International Journal of
Recent Research and Applied Studies

Construction of Skill Tests and Compilation of Norms Hitting and Push Speed Skills in Field Hockey

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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, Hitting, PUSH speed. The data was collected by Administrating the test for the selected test items during the regular training sessions in the year 2012 to 2013 the data which was collected by administering tests , was statistically tread to develop norms for all the test items. The norms were constructed by using 7 Sigma Scale techniques analysed 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.

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 the field of hockey, with one third of goals resulting from this tactical situation (Laird and Sutherland, 2003; Pineiro, 2008). The PUSH 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 analysed the push. Some of them have provided kinematic information about players from different levels (McLaughlin, 1997; Yusoff et al., 2008; Lopes de subijana et al., 2010). These authors reported the cues which indicated a hitting: 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 (Mannaet al., 2009; Chapman et al., 2009), general physical condition 9Astorino et al., 2004; Spencer et al., 2004), Velocity Bloomfield et al., 2007) and strength (Cochrance and standard, 2005). In relation to technical training, Beckamnn et al.,(2010) applied different treatments for the push and the hit in indoor hockey twice per week during six weeks, obtaining very heterogeneous findings. To data, no studies have conducted concerning the training of the push skill in field hockey.

  Recent developments in field hockey, such as the artificial playing surface, new stick material, and the inter change 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 players in field hockey (Laird, Sutherland, 2003). The PUSH 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 hit. Women players tend to use the push 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 Subjiana et al., included females in their study. Previous studies have provided

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kinematic information about the push speed (Subijsns, 2010).

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 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 standard deviation, the scores were converted into standard score 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 criteria variables and they were presented in the Table 1.

Table 1
Test Selection

Variables	Test/ Instrument	Unit of Measurement
Hitting	Hitting Test	In Yards
PUSH Speed	PUSH	In Kmph

Analysis of Data

The descriptive analysis and qualitative grading

of the scores of selected skills has been shown from table 2 & 3.

Table 2
Descriptive analysis and scale value for selected skills

SKILLS	MEAN	SD	MIN.	MAX.	HULL SCALE
Hitting	60.98	13.54	22	80	0.8478
PUSH	78.42	16.97	30	100	1.1079

Table 3
The qualitative grading the constructed norms for the selected skills

Score	Qualitative grading	Number of Players in each grade in	
		Hitting	PUSH
Below	Low	1	2
25-35	Low Average	60	45
36-50	Average	211	200
51-65	Above Average	206	240
66-75	Good	22	13
75 and Above	Outstanding	0	0

Table 4
The hull scale norms for the hitting

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	40.14	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	56.19	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	105.63	106.47	107.4
100	108.37									

Table 5
The hull scale norms for push speed

Hull Scale	0	1	2	3	4	5	6	7	8	9
0	19.03	20.21	21.40	22.59	24.96	26.95	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	46.37	47.53	48.72	49.91	51.10	52.59	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	102.88	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	133.44	136.63
100	137.82									

Conclusion

On the basis of hull scale norms in the field hockey skills of hitting and push (Accuracy and speed), the following conclusions were drawn.

1. In field hockey hitting distance test as per the qualitative grading by the constructed norms it was seen that 1 player out of 500 were low performer, 60 players were found to be in low average, 211 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 hitting skill.

2. In field hockey push speed test as per the qualitative grading by the constructed norms it was seen that 2 players out of the 500 were low performer, 45 players were found to be in low average, 200 were average, 240 were seen in the above average group, 13 were found to be good and none among them seen in the outstanding in performing the push speed skill.

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Please cite this article as: Dr. Pon.Anbarasu (2017). Construction of Skill Tests and Compilation of Norms Hitting and Push Speed Skills in Field Hockey. *International Journal of Recent Research and Applied Studies*, 4, 8(12), 45-47.

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