CONSTRUCTION OF JUMP SERVICE TEST IN VOLLEYBALL THROUGH SUBJECTIVE AND OBJECTIVE TECHNIQUES

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Introduction:

Successful play in Volleyball is not the outcome of power alone, but it is the product of combined display of power, shrewdness and ability. Modern game is characterized by accuracy and differentiation, which can be facilitated by absolute self-control and maximum concentration, quick thinking and a great deal of movement. The speed of the game means the player must be thinking at one moment about the attack and next defense. Tactical formations, moves, substitutions, use of time-outs and line-up all have so many variations and have an effect on the quality and result of the game.

Evaluation could be objective, subjective or a combination of both. The skills can be measured in an objective manner with the help of skill tests. Skill tests reflect the ability of the pupil to perform in a specified sport such as badminton, handball, basketball or volleyball and helps for the purpose of classification, determination of progress and marking.

The purpose of the study was to construct Jump Service test in Volleyball through subjective and objective techniques.

Methodology:

Sixty male Volleyball players from selected universities of Madhya Pradesh who were selected to represent their University Teams in the West Zone in 2005-06 session i.e. Laxmibai National Institute of Physical Education, Gwalior, Devi Ahilya Vishwavidyalaya, Indore, Jiwaji University, Gwalior, Rani Durgawati Vishwavidyalaya, Jabalpur and Barkatullah University, Bhopal served as subjects for this study. The age of the subjects ranged from 18 to 25 years.

The criterion measure used was the scores obtained in the Russell and Lange Service Test.

The Jump Service test was developed through objective techniques. Administering test for the Jump Service collected data for this. The purpose of this test was to test a player's ability to move to the ball quickly and successfully execute jump service, which landed in the desirable area of the opposite court. Test may be used with University level Volleyball players.

Preferably ten Volleyballs in good condition were required for the test. A regulation Volleyball court with special markings was marked. Each of the marked area was numbered to indicate the score value of the respective areas.

The Coaches of the teams were consulted at personal level, to conduct the test on Volleyball players. All the coaches were made fully conversant with the study. The researcher approached each player after giving proper and timely information before the test was conducted.

Before administrating the test, the subjects were briefed about the purpose of the study and details of the test were explained to them. They were also given sufficient number of trials to enable them to become familiar with the test. To ensure uniform testing conditions, the subjects were tested in the morning and evening sessions. Sufficient time was given in between the tests, so that the subjects could show their best performance.

The player being tested stood behind the end line in the service area and executed the Jump Services into the targets across the net. The point values of the area in which the ball landed were recorded for each attempt. Ball hitting on the line was given higher point values. Three trials of 10 Jump Service attempts were given to each subject. The best total of the 3 trials was the score of the player. A maximum score of 50 points was possible on this test.

Preparing Rating Scale collected data through subjective techniques for Jump Service in Volleyball. On the basis of opinion, overall empirical views of experts, and after carefully examining the related literature, the skill for which the objective test has been developed was ascertained for the construction of rating scales.

The Jump Service Test for which rating scales have been prepared was further subdivided into ten components/ subheadings. Each of the components was scored on 5-4-3-2-1 basis. The details of each components/subheadings were prepared and then the rating scale was distributed to the experts for further comments, views and suggestions before finally preparing the rating scale.

Data using the prepared rating scale were was the scores obtained on all the subjects assigned independently by three Volleyball experts. The subjects were asked to perform the selected skill i.e. jump serve in a non-competitive situation. The judges were given five points rating scale to evaluate the performance in Jump Service. A maximum of score of 50 was possible on this rating scale. The subjects gave maximum co-operation throughout the administration of the test.

The subject's total score was obtained in Jump Service test through objective test and the scores obtained in the rating scale through subjective test. Hence a maximum score of 100 was possible in the jump serve test (both subjective and objective test).

Findings:

Inter-class correlation coefficients by analysis of variance method were employed to compute reliability of the test for the Jump Service. Analysis of variance for reliability estimates and the R-values for the test through objective techniques have been presented in Table -1.

TABLE - 1
ANALYSIS OF VARIANCE AND RELIABILITY ESTIMATE OF JUMP SERVICE TEST THROUGH OBJECTIVE TECHNIQUES

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	tab F	R
Subjects	10342.06	59	175.29			
Trials	10.81	2	5.41	0.89*	3.07	0.97**
Interaction	713.86	118	6.05			
Total	11066.73	179				

* Not Significant at 0.05 level tab $F_{0.05}(118.2) = 3.07$ ** Significant at 0.05 level $R_{0.05}(58) = 0.250$

Analysis of variance for reliability estimates and the R-values for the test through subjective techniques have been presented in Table -2.

