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A comparative study on specific fitness variables of junior and senior state & university level cricket players of Goa

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Abstract

The main purpose of the present study was to compare the specific motor Fitness profile of Junior and Senior cricketers of Goa, who are actively participating state and national tournaments. For the investigation total of 100 cricketers were examined, all the cricketers had competed at least at the state level, university and national level. For the purpose of the study 100 subjects were divided in to two groups U-19, n=50 and seniors above the age of 19 but below the age of 25 years, n=50. Mean and Standard Deviation was computed. For testing the hypothesis the Level of confidence was set at.05 Level of significance. Computation was done with the help of SPSS. The author found that there was difference in the specific motor fitness variables of junior and senior cricket players of Goa. But results were not as conclusive as most of the variables did not reach the significance level in statistical computation. It was recommended to carry similar studies on larger sample and different age category players.

Keywords: Specific Motor Fitness, Junior and Senior Cricket players, Goa.

Introduction

Cricket is a major international sport with millions of dollars being spent and earned on the international and domestic scenes. It is a unique sport as it has three different formats that are played at the highest level. Multi-day cricket can be played over two- four days (domestic level) or five days at international level with both teams normally involved in two innings of batting and bowling/fielding.

Fitness in Cricket / Physiological requirements

Cricket is unique in that there are three different game formats, namely T20, One Day, and multiple-day (Test and first-class) cricket, in which the physiological demands vary greatly, Johnston and Ford (2010) [8] gave some guidelines as to what strength and conditioning coaches should concentrate on according to the specific demands of cricket and the associated playing positions. They suggested that strength and conditioning coaches should, after completion of a general training program, focus on developing lower-body speed (explosive and repetitive) and anaerobic upper-body power within players. Greater flexibility in the lower lumbar and hamstrings could be needed within the bowling group because of the functional requirements during the delivery stride. It was found that athletes within the study who had engaged in a periodised program achieved superior performance ratings within the sprinting, upper-body power and flexibility assessments in comparison with their peers, thus providing further evidence to the cricket community about the value of a long- term annual periodised program (Johnston & Ford, 2010) [8].

There are 2 things that matter in cricket – ability & fitness. If you haven't got the first, then I guess the second does not matter all that much. But if you have got two sides of equal ability, then obviously the fitter one is going to have the edge" (Greg Chappell, 1978)

A cricket player ought to possess specific speed, strength, power, agility, flexibility and endurance in abundance so as to learn and master the techniques of the game. Modern demands in one day competitions, especially for training of fast bowlers, batsman, fielders and wicket-keepers adequate emphasis is given for the development Physical characteristics.

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Therefore the modern trend in the field of cricket is to assess the related components successfully as a part of total body and size of each cricketer and interpret how far each of these components are helpful in the performance of a cricketer under match condition

(Tyson, Frank. 1987)

Cricket is a sport in which fitness is traditionally not thought of as very important. The importance of fitness in any sport cannot be underlined. The fitter you are the better you'll play. The success in the 1990s and 2000s of the world beating Australian team has been attributed to their professionalism, and in part to the way they addressed their fitness the other test playing nations have rightfully put more emphasis on fitness recently and are reaping the benefits **(Woolmer, Bob. 2000)**.

With the introduction of One day cricket recently, the game has gone through major changes and the physical demand made on cricketers body have also increased dramatically. Depending upon the version of the game played and role played by the player in the team, the importance of fitness will vary, the fitness requirements of a Fast bowler will be greater and also different than of an opening batsman, and one day cricket will be more demanding than a test match. Fitness is important at all Levels of the game, whilst being essential for top Level players **(Simpson, Bob. 1996)**.

Purpose of the Study

The main purpose of the present study was to compare the specific motor Fitness profile of Junior and Senior cricketers of Goa, who are actively participating at state and national level tournaments

Significance of the study

It is hoped that the data generated and interpreted in this study will one day help the Goan Cricket Fraternity; the information

collected can be used for monitoring the training programme as well as for counselling, providing information about the standard of motor fitness one should have among Bowler and Batsman in Cricket. The author also assumes that this study will help the Goan cricket to improve the standard of Cricket in the State.

Limitations of the study

1. It is assumed that the cricket players who play for Goa state are selected through a rigorous selection process and are of high standard.
2. All the cricketers were expected to have taken sufficient rest and proper food the previous night.
3. It was assumed that all the players gave their 100% effort while testing.

Delimitations of the study

1. The concept of Physical Fitness involves many abilities, however only few motor abilities, which are deemed to be essential to effective performance, are measured and recorded.
2. Because of paucity of time, only the players who have represented for Goa in the 2013-14 seasons are considered for the study.

