



CONSTRUCTION OF SKILL TESTS AND COMPILATION OF NORMS FOR SCOOP AND DRAG FLICK SKILLS IN FIELD HOCKEY

*Pon.Anbarasu, **Dr.Mrs. Sheila Stephen

*Ph.D., Research Scholar, Department of Physical Education, TNPE&SU, Chennai, Tamilnadu, India.

** Principal YMCA College of Physical Education, Nandanam, Chennai

Abstract

The purpose of this study was to construct the norms for evaluating performance of players in field hockey Skill Test. Since, there is a lack of standardized evaluative criteria in field hockey for assessing the ability, grading and predicting the performance of field hockey players, an effort was undertaken to construct Norms for Skill Test for college level field hockey Players. For this purpose 500 male college level field hockey players of different colleges in Tamilnadu were randomly selected to serve as subjects. The performance of field hockey players in field hockey test battery of three test items, namely, scooping, drag flick accuracy and drag flick speed. The data was collected by administering the test for the selected test items during the regular training sessions in the year 2012-13. The data, which was collected by administering tests, was statistically treated to develop norms for all the test items. The norms were constructed by using 7 Sigma Scale techniques analyzed through statistical packages, the scores were further classified into five grades i.e. low, low average, average, above average, good and outstanding under Normal Distribution. It was found that there was very less number of players in the outstanding and low performance grading.

Key Words: Field Hockey, skills, norms, scoop, drag flick and drag speed.

INTRODUCTION

Hockey is one of the sports, which experiments many changes in order to improve its development. It has a perfect mix between technique and coordination, with two elements: the ball and the stick. It is striking for many viewers, that the goal can only be marked just inside the area. The penalty corner is one of the most important game situations in field hockey, with one third of the goals resulting from this tactical situation (Laird and Sutherland, 2003; Pineiro, 2008). The drag-flick is between

1.4 and 2.7 times more efficient than hitting or push-shooting the ball towards the goal when playing a penalty corner (McLaughlin, 1997; Pineiro et al., 2007; Yusoff et al., 2008). Only a few studies have analyzed the drag-flick. Some of them have provided kinematic information about players from different levels (McLaughlin, 1997; Yusoff et al., 2008; López de Subijana et al., 2010). These authors reported the cues which indicated a drag-flick: a wide stance, a whipping action of the stick before the hips and shoulders were

rotated, and a final acceleration of the stick. In addition, **Baker et al. (2009)** focused on anticipation skills of the goalkeepers, while **Jennings et al. (2010)** studied the registered forces on the face of the stick. All of these studies were descriptive in nature. Most of the previous field hockey experimental studies have focused on training topics, such as endurance (**Manna et al., 2009; Chapman et al., 2009**), general physical condition (**Astorino et al., 2004; Spencer et al., 2004**), velocity (**Bloomfield et al., 2007**) and strength (**Cochrane and Stannard, 2005**). In relation to technical training, **Beckamnn et al., (2010)** applied different treatments for the push and the flick in indoor hockey twice per week during six weeks, obtaining very heterogeneous findings. To date, no studies have been conducted concerning the training of the drag-flick skill in field hockey.

Recent developments in field hockey, such as the artificial playing surface, new stick material, and the interchange rule have increased the number of physiological and technical demands made on field hockey players at all levels, but in particular at the elite level. The penalty corner is one of the most important scoring plays in field hockey (**Laird, Sutherland, 2003**). The drag-flick is used for shooting at goal with speed and precision, as it is more effective than other techniques such as hits and pushes when playing a penalty corner (**McLaughlin, 1997**). According to the rules of hockey, there are no limits regarding the maximum ball height when the first shot at goal is a push or a drag-flick. Women players tend to use the drag-flick less than deflections or hits (**Pineiro, 2008**).

Most studies that have analysed strike techniques in field hockey were based on male samples (**Bretigny, 2008**); only *de*

Subijana et al. included females in their study. Previous studies have provided kinematic information about the drag-flick (**Subijana, 2010**). These authors described the technique as a wide stance, a whipping action of the stick before the hips and shoulders are rotated and a final acceleration of the stick. Recent studies have focused on the anticipation skills of goalkeepers and on the forces recorded on the face of the stick (**Jennings, et al., 2010**). Moreover, of all hockey experimental studies (**Astorino, et al., 2004**), only one was based on training technique. The latter study involved different training methods for the push and flick in indoor hockey twice a week for 6 weeks, with variable findings. To date, no studies have considered training in the drag-flick technique in women field hockey players. Therefore, the aim of this study was to Construction of skill tests and compilation of norms for scooping, drag flick accuracy and drag flick speed among college level field hockey players.

