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Construction Of Passing Skill Test Battery of Netball

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Abstract

The present study was under taken to construct passing skill test battery for women netball players. 98 National level women netball players of the age group 17 to 25 years were selected as sample for the study. Data was collected during Inter-University Camps of probable for Inter-university competition from Panjab University, Kurukshetra University, Delhi University, BPSMV University and probable of Indian Youth team in India Camp. For the present study total 6 test items namely Chest Pass, Overhead Pass, Shoulder pass, Bounce pass with single hand, bounce pass with bounce pass with both hands and Lob pass were selected. To construct passing skill test in Netball, Factor analysis was used at .05 level of significance. In the present study, sample adequacy was found good and BTS (Bartlett's Test of Sphericity) was found Significant (p=.000). Three passing skill test items namely bounce pass with single hand, Overhead pass and Shoulder pass were recorded highest factor loading significant at 0.05 level and thus selected for passing skill test for Netball

Key words: Netball, Construction of skill test, Passing Skill Test, Factor analysis.

Introduction

Netball is a fast moving, high scoring game that was adapted from basketball to better suit the genteel young women of late 19th century England. Netballers must pass the ball within 3 seconds and are allowed to take only one step with the ball before releasing it. The team in possession of the ball aims to attack towards its goal circle to score, and its opponent's role is to defend. Team consist of 12 members but 7 may take the court at any one time. Each player has a playing position determined by the areas on the court where they may move. Only the team's two are allowed to score goals. A netball court is divided into three areas of equal size. There are two goal circles (a semicircle cantered on the goal line with a goal post in the middle) at either end of the court. A 0.9 meter (3feet) circle is marked in the middle of the court. Play commences with a centre pass and restarts in the centre each time a goal is scored. The centre passes alternates between the teams throughout the match. A netball match is usually played over four 15 minutes quarters; however, a number of local variations are in place across the netball world (Shakespear, W., &Caldow, M., 2009).

Netball occupies a significant place among all other games and sports. In some respect it is unique as sport. It is an ideal sport and grand energetic game, giving enjoyment and pleasure, determining fitness and dedication. It requires physical and mental attitudes to be on a top gear to tackle all the eventualities in the match. Passing is most important skill used in the game. As there is lack of literature available on netball skill test, it was a dire requirement to design a specific skill test to help instructors and coaches to assess and evaluate the performance level of the players and to design training schedule accordingly to increase their performance.

Passing skill test as all tests can be used as additional training instrument, since it is a method which coaches can use, aiming to determine whether the goal setting was achieved. Coaches by submitting their athletes in technical skill tests can achieve the following goals: (a) to group the athletes according to their abilities, because the creation of homogeneous groups facilitates the teaching and creates the desired atmosphere among the athletes, which is not achieved when groups are heterogeneous, (b) tests and measurements can provide important information about the technical and

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physical condition of the athletes, so coaches by pointing out the weaknesses of the team can implement a scientifically tested program based exclusively on the needs of the athletes, (c) skill tests application is a valid method for the monitoring progress of the athletes, especially when these test are applied at the beginning, the middle and the end of the season. Thus, coaches are able to control both, the progress of the players, and the effectiveness of the program (Anastasiadis, 2006). Due to the above mentioned purposes, the application of skill tests is considered as a valid tool of objective control for the players' technical skill.

In a study of Bos (1988), coaches were asked about the usefulness of tests. A great percentage of these coaches (82%) responded that they used the tests for the following reasons: (a) evaluation of performance, (b) the follow-up on the athletes' further development, (c) the athletes' motivation, (d) the manipulation of the practices, (e) the contribution to the players' decision making, (f) the comparison of the groups, and (g) the group formation. Apostolidis and his colleagues (2004) have also documented that skill test are correlated with the young players' power. Thus, we can presume that new specialized training methods continually improve the physical and technical level of the athletes, and lead them to elevated levels of performance.

Methodology

Selection of subjects

For the purpose of the study, 98 national level female netball players were selected as sample for the study. Age of the subjects was ranging from 17 to 25 years.

Selection of test items

For the present study following test items were used

S.No	Test Item
1	Chest pass
2	Overhead Pass
3	Shoulder Pass
4	Bounce Pass with Single Hand
5	Bounce Pass With Both Hands
6	Lob Pass

Collection of data

Data for the present study was collected during coaching camps of probable for Inter-university competition from Panjab University, Kurukshetra University, Delhi University, BPSMV University and probable of Indian Youth team in India Camp. Research ethics protocol was followed. The purpose, the significance of the study and the requirement of the testing procedure were explained to them in detail and pre consent has been obtained from the subjects' prior administration of the test.

Result and findings

To construct passing skill test for netball factor analysis was used at .05 level of significance.

Inter-Correlation matrix showing correlation coefficient and significance level of Netball players in all selected variables has been represented in table 1

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Table 1

		Chest_Pass	Overhead_pass	shoulder_pass	Bounce pass_single	Bounce pass_double	lob_pass
Correlation	Chest_Pass	1.000	.396	.328	.445	.403	.155
	Overhead_pass	.396	1.000	.631	.469	.475	.314
	shoulder_pass	.328	.631	1.000	.503	.404	.385
	Bouncepass_single	.445	.469	.503	1.000	.714	.179
	Bouncepass_double	.403	.475	.404	.714	1.000	.218
	lob_pass	.155	.314	.385	.179	.218	1.000
Sig. (1-tailed)	Chest_Pass		.000	.000	.000	.000	.063
	Overhead_pass	.000		.000	.000	.000	.001
	shoulder_pass	.000	.000		.000	.000	.000
	Bouncepass_single	.000	.000	.000		.000	.039
	Bouncepass_double	.000	.000	.000	.000		.016
	lob_pass	.063	.001	.000	.039	.016	
a. Determinant = .124							

It is observed from table 1 that significant relationship was found between all the variables. The minimum determinant value of 0.0001 is required to avoid multicollinearity and singularity. In present condition determinant value of .124 is obtained which is greater than the required value of 0.0001. This proves that multicollinearity and singularity is not a problem of data.