Methodology

Subjects: Total 100 subjects were selected for this study. N=50 U-19 Cricket players and N=50 above U-19 Below 25 Years of age. Total 9 Specific Motor fitness and 2 Anthropometric test were selected for the study, necessary Permission was taken from Goa Cricket Association, the officials, coaching staff. The test were conducted when they were practicing for preparing for the Cooch Behar U-19 Trophy and Col. C.K. Nayudu U-25 Trophy National tournament organized by BCCI.

Table 1: List of Variables tested and recorded

Sr. No	Subjects	Numbers	Test	Equipment's
01	U-19 Years	N=50	20 Meter Dash	Stop Watch/ Nearest 0.001 seconds.
	U-25 years	N=50		
02	U-19 Years	N=50	40 meter dash	Stop Watch / Nearest 0.001 seconds.
	U-25 years	N=50		
03	U-19 Years	N=50	Run-a-Three	Stop Watch / Nearest 0.001 seconds.
	U-25 years	N=50		
04	U-19 Years	N=50	Pull Ups	Unlimited Repetitions
	U-25 years	N=50		
05	U-19 Years	N=50	Push Ups	Unlimited Repetitions
	U-25 years	N=50		
06	U-19 Years	N=50	Half Squats	Unlimited Repetitions
	U-25 years	N=50		
07	U-19 Years	N=50	Abdominal Crunches	Unlimited Repetitions
	U-25 years	N=50		
08	U-19 Years	N=50	Seat and Reach	In CM
	U-25 years	N=50		
09	U-19 Years	N=50	Vertical Jump	In CM
	U-25 years	N=50		
10	U-19 Years	N=50	Height (Standing)	In CM
	U-25 years	N=50		
11	U-19 Years	N=50	Weight (Body Mass)	In CM
	U-25 years	N=50		

Test and Procedure

For measurement of selected physical fitness variables of U-19 & U-25 cricket players standard NCA-BCCI physical fitness test Protocols was utilized. Data of subject's were collected start of the season in the month of August-

September 2015. The subjects did not wear any protective gear or other necessary equipment's during the tests The tests were conducted when they were practicing and preparing for the Cooch Behar u-19 and u-25 Col. C.K. Nayudu Trohy National tournament organized by BCCI. Their age ranged

between 17- 25 years. All the subjects received a clear explanation of the study, including the risk and benefits of participation, the entire Test on Players was conducted at BITS Pilani Goa Campus Cricket Ground, The subject were allowed to consume water and sports drinks throughout the testing sessions. Measurements were recorded in metric system.

Statistical Process

For analysis of the data, collected from 100 cricketers, N=50 U-19 Cricket players and N=50 above U-19 Below 25 Years of age Mean and Standard Deviation was computed. Comparison was made on the basis of activity i.e.U-19 and U-25 Cricket players. Testing the hypothesis the Level of confidence was set at.05 Level of significance. Computation was done with the help of SPSS version 21.

Results and Findings of the study

- The above descriptive table presents mean and Standard deviation of selected physical fitness variables of Goa U-19 and U-25 age Cricketers.
- Under 25 age Cricketers are having higher mean in Height, Weight, Vertical Jump, Pull ups, Squats, Pushups, Sit and Reach and Abdominal crunches than the Under 19 age category Cricketers of Goa
- While Under 19 Cricketers are having higher mean in Run a three, 40mtr and 20mtr Dash than the Under 25 age category Cricketers of Goa state.
- To verify whether their means are significantly different, data is subjected to independent sample t-test.

Table 2: Means, Standard Deviation 9 (Nine) specific Motor Fitness Variable and 2 (Two) Anthropometric Variables (Junior Cricketers Under-19 (n=50) and Senior Cricketers above 17 years but below 19 years and seniors above 19 years but below 25 Years of Age (n=50)

Variables	Age category of the player	N	Mean	Std. Deviation
Height in Cms	Under 19	50	174.1800	4.61006
	Under 25	50	174.2553	4.92174
Weight in Kg	Under 19	50	68.6600	7.25796
	Under 25	50	68.9020	7.31096
Vertical Jump in Cms	Under 19	50	55.0200	6.01186
	Under 25	50	55.1961	6.06637
20mtrs Dash in Sec	Under 19	50	3.1214	.12053
	Under 25	50	3.1186	.11947
40mtrs Dash in Sec	Under 19	50	5.3356	.26712
	Under 25	50	5.3302	.26621
Run A Three in Sec	Under 19	50	9.6718	.38841
	Under 25	50	9.6537	.40102
Pull ups	Under 19	50	7.2000	2.70298
	Under 25	50	7.2157	2.67816
Half Squats	Under 19	50	20.8400	3.66651
	Under 25	50	20.9020	3.66199
Push-ups (Floor)	Under 19	50	31.9800	7.98849
	Under 25	50	32.3922	8.20263
Sit and Reach in Cms	Under 19	50	15.9000	2.32535
	Under 25	50	15.9804	2.33658
Abdominal Crunches	Under 19	50	67.6200	10.58086
	Under 25	50	67.9608	10.65075

