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## Construction of overhand throw test for national level softball players

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### Abstract

The purpose of the study was to construct Overhand Throw tests in softball. The test was conducted on Two hundred male softball players who participated in senior national softball championship held at Eklavya Stadium, Agra (U.P.) from 12<sup>th</sup> to 19<sup>th</sup> Jan. 2003, were selected to serve as subjects for this study.

The criterion measure was the average of the playing ability scores of the softball players assigned independently by three softball experts.

The specific skill tests were developed through objective methods. Data for this study was collected by administering tests initially on following skills with its two different variations for Overhead Throw tests.

Two tests namely:

1. Overhand Throw for Accuracy
2. Overhand Throw on Target

Test-retest method was used to establish the reliability of the data (N=20). All subjects were given three trials administered by the same tester and inter class correlation of coefficients by analysis of variance method was employed to compute the reliability of specific skill tests. The reliability of the Overhand Throw for Accuracy (0.878) and for Overhand Throw on Target (0.870)

For assessing the scientific authenticity of the selected specific skill tests, validity of the specific skill tests were established by using Pearson's product moment correlation, i.e. the test scores with the softball playing ability scores assigned independently by three softball experts. Inter class correlation coefficients by analysis of variance method was employed to compute the reliability and objectivity of the tests.

Validity of the selected specific skill tests were also found to be significant for, Overhand Throw for Accuracy (0.829), Overhand Throw on Target (0.665 ) Thus one specific skill test out of the two with higher validity values from each skill variation selected for Underhand pitching.

Further the differential validity was found when the scores of District, State and National level softball players were compared for each specific skill test separately for Overhand Throw for Accuracy and Overhand Throw on Target (F=98.31), were significant at 0.05 level.

Thus Least Significance Difference (L.S.D) test for Post-Hoc comparison resulted in Mean difference values greater than the critical difference values among District, State and National level players on each selected test.

**Keywords:** Overhand throw for accuracy, overhand throw on target

### Introduction

Competition is the product of modern society. It is a challenge which motivates, stimulates and inspires the individual to fulfil the dream of Olympic motto "To run faster, jump higher, throw further and to strive to do better than before", and to exhibit greater endurance and skill to dominate others. In modern life those who participate in sports attach great significance to winning as the philosophy of participation in games and sports has undergone a notable change. To be a successful softball player one needs to expertise himself in fundamental skills of – Overhand Throw. The science of testing sports skills is not very old. The virtue of skill testing is a subject of ongoing debate. As usual with the new branch of development, there have been frequent revisions of the tests constructed for evaluating sports skills. Thus researcher felt the need to develop the Overhand Throw for Accuracy and Overhand Throw on Target test for national Level softball Players.

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**Methods**

Two Hundred Male softball players who participated in senior national Softball championship held at Eklavya Stadium, Agra (U.P) from 12th to 19<sup>th</sup> January, 2003 were selected as subjects for this study.

Official Softballs manufactured by Bhaseen Sports Private Limited approved by Softball Association of India were used throughout this study.

The Criterion measure was the average of the playing ability scores of softball players assigned independently by three softball experts. The coaches and experts were consulted at the personal level to conduct the tests on softball players, and a rapport was established with them for the testing programme. The researcher approached each player after giving proper and timely information before the tests were conducted. Before administering the tests the subject were briefed about the purpose of the study and details of all the tests were explained to them. They were also given sufficient number of trials to enable them to become familiar with the tests. To ensure uniform testing conditions, the subjects were tested in the morning and evening sessions. The two tests for Overhand Throw tests were administered as mentioned below.

1. Overhand Throw for Accuracy
2. Overhand Throw on Target

For assessing the scientific authenticity of the selected specific skill tests, validity of the specific skills of softball was established by using Pearson's Product moment correlation by correlating the test scores with the softball playing ability scores assigned independently by three softball experts.

One way analysis of variance (F-ratio) was applied to find out the significance of means differences among District, State and National level softball players on selected specific skill tests. Least Significance Difference (L.S.D.) test of Post-Hoc comparison was used to determine the significance of difference between ordered paired means was found to be significant at 0.05 level. Further reliability and objectivity of selected specific skill tests were established. (N=200)

The reliability of selected specific skill tests was established by test-retest method using inter-class correlation coefficients (R) by analysis of variance and judged by the same tester for three trials.

The objectivity of selected specific skill tests was established by using test-retest method computing Inter-class correlation (R) by analysis of variance judged by three different softball experts who noted the performance of the subjects independently.

**Results**

The analysis of data collected on two hundred male senior national softball players has been presented in Table-1

The data with regard to each of the independent variable i.e underhand Pitching and Underhand Pitching for Accuracy were computed to establish validity for each specific skills of softball.

Differential validity was found when the scores of District, State and National level softball players were compared for each specific skill tests separately.

For validity estimate and for establishing differential validity means and standard deviations of all the selected specific skill tests and the criterion were computed and the data pertaining to this has been presented in Table-1.