TABLE - 2
ANALYSIS OF VARIANCE AND RELIABILITY ESTIMATE OF JUMP SERVICE TEST THROUGH SUBJECTIVE TECHNIQUES

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	tab F	R
Subjects	4618.77	59	78.28			
Trials	11.63	2	5.81	0.795*	3.07	0.91**
Interaction	862.41	118	7.31			
Total	5492.80	179				

* Not Significant at 0.05 level tab $F_{0.05}(118, 2) = 3.07$ ** Significant at 0.05 level $R_{0.05}(58) = 0.250$

The data obtained as a result of the administration of Jump Service Test was correlated in order to obtain an objectivity coefficient. Analysis of variance for objectivity estimates and the objectivity coefficient of the Jump Service test has been presented in Table – 3.

TABLE - 3
ANALYSIS OF VARIANCE AND OBJECTIVITY ESTIMATE OF JUMP SERVICE TEST THROUGH OBJECTIVE TECHNIQUES

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	tab F	R
Subjects	10073.64	59	170.74			
Trials	9.54	2	4.77	0.72*	3.07	0.96**
Interaction	777.12	118	6.59			
Total	10860.31	179				

* Not Significant at 0.05 level tab $F_{0.05}(118,2) = 3.07$

** Significant at 0.05 level $R_{0.05}(58) = 0.250$

The data obtained as a result of the administration of the Rating Scale for the Jump Service judged by three Volleyball experts who noted the performance of subjects independently was correlated in order to obtain an objectivity coefficient. Analysis of variance for objectivity estimates and the objectivity coefficient of the Rating Scale have been presented in Table – 4.

TABLE - 4
ANALYSIS OF VARIANCE AND OBJECTIVITY ESTIMATE OF JUMP SERVICE TEST THROUGH SUBJECTIVE TECHNIQUES

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	tab F	R
Subjects	4777.97	59	80.98			
Trials	37.15	2	18.55	2.07*	3.07	0.89**
Interaction	1055.85	118	8.95			
Total	5870.97	179				

*Not Significant at 0.05 level tab $F_{0.05}(118,2) = 3.07$

**Significant at 0.05 level $R_{0.05}(58) = 0.250$

The correlation of the test items and the criterion variable has been presented in Table-5.

TABLE - 5
RELATIONSHIP OF THE TEST TO THE CRITERION

S. No.	Variable Correlated	Correlation Coefficient 'r'
1.	Jump Service Test (Objective)	0.92*
2.	Jump Service Test (Subjective)	0.94*

N=60 * Significant at 0.05 level $R_{0.05}(58) = 0.250$

Table - 9 indicates that there is significant relationship between independent variables and the criterion. Therefore, it is evident that independent variable were highly related to the criterion.

Further comparison of the performance in the test was made between Volleyball and Non-Volleyball players so as to find out, if the test differentiates between Volleyball and Non-Volleyball players. The data pertaining to comparison between Volleyball and Non-Volleyball players have been presented in Table- 6.

TABLE - 6
SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN VOLLEYBALL AND NON-VOLLEYBALL PLAYERS FOR THE JUMP SERVICE TEST

S. No.	Test Items	Volleyball		Non-Volleyball (N=15)		Mean Difference	σ_{DM}	't'
		Mean	S. D.	Mean	S. D.			
1.	Jump Service Test (Objective)	29.00	4.93	15.80	2.65	13.2	1.44	9.14*
2.	Jump Service Test (Subjective)	27.27	3.44	15.22	3.60	12.05	1.23	9.81*

* Significant at 0.05 level 't' values need for significant at 0.05 with 28 degrees of freedom is 2.05

Table-6 shows that the obtained 't' values for the Jump Service Test between Volleyball and non-Volleyball players through objective and subjective techniques were 9.14 and 9.81 respectively, which are significant at 0.05 level as the required 't' value is 2.05. Further Table-6 reveals that the mean performance of Volleyball players was higher than the Non-Volleyball players. Hence, it can be concluded that there is significant difference between Volleyball and Non-Volleyball players in Jump Service Test.

Discussion of Findings:

The findings of the study indicate that test for the Jump Service in Volleyball was found to be reliable, i.e. significantly correlated when inter class correlation coefficients by analysis of variance method was employed to compute reliability.

The finding of the study further revealed that the test for the Jump Service was objective and the significant values showed that the directions of the administration were specific and clear for the performance as well as evaluation.

Finally the constructed test for the Jump Service was also found to be valid as the test items scores correlated significantly with the scores obtained in Russell and Lange Serving Test.

Conclusions:

Within the limitations of the present study the following conclusions were drawn:

1. The test for Jump Service was significantly related to the criterion.
2. The developed test meet the criterion of scientific authenticity i.e. the Jump Service test was reliable, objective and valid.
3. The test developed by the researches has the ability to predict the specific skill of Volleyball players.

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