Table 3: Independent Sample t-test of Junior above 17 years but below 19 years and seniors above 19 years but below the age of 25 years

		t	df	Sig.(2-tailed)
Height in	Equal variances assumed	-.058	99	.954
	Equal variances not assumed	-.058	98.797	.954
Weight	Equal variances assumed	-.167	99	.868
	Equal variances not assumed	-.167	98.984	.868
Vertical Jump	Equal variances assumed	-.146	99	.884
	Equal variances not assumed	-.147	98.988	.884
20mtrs Dash	Equal variances assumed	.116	99	.908
	Equal variances not assumed	.116	98.918	.908
40mtrs Dash	Equal variances assumed	.102	99	.919
	Equal variances not assumed	.102	98.946	.919
Run A Three	Equal variances assumed	.250	99	.819
	Equal variances not assumed	.250	98.986	.818
Pull ups	Equal variances assumed	-.029	99	.977
	Equal variances not assumed	-.029	98.916	.977
Half Squats	Equal variances assumed	-.085	99	.932
	Equal variances not assumed	-.085	98.955	.932
Floor Push ups	Equal variances assumed	-.256	99	.799
	Equal variances not assumed	-.256	98.996	.799
Sit and Reach	Equal variances assumed	-.173	99	.863
	Equal variances not assumed	-.173	98.980	.863
Abdominal Crunches	Equal variances assumed	-.161	99	.872
	Equal variances not assumed	-.161	98.982	.872

- T-test table reveals no significant level of difference between any physical fitness variable of U-19 and U-25 age category of Goa state Cricketers.
- All though U-25 age Cricketers are having higher mean in Height, Weight, Vertical Jump, Pull ups, Squats, Push-ups, Sit and Reach and Abdominal crunches than the Under 19 age category Cricketers of Goa
- While Under 19 Cricketers are having higher mean in Run a three, 40mtr and 20mtr Dash than the Under 25 age category Cricketers of Goa state means are not

- significantly different at 0.05 levels.
- So from this we can conclude that there is no significant difference between any physical fitness variable of Under 19 and Under 25 age Cricketers of Goa state.
- Although Under 25 age category Cricketers are having higher mean in 8 (eight) physical fitness components and Under 19 age Category Cricketers are having higher mean in 3 (three) components mean difference in not at the significant level.

Discussion and Findings of the study

- The results of the present study for junior and senior cricketers were not as conclusive as for the senior cricketers. One of the reasons, why many of the motor fitness profile (9) and (2) Anthropometric variables of junior cricketers failed to reach the significance level was that, There is not much difference between Under 19 and U-25 age category Cricketers because both the age category players training pattern is the same and they play same format of tournament.
- U-19 age group player's maturation was also developed at this age group significantly. So parameters which are contributing to develop physical fitness in the athletes remains same for the both the categories, only matters is the training intensity.
- For both the categories training period was conducted for same number of days. So that it might contribute no significant difference in both the categories related to their physical fitness and selected anthropometric component.
- Maturation, same training pattern and similar format participation in the tournament have made them similar in the study.

Conclusion

Due to rapid ongoing development of cricket in regards to the shorter formats, namely T/20 and One-day Cricket running (Speed) and explosive power and strength in hitting the ball has become a fundamental physiological and physical characteristics of the modern-day- player.

The results were not as conclusive of the present study, In 6 specific motor fitness and 2 anthropometric variables U-25 Cricket players were superior to U-19 Cricketers but failed to reach the significant level. U-19 cricket players were superior to U-25 cricket players but they too failed to reach the significant level statistically As a result it was concluded that Specific Motor fitness tests should be used for monitoring and talent identification purposes need to replicate the demands of the sport as closely as possible.

Recommendation for Future Research work

Extensive research have been undertaken in several sports disciplines to identify Fitness characteristics of young cricket players which enables coaches to identify promising talent in their respective sports disciplines. However, no research is traceable which identify Fitness and other characteristics of young cricketers. Therefore it is recommended to undertake research which might identify the fitness 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 Motor Fitness profiles of cricketers specializing in bowling, batting, wicket keeping is recommended.
- The present investigation involved cricketers at state level. The Fitness 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

- Therefore it is recommended that either training regime

be made demanding or select candidates with Fitness Profiles.

- 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 Motor Fitness profile required for various departments of the game of cricket

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