



ELSEVIER

Contents lists available at ScienceDirect

Human Movement Science

journal homepage: www.elsevier.com/locate/humov



A new method for assessing squash tactics using 15 court areas for ball locations



Goran Vučković^a, Nic James^b, Mike Hughes^b, Stafford Murray^c,
Zoran Milanović^{d,*}, Janez Perš^e, Goran Sporiš^f

^a Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia

^b London Sport Institute, Middlesex University, London, England, United Kingdom

^c English Institute of Sport, Manchester, England, United Kingdom

^d Faculty of Sport and Physical Education, University of Niš, Niš, Serbia

^e Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia

^f Faculty of Kinesiology, University of Zagreb, Zagreb, Croatia

ARTICLE INFO

Article history:

Available online 16 February 2014

Keywords:

Squash tactics

Ball analysis

Method

Shot types

ABSTRACT

Tactics in squash have typically been assessed using the frequency of different shot types played at different locations on the court either without reference to other relevant information or on the basis of the preceding shot. This paper presents a new squash specific method for categorizing court locations in which the ball was played, a novel techniques for assessing the reliability of this method and presents typical shots responses in these new areas controlled for preceding shot as well as the time between shots and the handedness of the players. Twelve games were viewed using the SAGIT/Squash software and 2907 shots viewed a second time from a video image taken from behind the court with an overall agreement of 88.90% for the court location data and 99.52% for shot type. 3192 shots from 9 matches from the 2003 World Team Championships were analyzed in SAGIT/Squash. In the court areas analyzed between 2 and 7 shot responses were predominant suggesting tactical patterns were evident. This was supported by differences evident between shot responses played from the two back corners where the backhand side was characterized by a predominance of straight drives whereas straight and crosscourt drives were played on the forehand side. These results tended to confirm that tactics i.e., consistent shot types, are played although these are only apparent when factors that determine shot selection

* Corresponding author. Address: Faculty of Sport and Physical Education, Čarnojevićeva 10a, 18000 Niš, Serbia. Tel.: +381 63 7 399 366.

E-mail address: zooro_85@yahoo.com (Z. Milanović).

are accounted for. This paper has controlled for some of these factors but others need to be considered e.g., if individual player profiles are to be ascertained.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

Squash performance is largely characterized by the movement of players and shot selection. The main objective is to move an opponent away from a central area of the court, commonly referred to as the 'T area'. Vučković, Perš, James, and Hughes (2009) found that winners of games tended to spend a greater proportion of time in the T area (a 2×2.8 m area) than losers although this was not evident in closely contested games. The fact that players sometimes failed to position themselves in the T area at the moment when their opponent was playing their shot was thought to be due to shot selection and the accuracy of the shot. However no analysis was undertaken by Vučković et al. (2009) regarding shot types and consequently the implications of playing different shots in different court locations was not investigated.

Previous research has also tried to infer tactical aspects of squash performance using the frequency of different shot types played at different locations on the court (Chan & Hong, 1996; Hong, Robinson, Chan, Clark, & Choi, 1996; Hughes, 1985, 1998). While this can give a general idea of the typical shots played, e.g., county players typically play the ball to the back of the court on the backhand side (Hughes, 1985, 1998), a more comprehensive analysis would also consider the preceding shot (McCarthy & Franks, 1996). The preceding shot is likely to be important since some shot types can put an opponent under severe pressure e.g., a hard low accurate drive, whereas other may produce minimal or no pressure e.g., an inaccurate lob gives an opponent lots of time and may be played from the middle of the court. To some extent this relates to the available time for a shot to be played, a factor that has not received much attention in the literature. This type of analysis has the potential for discovering whether players adopt similar strategies irrespective of their opponent i.e., a consistent pattern from specific court locations, or whether they adapt their shot selections as a consequence of trying to limit the effectiveness of their opponent's shots e.g., different patterns against different players.

One issue that has seemingly not been debated is the dimension and shape of the cells used for the shot locations. Previous researchers have consistently used 16 rectangular cells of equal dimension with no discussion of their appropriateness. We considered two issues of relevance to the appropriateness of these cell dimensions. Firstly the location of the shot may be more critical near the sidewalls than in the center of the court. Secondly straight and crosscourt shots tend to have different trajectories, particularly when the sidewalls are hit. Consequently this paper presents a case for an alternative method of dividing the court into cells, which takes into consideration squash tactics.

In order to assess the movement and shot characteristics of squash players it is necessary to have a data collection system that can reliably and accurately record these variables (Atkinson & Nevill, 1998). James, Taylor, and Stanley (2007) suggested that reliability in performance analysis concerns the extent to which the event codes reflect what happened in the game and is therefore also an estimate of the accuracy (validity). These event codes can be manually input by the analyst or, using a system like SAGIT/Squash, automatically processed in software. Performance analysis researchers have taken this issue seriously since Hughes, Cooper, and Nevill (2002) presented data to show that 70% of research papers presented at world conferences featuring performance analysis papers failed to present any reliability assessments. This paper prompted researchers to present reliability statistics although debate ensued regarding how this should be achieved culminating in a reliability edition of the International Journal of Performance Analysis in Sport in 2007 where different views were expressed regarding statistical tests to adopt. Consequently researchers today routinely present reliability information, however, one issue presented by Hughes et al. (2002), that a reliability assessment should be at the level of the subsequent analysis, has seemingly not been considered to the same extent. Since a reliability test determines the extent to which errors in data capture are present, the

Download English Version:

<https://daneshyari.com/en/article/928412>

Download Persian Version:

<https://daneshyari.com/article/928412>

[Daneshyari.com](https://daneshyari.com)