

SELECTED PHYSIOLOGICAL AND PERCEPTUAL RESPONSES DURING A SIMULATED LIMITED OVERS CENTURY IN NON-ELITE BATSMEN.

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What is the problem and what is known about it so far?

Cricket is one of the most popular sports in the world with the game having changed dramatically over the last century. The first form of the game, five day test matches, has evolved into one day international cricket (50 over games) and more recently, there has been the introduction of the twenty over format of the game. As a result, cricketers of the modern era are faced with increasing demands both physically and psychologically, and are constantly under pressure to perform. However, the physical demands that batsmen are faced with have received very little research attention, especially over extended periods of time. More specifically, no research has focused on the effects that an increased physical load will have on a batsman's performance. By understanding these demands it may be possible to implement specific and scientifically based training programs to improve performance and reduce the risk of injury.

Why did the researchers do this particular study?

The researchers set out to determine the physical demands and perceived effort associated with scoring a limited overs century in non-elite batsmen. A further aim was to assess how these demands influenced batting performance; more specifically, sprinting between the wickets (sprint times) and batting skill (accuracy of the impact of the ball on the bat).

Who was studied?

The sample consisted of 17 male non-elite cricket batsmen from the Rhodes University Cricket Club

How was the study done?

Two testing sessions were required. During the first session basic data were collected, the protocol was explained and players were habituated to the equipment and the simulated century.

During the second testing session players performed the BATEX© century protocol. This consisted of 6 stages (21 minutes, 5 overs each) and took 2 hours and 20 minutes to complete, the typical amount of time that a batsmen spends at the crease when scoring a century. Each stage was specific to a certain phase of play and batsmen were encouraged to bat with the mindset typical of that phase. There was a 2 minute 30 seconds break between each stage, and a 4 minute break at the half way point. There was also a break of 35 seconds between balls and 80 seconds between overs, to simulate the bowler walking back to the mark and the change around after the completion of each over. During stages one, three and five batsmen were required to run at a "self-selected cruise pace" whereas during stages two, four and six batsmen were required to sprint at maximum speed. A research assistant delivered the balls using a bowling machine and an audio track notified the assistant when to release the next ball. The audio track was also used to notify the batsmen of how many shuttle runs (17.68 m, the length of a cricket pitch) to complete in the upcoming over (for example a 1, 2 or 3). Running a '4' was equivalent to running 1.5 runs, representative of the runs completed by the batsman while the ball rolls to the boundary. No running was required for a '6' and running 5 or more runs was not included as this occurrence is very rare. The batsmen also ran when they were at the non-strikers end, to simulate the runs scored by the other batsman.



Physiological responses, ratings of perceived effort, sprint times and impact accuracy (accuracy of the ball on the bat) were measured throughout the protocol.

What did the researchers find?

Batting for extended periods of time significantly impacted the physiological, perceptual and performance responses of the players. Increases in the physiological and perceptual responses over time, as well as an increase in the players' sprint times, may be an indicator of physical fatigue as a consequence of extended batting. Furthermore, accuracy improved dramatically after the first stage indicating that although players may have been physically fatigued, this had no impact on the batsmen's concentration. The results therefore suggest that the constant running between the wickets, while batting for extended periods of time, impacts the physical load placed on players and this in turn affects batting performance.

What are the implications of the study?

The need for training programs that simulate real match situations is a highly important finding. The intensities that players execute in practice settings need to mimic the demands that players are faced with in real match-play

Furthermore, there needs to be a development of a standardised battery of tests that can be used to increase the physical state of the modern cricketer.



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