).
- The shuttle running test with a correlation factor of (0.091).

This is confirmed by scientific opinions in the field of junior speedball training, which indicate the importance of physical capabilities in achieving supremacy in speedball, and in this regard, Owais Ali Al-Jabali and Tamer Owais Al-Jabali (2013) indicate that physical abilities represent the important basis in the training process on which it is built Completing the elements and other elements of training, as achieving high levels of

performance is highly related to the ability of the player to achieve high levels of physical abilities specific to the type of sports activity practitioner (7: 343).

Abu Al-Ela Abdel Fattah and Hazem Hussein Salem (2011) also confirm the importance of the strength of the core muscles and that the exercises to develop muscle strength and affect the performance of striking in speedball have become part of the training programs and it is recommended that this development take place in the same movement direction of speedball, the strength of the core muscles and its connection with performance Hitting is a positive step for improving technique and thus level of performance. (2: 96)

These results was agreed with the results of Shaimaa Ali Abu Dahab 2015 study (5), her results indicated that there is a percentage of the contribution of some elements of physical fitness to the level of hitting performance with the left hand, such as (ability - accuracy - kinetic velocity - compatibility - flexibility - balance).

Muhammad Ahmad Abdullah (2006) (22) study results indicated that there is a percentage of the contribution of some elements of physical fitness to the level of balance (static - dynamic) and the level of skill performance of juniors of age (12-14) years.

Table (10) shows the square of the multiple correlation coefficient or the coefficient of determination in six cases, and it is clear that :-

- The first case determined the aiming test on the overlapping rectangles at a rate of (53.400%),
- The second step of the two aiming tests achieved the overlapping rectangles and pushed a medical ball with the left hand combined with an interpretation of (78.200%) of the total variance, so the left hand medical ball push test achieved a contribution rate of (20.800%)
- The third step of the three tests shows the correction of the overlapping rectangles, pushing a medical ball with the left hand and the speed of rotation of the arm around the basket, together with an interpretation ratio of (85.600%) of the total variation, so the test of the speed of rotation of the arm around the basket achieved a contribution of (11.400%)
- The fourth step of the four tests, which is aiming at the overlapping rectangles, pushing a medical ball with the left hand, The speed of rotation of the arm around the basket, throwing and receiving The ball together has an interpretation ratio of (91,500%) of the total variation, so throwing and ball reception test achieved a contribution of (5.900%)
- The case or the fifth step of the five tests, which is aiming, illustrated The overlapping rectangles, pushing a medical ball with the left hand, the speed of rotation of the arm around the basket, throwing and receiving the ball, and the step test combined: Interpretation ratio of (91.500%) of the total contrast, and thus the throwing and receiving the ball test and the step test together achieved an interpretation ratio of (94.900%) from Total variation, so the step test achieved a contribution of (3.400%).

- The case or the sixth step of the six tests shows, which are aiming at overlapping rectangles, pushing a medical ball with the left hand, the speed of rotation of the arm around the basket, throwing and receiving the ball, the step test and the balance test combined, an interpretation ratio of (97.100%) of the total variance, and thus the scale test achieved a contribution of (2.200%).

The table also shows the results of the multiple regression variance analysis of the six models. It is evident that there is a statistically significant effect of the independent variables. It is clear that the coefficients of the multiple regression equation, which is the value of the $a_n$parameter and the value of (p) and its significance, as well as the value of the constant amount. Multiple regression equations that help to predict the degree of the dependent variable can be formulated as previously stated in equation (1).

From the above it is clear that there are relative indicators that contribute to physical abilities at the level of performance for hitting the left hand in speedball. It can be concluded that, the researcher has reached a set of predictive equations based on some of the most influential variables that contribute to the performance of hitting with the right hand of a junior in speedball, as follows:

Right hand Performance level of hitting = 31.931 + 0.367 x pushing a medical ball with the right hand) + (0.211 × aiming at the overlapping rectangles) + (0.187 × the speed of rotation of the arm around the basket) + (0.111 × throwing and receiving the ball) + (0.079 × test step) + (0.043 x Scales)

The researcher has reached also to a set of predictive equations depending on some of the most influential variables that contribute to the performance of playing with the left hand of the junior in speedball, as follows:

Left-hand play performance level = 18.476 + (0.434 shots on overlapping rectangles) + (0.239 x left hand medical ball) + (0.206 x arm rotation speed around the basket) + (0.113 x throw and receive the ball) + (0.085 x step test) + (0.071 x Scales)

Conclusions

There is a contribution percentage to the physical abilities of some elements of physical fitness related to the level of hitting performance with the right hand in speedball, namely (the test of pushing a medical ball with the right hand, the test of the speed of rotation of the arm around the basket, the step test, the throwing and receiving test, the scale test, and in Aiming test on overlapping rectangles)

There is a contribution percentage for the physical abilities of some elements of physical fitness related to the level of hitting performance with the left hand in speedball, namely (the test of pushing a medical ball with the left hand, the test of the speed of rotation of the arm around the basket, the step test, the throwing and receiving test, and the scale test, And in the aiming test on overlapping rectangles)

Recommendations

- The need to pay attention to the physical elements of the youngster of speedball.
- Using the predictive equations obtained in predicting the velocity reel to determine the suitable individuals for those competitions in light of their morphological and physical characteristics.
- Conducting similar studies for different levels and stages of the age.

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