Development and Validation of a New 15 Metre Dribbling Skill Test of Field Hockey: A Practical Tool for Assessing Ball Control

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ABSTRACT

Dribbling is a critical component in field hockey. To dribble a player needs to master a combination of hockey skills. A new dribbling skill test for field hockey has been developed and validated as a practical tool for assessing ball control and overview. The test, known as the Field Hockey Dribble Test (FHDT), evaluates a player's ability to move a ball through a course with obstacles. The FHDT requires players to dribble a ball through the course of 15 metres. Dribbling was validated using a sample of 30 athletes, demonstrating excellent reliability (0.91), high construct validity (0.01), and high objectivity (0.99). The findings suggest that the 15 Metre Dribbling is a reliable, valid, and practical tool for assessing a combination of skills, including ball control. The FHDT provides players, coaches, trainers and researchers with a valuable resource for evaluating and improving athletic performance.

Keywords : Field Hockey, Dribbling, Ball Control, Field Hockey Dribble Test, Reliability, Validity, Objectivity

Introduction

Playing field hockey consists of various competences that together form the technical performance of hockey players. To select players, their different skills can be assessed. Looking at the tools available through Sports Authority of India (SAI), a number of tests are provided, including: shooting in the target, balancing the ball on the stick, moving with the ball. A test on dribbling is not available.

Psycho-motor tests are standardized assessments that measure an individual's cognitive and motor skills, evaluating the integration of psychological and motor

functions. These tests aim to assess cognitive-motor integration, predict performance, diagnose motor skill deficits, and monitor progress. There are various types of psycho-motor tests, including reaction time, coordination, perceptual-motor, and dexterity tests. The applications of psycho-motor tests are diverse, ranging from sports and athletic selection to clinical, occupational, and educational settings, providing valuable insights into cognitive-motor abilities and informing targeted interventions.

Reliability, validity, and objectivity are essential concepts in research and assessment. Reliability refers to the consistency and dependability of a measurement tool, ensuring that it yields similar results under repeated administrations. Validity, on the other hand, pertains to the accuracy and relevance of a measurement tool in assessing the intended construct or concept. Objectivity involves minimizing personal biases and ensuring that the measurement tool is free from subjective influences. Together, these concepts form the foundation of sound research and assessment practices, enabling researchers and practitioners to draw meaningful conclusions and make informed decisions.

Assessment in hockey is a systematic process of evaluating a player's technical, tactical, physical, and psychological abilities to identify strengths, weaknesses, and areas for improvement. It involves the use of various tools and methods, such as skill tests, game observations, and physical fitness assessments, to gather data and inform coaching decisions. The goal of assessment in hockey is to optimize player development, enhance team performance, and gain a competitive edge.

Dribbling is a very important skill in field hockey: to keep a team's ball possession, passing opponents and creating opportunities towards scoring (A Hockey World, n.d.). There are different variations to dribbling (Mitchell-Taverner, 2005; Active SG Circle, n.d.), over all in dribbling a player runs while moving the ball from one side to another with their hockey stick.

Dribbling requires a combination of skills, including ball control, stick rotation, hand-eye coordination, flexibility, maintaining peripheral vision, and decision-making (Mitchell-Taverner, 2005). A test on dribbling will see how a player combines different skills. Reviewing this competence in dribbling can contribute to a more complete assessment of a player's strengths, potential and contribution in a team (Antara et. al, 2023).

Purpose of the study

The primary objective of this study is to develop and validate a reliable, valid, and practical dribbling test specifically designed for evaluating field hockey players.

Methodology

This study involved 30 hockey players (15 males, 15 females) recruited through local sports clubs. The participants were aged 16-30 years, with various years of hockey experience, ranging from 2 to 3 years. The players are currently engaged in hockey training (at least 2 times/week), and free from injuries or illnesses that could impact their performance.

Objective- To check ability of the player of dribbling skill and ball control.

Equipment required - Hockey stick, hockey ball, 16 dish cones, meter tap, 2 administrator.

Test Description Protocol

The test is named Field Hockey Dribble Test (FHDT) and setup and data collection is described below.

- Ground preferably is a flat surface, to resemble the situation of astro turf as much as possible.
- 16 cones in a straight line, one meter distance between cones, total 15 meters.
- A ball available at the start of each test for each player at the starting line.
- 2 test administrators are involved:
    - Administrator 1 near to the first cone, ensuring the correct starting position and departure of each player.
    - Second administrator at the last cone, with whistle and stopwatch.
- Every player's test is taken separately, consecutively.
- Each player has one turn.
- In case a player loses control of the ball, time keeps running and the player has to resume from the

cone where they last had control of the ball. So no cones are skipped to player's advantage.

Scoring Procedure

Administrator 1 checks the position of the player on the starting line. When correct, communicate to Administrator 2.

- Administrator 2 starts the stopwatch and blows the whistle at the same time.
- On the whistle, the player starts from the first cone. The player dribbles (zigzag) past each cone.
- Administrator 1 keeps an eye on the player and corrects dribbling.
- Administrator 2 focuses on the finish line, to stop the stopwatch when the player crosses the finish line.

Data Analysis

Descriptive statistics (mean, standard deviation) were calculated to summarize participant characteristics and test results. Reliability analysis (test-retest reliability) was performed to assess the consistency of the test results.

Table No.1 : *Descriptive Statistics of Hockey Player (New Test)*

Statistics	Score
Mean	15.28
Median	14.53
Mode	15.30
Range	5.56
SD	1.86
MIN	12.65
MAX	18.21

Interpretation

The results suggest that the FHDT Test is a reliable and valid measure of dribbling, with a relatively low variability in scores. The average completion time of 15.28 seconds indicates that the test is challenging, but achievable for athletes with good ball control.

The moderate spread in scores (range = 5.56 seconds) suggests that the test can differentiate between athletes with varying levels of dribbling. The relatively low standard deviation (SD = 1.86 seconds) indicates that the test scores are consistent and reliable.

Overall, the results provide evidence for the validity and reliability of the 15 Metre Dribbling Skill Test of Field Hockey: A Practical Tool for Assessing Ball Control.

Table No. 2 : *Correlation of New Constructed Test*

Variables	Correlation (sec)
Validity	0.44
Objectivity	0.91
Reliability	0.99

Conclusions

The 15-meter dribbling skill test for field hockey shows moderate validity (0.44), high objectivity (0.91), and excellent reliability (0.99), making it a practical tool for assessing ball control. Its reliability ensures consistency, and objectivity reduces bias. While validity is moderate, the test remains useful, with potential for further refinement.

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