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MEASURING SOME KINESTHETIC PERCEPTION TESTS USING THE COMPUTER-PROGRAMMED ATRUSSONIC DISTANCE SENSOR FOR VOLLEYBALL PLAYERS ACCORDING TO THEIR SPECIALITIES

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ABSTRACT

The problem of the research lies in the possibility of making the tests used through accurate devices that work according to the computer system to avoid self-evaluation, which takes a lot of time in the testing process, the study aimed to design some tests of kinesthetic perception using the computer-programmed atrousonic distance sensor and identify the level of some kinesthetic perception tests For the research sample, the research sample was represented by a group of volleyball players in (Basra, Maysan, DhiQar), totalling (40) players divided according to their specializations in playing. The results of the Columgrove Seminarov test for the normal distribution of volleyball players according to their specialities as well as the results of the analysis of variance of the value of (F) The calculated and tabular tests for the perception of the distance for the right hand and the perception of the distance for the left hand of the volleyball players, the researchers concluded that there are differences between the specialities of playing in the volleyball team and this is evidence that the specifications of the volleyball players differ from one player to another according to the requirements of modern play. Researching the reasons that cause the variation in the level of some specialities of playing in the volleyball team.

Keywords: Kinesthetic, computer, programmed and atrussonic distance.

I. INTRODUCTION

The method of measurement may differ, including direct measurements, such as measuring length with a tape measure or measuring weight with a scale device, and it gives accurate measurements, and there is an indirect measurement method, such as estimating the speed of a ball or evaluating the performance of a skill. Here, four evaluators do not agree on the same degree, which is a subjective measurement, which is an evaluation that is affected by factors Some of them are psychological, including the experience factor, which leads to bias, which generates a lack of sincerity in the measurement, that is, the measured characteristic is of an inaccurate level, and this is what Rajaa Abdul Samad (2008) confirmed on the contrary if the measurement was done using a device connected to an electronic circuit linked to a computer where The variables to be measured are carefully sensed and transferred directly to the computer, and stored and retrieved statistically whenever they are wanted .[1]

The possibility of making the tests used through accurate devices that work according to the computer system to avoid self-evaluation, which takes a lot of time in the testing process,[2]and the research problem appears clearly by making eleven tests to be tested through One device is different from the place where it is placed in the test site, the goal of that is accurate in measuring and storing data of different types and indexing in displaying data on what the researcher wants to obtain the gender of males or females or both easily and conduct statistical treatments with full transparency through ready-made tables and the application of statistical laws in An excel file or transferring it to SPSS, and the test of eleven tests can be tested all or choose a section of them, which generates saving in effort and time and shortens time, and obtaining immediate results gives an incentive to all testers.

Research objectives

- Designing some kinesthetic perception tests by using the computer-programmed ultrasonic distance sensor

- Knowing the level of some kinesthetic perception tests of the research sample.
- Identify the differences in the level of some kinesthetic perception tests between volleyball players.

Research field

- The human field: represented by the volleyball players of the Sports Talent Care Department (Basra, Maysan, DhiQar)
- Time range: represented by the time from 1/10/2019 to 12/25/2019
- Spatial field: volleyball courts in (Basra, Maysan, DhiQar).

Research Methodology

The researchers used the descriptive approach to suit the nature of the research and its objectives, as it gives a picture of the current reality, develops indicators and builds future predictions.

The research sample

The research eye was represented by a group of volleyball players in (Basra, Maysan, DhiQar) and totalling (40) players divided according to their specializations in playing as follows: (7) Libero (8) fast (12) high (13).

Tools and devices used

1. A laptop computer.
2. A program (Raja test to measure some motor sense-perception tests).

The tests that are measured

1. Test the maximum strength of the legs by horizontal jumping of the legs.
2. The strength perception test for 50% of the maximum strength of the two legs, the horizontal jump of the two legs.
3. The test of the maximum strength of the arms by throwing a medical ball weighing 2 kg.
4. The strength perception test of 50% of the maximum strength of the arms by throwing a medical ball weighing 2 kg.
5. The maximum strength test of the legs on the right side.
6. The strength perception test of 50% of the maximum strength of the legs on the right side.
7. The maximum strength test of the legs for the left side.
8. The strength perception test of 50% of the maximum strength of the legs on the left side.
9. The distance perception test for the right hand.
10. Test Distance perception of the left hand.
11. Distance perception test for the two legs.

The test used

The technology of the gearbox distance sensor is used, which is linked to the Arduino circuit programmed with the computer, and it is a special program created in the Java language by the programmer's expert.[3]

Test name: Rajaa test to measure kinesthetic perception

- The purpose of the test: To measure some kinesthetic perception tests.
- The tools used: 1- An electronic circuit (Arduino - which is a group of electronic circuits compressed in one circuit and can connect any sensors) connected to the computer by a wire as in Figure 1. 2- A special program

created in the Java language by the expert programmer (Ali Raad) 3- A tape measure 3 m 4- eye ring 5- A ruler 10 cm in width and 50 cm in length with a thickness of 2 mm.