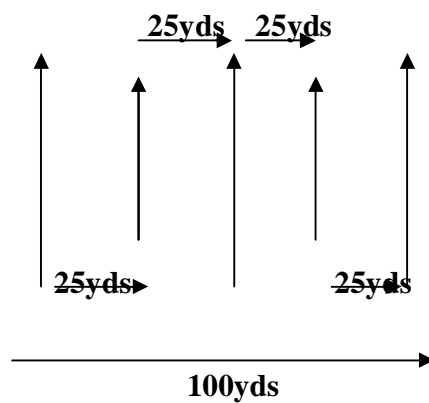
Methodology

To achieve the purpose of this study, five hundred field hockey players were selected from various institutions in Tamilnadu state at random and their age ranged from 18 to 28 years. Reliability, objectivity, validity and norms were evaluated as per the standard procedure by (**Safrit,1990**). The mean and standard deviation of the raw scores were computed by using the formula suggested by **Mathew, 1973**. After calculating the mean and standard deviation, the scores were converted into standard score and construct the Hull Scale. In all the cases to test the significance, 0 .05 level of confidence was used. As per the available literature, the following tests were used to collect relevant data on the selected criterion variables and they were presented in the Table I.

TABLE - I
TEST SELECTION.

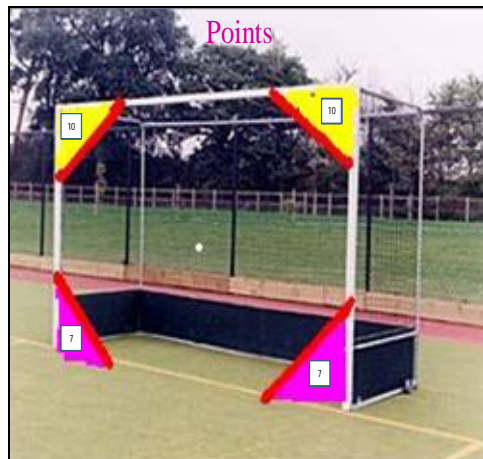
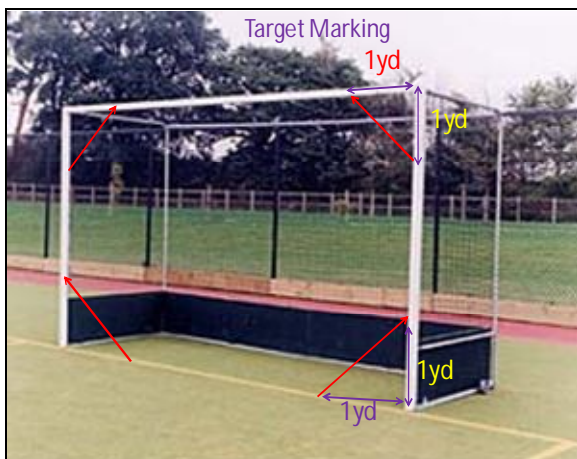
Variables	Test/Instrument	Unit of Measurement
Scooping	Scooping test	In Yards
Drag and Flick	Drag and Flick	In Points
Drag and Flick Speed	Drag and Flick	In Kmph

SCOOP-TEST
Field Marking



Execution: The subject stand behind the starting line as soon as the signal ready start the subject execute the scooping towards the marking area. The length to the nearest yard is recorded as the score. **Scoring:** Three trials are permitted and the best of three trials is the final score.

Drag flick test. The subject shoots a stationary ball from inside the 16 yards circle. The subjects execute only drag flick. Three practice trials were given, and then three consecutive balls are attempted towards the target area.



Accuracy score: 10points are awarded for two upper side targets, 7points are awarded for two lower side targets and 5 points are awarded for remaining areas. Total of three trials was considered as the accuracy score.

Speed score: Drag flick speed tracker

software was used (in Apple i4phone) to calculate the speed score. The time taken to complete the drag flick execution i.e. the time elapses between the subjects' stick touches the ball and to the ball crosses the goal line.

ANALYSIS OF DATA

The descriptive analysis and qualitative grading of the scores of selected skills has been shown from table I & II.

TABLE - IV
DESCRIPTIVE ANALYSIS AND HULL SCALE VALUE FOR SELECTED SKILLS

SKILLS	Mean	SD	Min.	Max.	Hull Scale
Scooping	60.98	13.54	22	90	0.9478
Drag Flick Accuracy	18.04	4.56	0	30	0.3192
Drag Flick Speed	78.42	16.97	35	110	1.1879

TABLE II
THE QUALITATIVE GRADING FOR THE CONSTRUCTED NORMS FOR THE SELECTED SKILLS

Score	Qualitative grading	Number of players in each grade in		
		Scoop	Drag Flick Accuracy	Drag Flick Speed
Below 25	Low	1	9	2
25 – 35	Low average	50	28	46
36 - 50	Average	221	173	199
51 - 65	Above average	206	273	248
66 - 75	Good	22	15	5
75 and above	Outstanding	0	2	0

