

Design and application of a test to measure the accuracy of receiving in volleyball using the forearm pass for female students

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ABSTRACT

The primary aim of this study was to design and apply a test to measure the accuracy of receiving in volleyball using the forearm pass for female students. In the current study, third year students of the College of Physical Education and Sports Sciences of the University of Baghdad were recruited as the participants of the study in the academic year 2018/2019. A total of 73 female students were recruited. Based on the findings of this study, the researcher concluded that the accuracy of receiving in volleyball using the forearm pass for the female students analyzed was below average, as most of them showed below average performance. The researcher recommends to adopt the test prepared in this study to assess the level of accuracy of female students, in order to determine their degree of development. The researcher also recommends to pay attention to the development of accuracy among students by giving them more time to train accuracy during the volleyball lessons.

KEYWORDS

Accuracy; volleyball; forearm; girls

1. INTRODUCTION

The continuous development and progress in sports occur based on the scientific evidences that contribute to identify new concepts for the development of sports and the performance of the players in the respective games. Tests and measurements in sports help to evaluate the performance of the players, which provides information related to the measured characteristics (Hameed & Abdalkarem, 2022; Marín et al, 2010).

The skill of receiving the serve is one of the important defensive skills in the volleyball game. This technique is used by the players to defend their court (Taha Idrees et al, 2022). It forms the base on which the team builds the attack. It plays an important role in determining a realistic picture of the

level of performance of the skills of the players (Shaanan et al, 2022; Saleh Al-Thubaini, 2022). Hence, the researcher identified the need to search for tests that match the real capabilities of the players in a manner that achieves the objectivity of the evaluation, with the aim of identifying and addressing weaknesses. The process of building tests is of great importance because it contributes to evaluate the level of performance of the skills of the players, with the purpose of identifying the effectiveness of the exercises used for them during this stage (Hameed & Abdalkarem, 2022).

Therefore, the primary aim of this study was to design and apply a test to measure the accuracy of receiving in volleyball using the forearm pass, for female students of the College of Physical Education and Sports Sciences of the University of Baghdad.

2. METHODS

2.1. Participants

In the current study, third year students of the College of Physical Education and Sports Sciences of the University of Baghdad were recruited as the participants of the study, in the academic year 2018/2019. A total of 73 female students were recruited.

2.2. Instruments and procedures

In the present study an extensive search of the scientific sources was done by the researcher to find a test that measures the accuracy of receiving in volleyball. No test was found by the researcher. Hence, the researcher identified the problem and constructed a new test, which was presented to a panel of experts to establish its validity for the measurement. The validity of the skill test was determined according to two indicators: the discriminatory ability of the test and the test difficulty coefficient.

The researcher conducted an exploratory experiment in which 15 female students were recruited as the participants. The test was conducted in March 2019 in an indoor volleyball hall. The purpose of conducting the exploratory experiment was to know the difficulties that the researcher may encounter in the phase of primary experiment, as well as to identify the time taken to conduct the experiment and to ensure the validity of the sample, and the extent to which the research can be carried out.

The primary experiment was conducted on the other 58 female students of the sample, in March 2019. After completing the main experiment for the purpose of test construction, the results of

the statistical treatments were recorded, and the descriptive characteristics of the sample scores were extracted in the skill test. Then the skill test was applied to all the 73 sample members from Tuesday 9/4/2019 to Wednesday 24/4/2019.

2.3. Statistical analyses

The statistical analyses were carried out with the Statistical Package for the Social Sciences (SPSS) version 23. The researcher calculated means, standard deviations, frequencies, percentages and validity tests.

3. RESULTS AND DISCUSSION

The skill test was analyzed within two indicators: the discriminatory ability of the test and the test difficulty coefficient. The discriminatory ability of the test is one of the types of honesty that is used to determine the validity of the test, and also called the peripheral comparison. It is important in the construction of the test. It is “the ability of the test to distinguish between individuals, and thus we can know that the test is characterized by honesty” (Daoud, 2018), as shown in Table 1. The test difficulty coefficient was also extracted, as shown in Table 2. Furthermore, the stability, the self-honesty and the objectivity of the volleyball reception test are shown in Table 3.

Table 1. Discriminatory ability of the volleyball reception test

	Groups	Mean	SD	T	P
Volleyball reception test	Low	6.2759	1.09859	-9.032	0.000
	High	8.6552	0.89745		

Table 2. Difficulty coefficient of the volleyball reception test

	Mean	SD	Skewness
Volleyball reception test	7.4655	1.55840	0.222

A test is designated to have stability when “the test gives the same results or close to them if it is applied to the same people” (Saleh, 2011). Stability was established using the test and retest method to extract the reliability coefficient for the skill test. The objectivity of the test was established using the simple Pearson correlation coefficient between the results of two judgments. These results were good because the significance value was smaller than the significance level (0.05).

Table 3. Stability, self-honesty and objectivity of the volleyball reception test

	Stability	Self-honesty	Objectivity
Volleyball reception test	0.706	0.840	0.783

The standard score is a set of scores derived by statistical methods from the raw scores, and through which the individual's performance level is compared to the performance level of the group, as shown in Table 4.

Table 4. The standard score of the volleyball reception test

No.	Degree raw	Repetitions	Z Score	Modified Standard Score
1	4	5	-2.145	28.55
2	5	2	-1.636	33.63
3	6	4	-1.128	38.72
4	7	12	-0.619	43.80
5	8	18	-0.111	48.89
6	9	15	0.397	53.97
7	10	8	0.905	59.05
8	11	5	1.413	64.14
9	12	4	1.922	69.22

The results of the present study revealed that the accuracy of receiving in volleyball using the forearm pass for the female students analyzed was below average. Most female students analyzed showed below average performance (Table 5).

Table 5. Accuracy of receiving in volleyball using the forearm pass in the sample

	Very good		Good		Above average		Below average		Weak		Very weak	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Volleyball reception test	-	-	9	12.329	23	31.507	30	41.096	6	8.219	5	6.849

The researcher attributed the reason of this low performance to the inappropriate position of the students while receiving the ball using the forearm pass. Due to this, the students were not able to control the ball and direct the ball to the specific areas. The researcher also highlighted that the teaching in the previous stages did not focus on learning accuracy. Inaccurate playing techniques, lack of accuracy, lack of appropriate tests for students that allow the teacher to measure the accuracy of the learned skill, lack of training of players and poor timing resulted in the low performance of the

majority of players. The weakness of the processes through which sensory stimuli come from the senses are recognized, organized and understood, which contributed to the poor accuracy of the students (Youssef, 2004).

4. CONCLUSIONS

Based on the findings of this study, the researcher concluded that the accuracy of receiving in volleyball using the forearm pass for the female students analyzed was below average, as most of them showed below average performance. The researcher recommends to adopt the test prepared in this study to assess the level of accuracy of female students, in order to determine their degree of development. The researcher also recommends to pay attention to the development of accuracy among students by giving them more time to train accuracy during the volleyball lessons.

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AUTHOR CONTRIBUTIONS

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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