Editorial



# Match performance in racket sports: Crosstalk between current situation and future prospect

Volume 3 Issue 1 - 2019

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**Received:** December 21, 2018 | **Published:** January 04, 2019

## Editorial

Racket sports are among the most popular sports around the world. Over the last decade, there has been a remarkably increasing number of publications that addressed various aspects of these sports. Generally, racket sports have been categorized into a four main sports; tennis, badminton, table tennis and squash in which the game of all types consists commonly of activities involving a lot of an intermittent efforts and break events. The play event in these sports during the game structured as a unique characteristic referred to rally. The rally attributes are investigated using different technologies for establishing training strategies during the game with respect to the structure of every sport. During the match duration that varies between 20 to 90 min across these sports,[1] superior player should perform different important activities over the match play including moving quickly as possible, accelerate, decelerate, multiple change direction, maintain static and dynamic balance, and perform optimum stroke generation.[2] In main racket sports, match performance characteristics were investigated[3–7] tennis,[8–11] badminton,[12–15] table tennis, and[16–21] squash. Match performance outline data is formulated into more essential variables in tennis, badminton, table tennis and squash respectively, for instance rally time (5-12, 4-8, 3-4, and 15-20 sec), recovery time between ball or shuttlecock hit to the end of point (15-20, 10-16, 6-8, and 8-10 sec), percentage of the effective playing time (20-30, 40-50, 30-35, and 50-70 %), a work-rest ratio (1:4, 1-2, 1-3, and 1-1 W:R).[22–26] The player movement and the covered distance in these sports dictated during last years with a little attention for more reasons such as the match rules of federations and the limitation during capturing motion with GPS units in indoor environments, Nevertheless, for example in tennis,[27–29] badminton,[30,31] table tennis,[32] and squash.[33]

In addition, the physiological responses in racket sports players were assessed during match play and noticed significantly differ based on the match duration and the natural of each sport. The physiological important elements such as the exercise intensities percentage of maximum capacity (%HRmax and %VO2max) have been reported respectively for racket sports tennis, badminton, table tennis and squash as follow, %HRmax (70-85, 75-90, 80-85, and 85-92 %) and %VO2max (60-80, 75-85, 60-75, and 80-85 %).[1–31] Currently and besides to the continuous growth of publications in racket sports, skill tests modifications were developed to simulate the performance during matches in these sports. Prospectively, future studies should examine the relationship between outcome variables of the match play and the simulation modified test batteries results in each sport based on player performance in order to improve the training components for each sport according to the match demands. In this context, Brink and Lemmink[34] proposed that the match performance variables such as covered distance, acceleration, declaration, directional changes could derive the physical performance characteristics of players according to match analysis. In other hand, it has been indicated that the lower extremities mechanical load could be determined by the inertial measurement units that also captured some technical performance indicators like passing, kicking, and ball control in soccer sport,[35] with respect to the external factors from match to match variation. Briefly, what interesting researcher in racket sports field should be keeping in their mind for future studies?

In racket sports, the simulation applications according to the match performance outputs which used during player investigation and training intervention are essential key for successes in these sports and using the application of new technologies and sensors during the training or competitive is vital to these sports for technical and tactical analysis. In line with the technological revolution in racket sports and with consistent to the recommendation since 2003 which was approved by McGarry, O'Donoghue;[36] Kovalchik and Reid[37] have predicted the emotions of professional players in tennis sport by observed the facial expressions of players using 17 facial action units in match broadcasts. In addition, Lin, Huang[38] determined the fatigue by the driver's eyes with percentage of eye closure time method and currently this year Gravina and Li[39] have used multisensory fusion to determine the emotion relevant activity. Consequently, further experiments in racket sports should consider the remarkable improvement in the sport technology applications that offer better understanding of the game event (rallies) during these sports owing to the accurate tracking data during match performance.

## Acknowledgments

None.

## Conflicts of interest

The author declares there is no conflict of interest.

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