



ISSN: 2456-0057
IJPNPE 2018; 3(1): 62-64
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www.journalofsports.com
Received: 12-11-2017
Accepted: 13-12-2017

Chandu G Lamani
B.A, B.P.Ed, M.P.Ed, K-Slet,
Ph.D, Physical Education
Instructor, In Charge SAC &
Sports, Research Scholar,
Department of PG & Research
Studies in Physical Education &
Sports Science, Karnatak
University, Dharwad,
Karnataka, India

Dr Shakuntala Hiremat
Athletics-NSNIS, B.P.Ed,
M.P.Ed, PhD, Assistant Director
of Physical Education and
Sports, Sports Section, &
Department of UG & PG Studies
in Physical Education and
Sports Science, Karnatak
University Dharwad, Karnataka,
India

Correspondence
Chandu G Lamani
B.A, B.P.Ed, M.P.Ed, K-Slet,
Ph.D, Physical Education
Instructor, In Charge SAC &
Sports, Research Scholar,
Department of PG & Research
Studies in Physical Education &
Sports Science, Karnatak
University, Dharwad,
Karnataka, India

An investigation on specific physiological variables of professional club cricketers of Goa

Chandu G Lamani and Dr. Shakuntala Hiremat

Abstract

Limited research has focused on the physiological responses associated with cricket activity, this study aims to provide a physiologic profile of professional cricketers of Goa, 100 professional club cricket players from Goa were recruited for the testing purpose and further they were divide in to two different groups specific (n=50 bowlers, n=50 batsmen = 100) aged above 18years and below 23 years. All players are active professional club cricketers who play senior league cricket n Goa. Testing was conducted indoor with players (bowlers and batsmen) completed two physiological fitness assessments: Forced Vital Capacity, and Residual Lung volume was measured and recorded for the statistical purpose. Descriptive analyses were carried out to find out the difference and 0.05 was set at level of significance. Statistics was done using SPSS 21 version. The results demonstrate that there was difference in both physiological variable among batsman and bowlers but failed to reach the significance level hence the results were not as conclusive. The findings of this study can provide good indicators for the assessment of players' suitability for different positions, for the development of training programmes, and could be of assistance to coaches in selection of players and in providing guidance to the players. The information also highlights some areas that may require further research. It was recommended to carry out such studies at higher level and with higher number of participants to find out the better results.

Keywords: Batsman, bowler, physiology, players, Goa

Introduction

Cricket is one of the most watched team sports in the world largely due to its popularity in Commonwealth countries. It is a game that has three formats (Test, One Day, and Twenty20) and all players are required to bat and field, whereas only some players bowl. Cricket has been widely perceived as a sport that did not require a great deal of physical fitness, with many players, especially at club level, being overweight (Woolmer & Noakes, 2008) ^[1]. However, the rapid evolution of the game over the last two decades has brought about an increase in the number of games played at the local, regional, national and international level, with a corresponding increase in the physical demands of the game. This changed environment has compelled coaches and players to focus more on the physical aspect of the game.

Cricket is generally considered to be a very traditional game, and anecdotal evidence is often relied upon in coaching and training. The paucity of research suggests a lack of knowledge as to what is required for successful performance in the modern formats of the game. Very few studies of the physical and physiological demands of cricket playing are available in the literature (Woolmer & Noakes, 2008; Christie & King, 2008) ^[1, 2].

Purpose of the study

The studies differentiated between player roles, identifying participants as bowlers, and batsmen it is important to understand and measure the performance requirements in order to be able to improve performance. Given this lack of information and the scope of what little research there is, the aim of this study was to gather expert opinion of players, coaches, and strength and conditioning coaches regarding the performance requirements of elite cricket player among batsman and bowlers.

Significance of the study

It could be postulated that there would be variation in batsman and bowler performance Requirements in the three different formats, and therefore questions were related specific to

the different skills of the player. The information collated from this study should assist in furthering the understanding of some of the performance requirements of elite cricket batsman and bowler.

Method-Participants

As expert opinion regarding elite cricket performance was being sought, participants were included if they were involved with at least professional club cricket (affiliated to Goa Cricket Association), State (Goa). In order to gather the most complete view of cricket batting and bowling physiological performance, In total, 100 people participated in the study, 50 participants identified as batsman and rest 50 as bowlers (spin & fast medium), their age was above 18 years and below 23 years and involved in professional club cricket. This resulted in equal sample sizes for each group.

Data collection and statistical process

Testing was conducted indoor with players (bowlers and batsmen) completed two physiological fitness assessments: Forced Vital Capacity, and Residual Lung volume was measured and recorded for the statistical purpose. Descriptive

analyses were carried out to find out the difference and 0.05 was set at level of significance. Statistics was done using SPSS 21 version.

Results and Findings of the study

Table 1: Means, Standard Deviation Forced vital capacity and residual lung volume of batsman n=50) and batsman (n=50).