Figure 1. Represents the distance measuring device

Method of performance: After running the test through the icon on the desktop, the first window appears in Figure (2). Important data, which must be entered, is entered so that the test does not run, meaning it does not go to the next window unless all the data is entered.

Figure 2. Shows the main test window

When you press the button to start the test, the third window appears in Figure (3), and when you press the button to display data, the eighth window appears in Figure (8). When you press the Exit button, the program is closed and the program exits, and when the test start button is selected, the third window appears in Figure (3), which The test type is chosen.

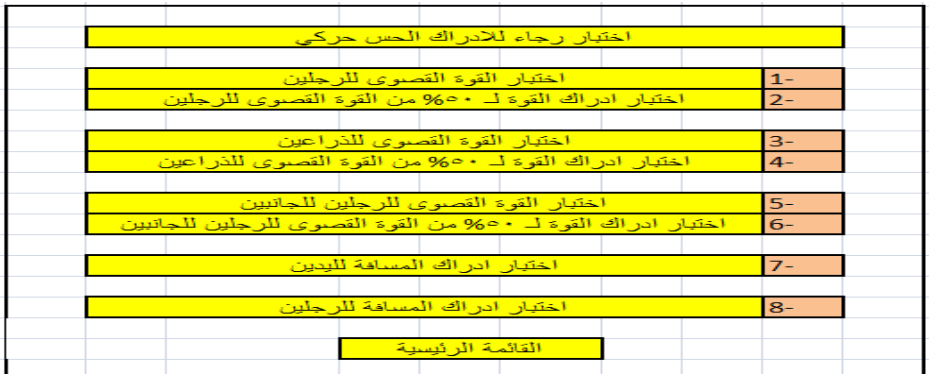

Figure 3. Shows the next window for choosing the test type

First: After pressing the Save Data button, the window appears, Figure (3), to choose another test, where when you press the Test button (7), the distance perception test for the hands, where the window appears Figure 10, the player sits on a chair against a chair whose length is not less than 1 meter. After trying the test By the player, that is, placing his hand in front of the distance sensor in the device, so the amount of distance appears in front of him on the computer screen, and thus he gets a visualization of the testing mechanism, where through the window 4 Figure (4) and when pressing the perception button a distance of 10 cm and the eyes are blindfolded, the player must put His hand is at the distance to be perceived, and when you press the device button, the test calculates the exact distance to the nearest centimetre and also calculates directly the difference. Move to the check window (3). If you want to test another player, you must choose the main menu to record new player data and complete the tests, as previously mentioned.

Figure 4. Shows test data

The main experience

The experiment was conducted from 11/11/2019 to 11/8/2019 on a sample of volleyball players (Basra, Maysan, DhiQar).

The statistical means used

The researchers used the statistical program SPSS version 14.

II. RESULTS AND DISCUSSIONS

Table 1. Shows the results of the Columgrove Seminarov test for the normal distribution of volleyball players (a prepared player)

A prepared player	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Age	0.173	7	0.200(*)	0.922	7	0.482
Length	0.245	7	0.200(*)	0.898	7	0.319
the weight	0.251	7	0.200(*)	0.869	7	0.182
Broad jump	0.205	7	0.200(*)	0.963	7	0.843
Realizing the wide jump	0.255	7	0.186	0.871	7	0.190
Side bounce to the right	0.185	7	0.200(*)	0.967	7	0.877
Realize the right side jump	0.242	7	0.200(*)	0.854	7	0.134
Left side jump	0.262	7	0.158	0.807	7	0.048
Realizing the left side jump	0.156	7	0.200(*)	0.956	7	0.788
Medicine throw ball	0.154	7	0.200(*)	0.970	7	0.901
Realization of throwing a medicine ball	0.284	7	0.091	0.809	7	0.050
Right-hand space perception test	0.162	7	0.200(*)	0.972	7	0.916
Left Hand Distance Perception Test	0.270	7	0.132	0.842	7	0.104
Distance perception test for the legs	0.230	7	0.200(*)	0.910	7	0.394

It is evident from Table (1) that all sig values in (Kolmogorov-Smirnov (a)) are greater than (0.05) and this indicates that the test variables were normally distributed, and this indicates that the test has achieved the purpose of its design to measure a natural characteristic. It concerns players as the natural attributes, including mental abilities, were concentrated in the middle of the values and decreased at the edges of the curve, and this was identical to the sense-kinesthetic perception test .[4]

Table 2. Shows the results of the analysis of variance of the calculated and tabular (F) value of the two tests of perceiving distance to the right hand

	Source of Variation	Some of the squares of the devi	df	MS	F	P-value	F crit	Statistical significance
Right-hand spac								Sig.

e perc eptio n test		atio ns						
	Between Gro ups	4.489806	3	1.496602	1.089146	0.366122165	2.866265557	
	Within Gro ups	49.4678	36	1.374105				
	Total	53.9576	39					
Left Hand Dista nce Perc eptio n Test	Between Gro ups	16631.47	23.65999	3	7.886663	3.03370851	0.041615846	Sig.
	Within Gro ups	3494.268	93.58838	36	2.599677			
	Total	20125.74	117.2484	39				

It is evident from Table (2) to test the distance to the right hand that the tabular value of (F) of ((1.089146), which is greater than the value of (F) calculated, which is (2.866265557), and this indicates the existence of differences between volleyball players (prepared, free, fast and high), as well as for the left hand, therefore, we resort to the test of the least significant difference (LSD) to know which speciality is superior to the other.