THE HULL SCALE NORMS FOR THE SCOOPING

Hull Scale	0	1	2	3	4	5	6	7	8	9
0	13.59	14.54	15.49	16.43	17.38	18.33	19.28	20.22	21.17	22.12
10	23.07	24.02	24.96	25.91	26.86	27.81	28.75	29.70	30.65	31.60
20	32.55	33.49	34.44	35.39	36.34	37.29	38.23	39.18	40.13	41.08
30	42.02	42.97	43.92	44.87	45.82	46.76	47.71	48.66	49.61	50.55
40	51.50	52.45	53.40	54.35	55.29	56.24	57.19	58.14	59.08	60.03
50	60.98	61.93	62.88	63.82	64.77	65.72	66.67	67.61	68.56	69.51
60	70.46	71.41	72.35	73.30	74.25	75.20	76.14	77.09	78.04	78.99
70	79.94	80.88	81.83	82.78	83.73	84.68	85.62	86.57	87.52	88.47
80	89.41	90.36	91.31	92.26	93.21	94.15	95.10	96.05	97.00	97.94
90	98.89	99.84	100.79	101.74	102.68	103.63	104.58	105.53	106.47	107.42
100	108.37									

THE HULL SCALE NORMS FOR THE DRAG - FLICK ACCURACY

Hull Scale	0	1	2	3	4	5	6	7	8	9
0	2.08	2.40	2.72	3.04	3.36	3.68	4.00	4.31	4.63	4.95
10	5.27	5.59	5.91	6.23	6.55	6.87	7.19	7.51	7.83	8.14
20	8.46	8.78	9.10	9.42	9.74	10.06	10.38	10.70	11.02	11.34
30	11.66	11.98	12.29	12.61	12.93	13.25	13.57	13.89	14.21	14.53
40	14.85	15.17	15.49	15.81	16.12	16.44	16.76	17.08	17.40	17.72
50	18.04	18.36	18.68	19.00	19.32	19.64	19.96	20.27	20.59	20.91
60	21.23	21.55	21.87	22.19	22.51	22.83	23.15	23.47	23.79	24.10
70	24.42	24.74	25.06	25.38	25.70	26.02	26.34	26.66	26.98	27.30
80	27.62	27.94	28.25	28.57	28.89	29.21	29.53	29.85	30.17	30.49
90	30.81	31.13	31.45	31.77	32.08	32.40	32.72	33.04	33.36	33.68
100	34.00									

THE HULL SCALE NORMS FOR THE DRAG - FLICK SPEED

Hull Scale	0	1	2	3	4	5	6	7	8	9
0	19.03	20.21	21.40	22.59	23.78	24.96	26.15	27.34	28.53	29.72
10	30.90	32.09	33.28	34.47	35.66	36.84	38.03	39.22	40.41	41.60
20	42.78	43.97	45.16	46.35	47.53	48.72	49.91	51.10	52.29	53.47
30	54.66	55.85	57.04	58.23	59.41	60.60	61.79	62.98	64.17	65.35
40	66.54	67.73	68.92	70.10	71.29	72.48	73.67	74.86	76.04	77.23
50	78.42	79.61	80.80	81.98	83.17	84.36	85.55	86.74	87.92	89.11
60	90.30	91.49	92.67	93.86	95.05	96.24	97.43	98.61	99.80	100.99
70	102.18	103.37	104.55	105.74	106.93	108.12	109.31	110.49	111.68	112.87
80	114.06	115.24	116.43	117.62	118.81	120.00	121.18	122.37	123.56	124.75
90	125.94	127.12	128.31	129.50	130.69	131.88	133.06	134.25	135.44	136.63
100	137.82									

CONCLUSIONS

On the basis of hull scale norms in the field hockey skills of scooping and drag-flick (Accuracy and Speed), the following conclusions were drawn.

1. In field hockey scoop distance test as per the qualitative grading by the constructed norms it was seen that 1 player out of the 500 were low performer, 50 players were found to be in low average, 221 were average, 206 were seen in the above average group, 22 were found to be good and none among them seen in the outstanding in performing the scooping skill.
2. In field hockey drag-flick accuracy test as per the qualitative grading by the constructed norms it was seen that 9 players out of the 500 were low performer, 28 players were found to be in low average, 173 were average, 273 were seen in the above average group, 15 were found to be good and 2 were seen in the outstanding in performing the drag-flick accuracy skill.
3. In field hockey drag-flick speed test as per the qualitative grading by the constructed norms it was seen that 2 players out of the 500 were low performer, 46 players were found to be in low average, 199 were average, 248 were seen in the above average group, 5 were found to be good and none among them seen in the outstanding in performing the drag-flick speed skill.

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