Parameter	Category	N	Mean	Std. Deviation
Forced Vital Capacity	Batsmen	50	5.0001	.71895
	Bowler	50	4.8386	.68413
Residual Lung Volume	Batsmen	50	1.3964	.20619
	Bowler	50	1.3544	.19137

* Significant at 0.05 level of confidence

- From the above table we can analyze that Batsmen are having higher mean than the bowlers in forced vital capacity and Residual lung volume.
- To find out the difference between the mean is at 0.05 level of significance, further data is subjected to independent sample t-test.

Table 2: Independent sample t- test table of Forced vital capacity and residual lung volume of batsman n=50) and batsman (n=50)

Independent sample t- test Table		T	df	Sig. (2- tailed)
Forced Vital Capacity	Equal variances assumed	1.150	98	.253
	Equal variances not assumed	1.150	97.759	.253
Residual Lung Volume	Equal variances assumed	1.056	98	.294
	Equal variances not assumed	1.056	97.460	.294

- From the above independent sample t-test table we can predict that there is no significant mean difference between bowlers and Batsmen in their forced vital capacity and Residual lung volume.
- Although it seems to be Batsmen is having higher mean than the bowlers in both the physiological parameters but difference did not reach to the significant level.

Discussion

The investigator found that Batsmen is having higher mean than the bowlers in both the physiological parameters as it changes during the developmental years of young sportsman.

- The results of the present study for batsman and bowler cricketers were not as conclusive as difference was not to the significant level; reason may be as the players were still maturing, second reason may be they play the same standard (level) of cricket, same pattern of training scheduled (intensity of training).
- Therefore, these may be factors which may have contributed in discriminating these two groups. Level of maturation, similar standard of cricket and training intensity has made batsman to stand one step ahead of Bowlers.

Conclusion

The various sub-disciplines of cricket have differing physiological requirements. The sub-discipline differences in the physiological requirements are largely negated by the fact that all players fulfil the demanding role of playing and are subjected to the same rigorous training routines. The present study found no significant differences in the physiological characteristics of the player's batsman and bowler. However, the results of this study were not as conclusive as it failed to reach the significance level, and it assumed that the results of this study are useful to coaches and sport scientists and should be used in talent identification programmes, player selection and training programmes. The results of this study are limited by the small sample of subjects.

Recommendation for Future Research work

Extensive research have been undertaken in several sports disciplines to identify physiological characteristics of young sports children which enables coaches to identify promising

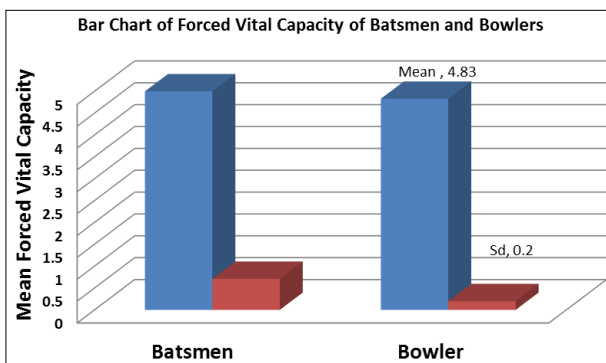


Fig 1: Bar chart of Vital Capacity of Batsman and Bowler

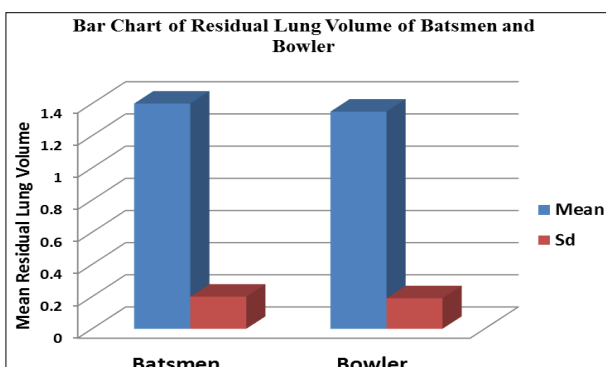


Fig 2: Bar chart of Residual Lung Volume of Batsman and Bowler

talent in their respective sports disciplines. However, no research is traceable which identify physiological and other characteristics of young cricketers.

- Therefore it is recommended to undertake research which might identify the physiological profiles of young cricketers from normal population or other sporting population.
- In the present study sample size of young cricketers was very small. Therefore, it is recommended to replicate such an investigation with larger sample size.
- Within each sports disciplines the demands placed on various specialists differs. Therefore Investigation of physiological profiles of cricketers specializing in bowling, batting, wicket keeping is recommended.
- The present investigation involved cricketers at state / club level. The physiological profile at national and international level may be accentuated for various reasons. Therefore an investigation involving cricketers of national and international repute may be undertaken.

Recommendation for Coaches and Administrators

- It is recommended that either training regime be made demanding or select candidates with suitable skill like bowler, batsman, and wicket keeper.
- Based on the research findings involving young children in sports, identify talented cricketers at early age and coach them right.
- It is recommended that coaches based on their knowledge of physiological profile required for various departments of the game of cricket.

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