**Table 1:** Means and Standard Deviations of Selected Specific Skill Tests and the Criterion

S. No.	Tests	Means	Standard Deviation
1.	Overhand Throw for Accuracy	77.28	14.77
2.	Overhand Throw on Target	27.66	5.85

N= 200

**Validity of the Specific Skill Tests**

Pearson's product moment correlation was used for correlating the test scores with the playing ability scores for establishing the validity of specific skill tests. The data pertaining to this has been presented in Table-2.

**Table 2:** Relationship of Tests to the Criterion

S. No.	Variables Correlated	Correlation Coefficient (r)
1a.	Overhand Throw for Accuracy	0.829
1b.	Overhand Throw on Target	0.665

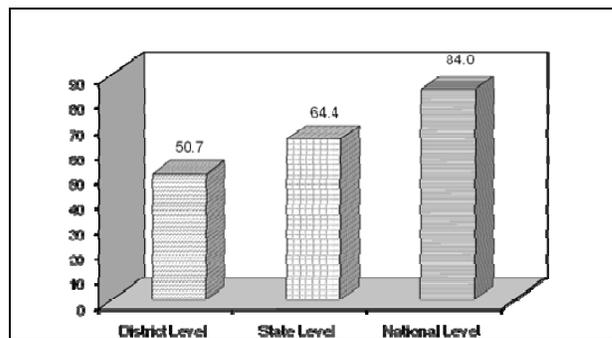
N = 200

\* Significant at 0.05 level

It is evident from Table-2 that there is a significant relationship between independent variables and the criterion out of the two tests one with higher validity values from each skill test variations selected were overhand throw for accuracy, underhand pitching, fungo hitting, fielding and softball throw for distance and base

**Comparison of Scores of District State and National Level Players**

To compare the performance in specific skill tests among softball players of District, State and National level (N=20), the means and standard deviations were computed and the data pertaining to this has been presented in Fig-1.



**Fig 1:** Mean Scores of Overhand Throw For Accuracy for District State and National Level Softball Players

Analysis of variance for reliability estimates for the test items has been presented in Table-3 and the obtained reliability coefficients (R) was given below.

**Table 3:** Analysis of Variance for Reliability Estimates of Overhand Throw for Accuracy (N=200)

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	tab F
Subjects	115740.67	199	581.61		
Trials	97.09	2	48.55	1.503	3.02
Interaction	12854.24	398	32.30		
Total	128692.00	599			

\* Insignificant at 0.05 level

tab F 0.05( 398,2) = 3.02

Further the reliability of test items for specific skills Tests in softball was computed by calculating the coefficient of Correlation (r) 0.944 was found significant at 0.05 level. Analysis of data for objectivity estimates of specific skills of softball has been presented in Table-4.

**Table 4:** Analysis of Variance For Objectivity Estimates of Overhand Throw For Accuracy (N=200)

Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F ratio	Tab F
Subjects	76864.00	199	386.2513		
Trials	41.17	2	20.58	0.550*	3.02
Interaction	14874.16	398	37.3723		
Total	91779.33	599			

\* Insignificant at 0.05 level  
tab F 0.05 (398,2) = 3.02

It is evident from Table 4 that F-ratio for three trials by three different testers were insignificant as the calculated F-values ranged from 0.550 was less than tabulated F-values as the required value to be significant is 3.02 at 0.05 level of confidence.

### Objectivity of the Test Items for Specific Skills Tests in Softball

S. No.	Variables Correlated	Correlation Coefficient (r)
1.	Overhand Throw for Accuracy	0.903*

\* Significant at 0.05 level  
r 0.05 (198) = 0.138

Table-38 reveals that the objectivity coefficients value 0.903 is significant at 0.05 level because the required value needed for significance with 198 degrees of freedom is 0.138. The obtained significant values show that the directions for the administration of the tests were specific and clear for performance as well as evaluation.

### Discussion and Conclusion

Analysis of data on overhand throw for accuracy, overhand throw on target, indicate that constructed tests in softball were reliable, i.e. significantly correlated. For this purpose test-retest method was used and inter-class correlation coefficients by analysis of variance method were employed to compute the reliability of various tests.

The findings of the study reveal that selected specific skill test are objective. The significant values shows that the directions for administration of various tests were specific and clear for performance as well as evaluation.

The newly developed specific skill tests meet the criterion of scientific authenticity i.e. the tests were reliable, objective and valid. The Overhand throw for accuracy and Overhand throw on Target were deemed to be meaningful in representing the specific skills of softball players.

### Recommendations

In the light of the conclusions drawn the following recommendations may be made: -

1. The softball coaches may use specific skill tests periodically to evaluate the effectiveness of the skill tests and the progress made by the players.
2. A similar study may be taken up by involving both the sexes of softball players at different levels.
3. Similar study can be conducted in other sports too.
4. The results of this study can be used by coaches as an aid to screening and selection of players.

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