Table 3. Shows the differences between the averages and the value of the least significant difference

	Differences between the averages		Difference value	valueLSD	الدلالة
Right-hand spac e perc eptio n test	A prepared player	libro		1.458	
	3.993	4.874			Sig.
	0.882		0.576		
	A prepared player	Rapid			
	3.993	4.510	0.940		Sig.
	0.517				
	A prepared player	Higher			
	3.993	3.987	1.452		Sig.
	0.006				
	libro	Rapid			
	4.874	4.510	1.093		Sig.
	0.364				
	libro	Higher			
	4.874	3.987	0.570		Sig.
	0.888				
	Rapid	Higher			
	4.510	3.987			Sig.
	0.523		0.934		
Left Hand Dista nce Perc eptio n Test	A prepared player	libro		1.458	
	3.519	4.615			Sig.
	1.096		0.362		
	A prepared player	Rapid			
	3.519	5.384	0.408		Sig.
	1.865				
	A prepared player	Higher			
	3.519	5.758	0.781		Sig.
	2.239				
	libro	Rapid			
	4.615	5.384	3.927		No sig.
	-0.769				
	libro	Higher			
	4.615	5.758	4.300		No sig.
	1.143				
	Rapid	Higher			
	5.384	5.758			Sig.
	0.374		1.084		

It is evident from Table (3) that the odds are for the player prepared at the expense of the rest of the players (free, fast and high) in the designed test and that the prepared player is most of his daily exercises on the process of accuracy in perceiving distance, as he is responsible for the success in delivering the ball at different heights and specific places according to Multiple play situations, which requires privacy during training and training, also, to be working with both the left and right hands during periods of play at a very high rate, the prepared player is the key to the team to get the point and whenever the numbers are correct and proficient whenever they perform To the success of the attack process of all kinds,[5] while the values of the (high) hitter player were superior to the players (free and fast) in the designed test. The researchers attribute that to the fact that the responsibility placed on the high hitting player necessitated that he attacks in multiple ways and heights and different places from above. The net is like the short and long balls (close to the air sticks) as well as the medium height and high balls, which usually make him aware of the time and distance of each type of balls and has to master the appropriate timing with the start and so on Promoting the ball from the hand of the prepared player, Kinetic performance and skilful achievement depend largely on sensory information in which the sensory input is organized and translated (perception, kinesthetic) and this comes in line with the importance of skill performance through a sense of distance and time.[6]

III. CONCLUSIONS

1. That all members of the sample were distributed naturally.

2. The research that is used in its field procedures, such as the standardized test using electronic technology in calculating the score, results in ease in obtaining the degree, shortening the time and a lack of requirements for research in addition to the lack of auxiliary staff.

3. The use of programming in the creation Tests such as the use of the distance measurement sensor (Atrussonic) and linking it to (Arduino) is a compact and highly useful method in terms of accuracy in measurement and ease of storing data.

REFERENCES

1. Ikhlas Abdel Hafeez and Mustafa Hussein: Scientific Research Methods and Statistical Analysis in the Educational, Psychological and Mathematical Fields, Cairo, Al-Kitab Center for Publishing, 2002.
2. RajaaAbd Al-Samad: Designing and Standardizing Tests to Measure Short-Term Memory and Compound Motor Response Velocity, Master Thesis, Basra University, College of Physical Education, 2008.
3. Adel Majeed: Evaluation of some indicators of anoxic capacity according to the specializations of volleyball players in Basra Governorate, research published in the First Scientific Conference on Training and Physical Physiology, 2009.
4. Ali Raad Al-Tamari: Program Expert, MSc, Computer Science, University of Malaysia, 2015.
5. Abdullah HasanJabbar, SalimOudahMezan, SalihMeri Al Absi et al., Assessment of anticholinesterase effect of polyvinylpyrrolidone/silver nanocomposite biosynthesized by Pandanusatrocarpus extract, Materials Today: Proceedings, https://doi.org/10.1016/j.matpr.2020.12.582
6. Muhammad Sami: Measurement and Evaluation in Education and Psychology, Amman, House of Biography for Publishing and Distribution, 2000.
7. Nahida Abdel Zaid and others: modern volleyball and its specialized requirements, Lebanon, Beirut, Dar Al-Kutub Al-Ilmiyya, 2015.