KMO Measures and BTS, related to all the selected variable of Netball players is presented in table 2

Table 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.763
Bartlett's Test of Sphericity	Approx. Chi-Square	196.633
	df	15
	Sig.	.000

As per norms, in the present study, sample adequacy was found to Good. In the present study BTS(Bartlett's Test of Sphericity) was found significant(p=0.000). This shows that correlation matrix is not a identity matrix. This means there are some relationship between the variables. Therefore factor analysis is appropriate.

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Initial and After Extraction Communalities of all Selected Variables are presented in table 3

Table 3

Communalities		
	Initial	Extraction
Chest_Pass	1.000	.397
Overhead_pass	1.000	.616
shoulder_pass	1.000	.594
Bouncepass_single	1.000	.651
Bouncepass_double	1.000	.606
lob_pass	1.000	.212
Extraction Method: Principal Component Analysis.		

Table 3 shows the communalities (initial and after extraction) it is observed that in chest pass, 0.39 percent of variance associated with this variable is common or shared. In Overhead pass, 0.61 percent of variance associated with this variable is common or shared. In Shoulder pass0.59 percent of variance associated with this variable is common or shared. In Bounce Pass with single pass 0.65 percent of variance associated with this variable is common or shared. In bounce pass with double hand 0.60 percent of variance associated with this variable is common or shared. In Lob pass 0.21 percent of variance associated with this variable is common or shared.

Total Variance related to all Components including Amount of Variance Contributed by each Component is presented in table 4

Table 4

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.075	51.252	51.252	3.075	51.252	51.252
2	.990	16.504	67.756			
3	.664	11.061	78.817			
4	.633	10.547	89.364			
5	.389	6.487	95.851			
6	.249	4.149	100.000			
Extraction Method: Principal Component Analysis.						

First part of table 4 explains the eigenvalues of each component

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First component explains the highest i.e. 51.252%. Second component explain 16.504% and the total of first and second component was 67.756%. Third component explains 11.061% and the total of first, second and third component was 78.817%. Fourth component explains 10.547% and the total of first, second, third and fourth component was 89.364%. Fifth component explains 6.487% and the total of first, second, third, fourth and fifth component was 95.851%. Sixth component explains 4.149% and the total of first, second, third, fourth, fifth and sixth component was 100%.

Second part of table 4 explains the eigen values after extraction. In this, component having eigen values less than one are removed.

Component Matrix presenting factor loading of different variables has been presented in table 5

Table 5

	Component
	1
Chest_Pass	.63
Overhead_pass	.78
shoulder_pass	.77
Bouncepass_single	.81
Bouncepass_double	.78
lob_pass	.46
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 5 shows that only one component was extracted which is named as "passing skill of netball players" and the variables above 0.7 factor loading are to be retained in passing skill test. Bounce pass with single hand (.81), Bounce pass with both hand (.78), Overhead pass (.78) and Shoulder pass (.77) reported high significant loading at 0.05 levels.

Conclusion

Statistical analysis of data reveals that out of six test items three test items selected for the passing skill test were

1. Bounce pass with single hand.
2. Overhead pass.
3. Shoulder pass.

Though, Bounce pass with single hand (.81) and Bounce pass with both hand (.78) had also reported high factor loading, but serving same purpose so, the Bounce pass with single hand (.81) was selected as the test item for passing skill test. The findings of the study are in conformity with Singh, Choudhary& Patel (2016) in a study to construct skill test for kabbadi,Purashwani, P. (2011) for developing table tennis skill test &Sharma.P. (2008) for constructing skill test for handball.

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A study (Sachanidi, Maria &Apostolidis, Nikolaos&Chatzicharistos, Dimitrios&Bolatoglou, Theodoros (2013)) indicates that the passing efficacy defines the evolution of the game, and is very important for the coaches to improve the specific skill of their athletes. Also, the skill tests can evaluate the strength and the accuracy of the execution, but they cannot evaluate psychological abilities such as, the way the player is thinking during the execution of the pass, the way the player chooses to pass correctly, and most importantly the possible interference of an opponent during the game. According to Grehaigne et al. (1997) the way to evaluate the athletes' performance was through (a) standardized tests, (b) post-game statistical analysis, (c) evaluation of performance in fixed environments, and (d) observation during the competition. In addition, when the youngsters undergo the different skills test, possible psychological influences cannot be observed because the tests take place outside competition conditions (Chatzopoulos et al., 2006).

In conclusion, as a limitation passing skill test cannot assess their psychological and mental qualifications, the choice of proper passing option per event, the timing in thought and the execution of the skill, and finally the interference and obstruction by the opponent in a game. But, evaluates the power and the accuracy of the performance of the netball players and application of the test items can function as a motivation to the players for their further development. The greater passing ability a player has the better performance he will present during the game. The scholar feels that these passing skills contribute significantly and if a coach make use of these test it will help in their coaching skills.

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