



## A Comparative Study of Muscular Endurance and Running Speed among Cricket Players

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### Abstract

Thus the aim of this study was to determine the role of muscular endurance and running speed among cricket players. To obtain data, the investigators had selected. For the purpose of present study, One Hundred Seventy Seven (N=177), Male District, State and National Level Cricket Players between the age group of 21-25 years (Mean  $\pm$  SD: age 22.89 $\pm$ 1.76 years, height 176.04 $\pm$ 4.18 cm, body mass 73.76 $\pm$ 4.63 kg) were selected. The subjects were purposively assigned into three groups: Group-A: District Level Cricket Players (n<sub>1</sub>=80); Group-B: State Level Cricket Players (n<sub>2</sub>=65); Group-C: National Level Cricket Players (n<sub>3</sub>=32). The statistical package for the social sciences (SPSS) version 14.0 was used for all analyses. In all the analyses, the 5% critical level (p<0.05) was considered to indicate statistical significance. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of Variance (ANOVA). For further analysis Post-Hoc Test (Scheffe's Test) was applied. It is concluded from the above findings that significant differences were found among district, state and national level cricket players on the sub-variables; muscular endurance and running speed.

**Keywords:** Muscular endurance and speed.

### Introduction

Physical fitness is the ability to perform daily activities willingly and actively. Physical fitness includes not only components of sports but those of health as well. Regular physical activity prevents or limits weight gain, and gain in body mass index (BMI). The National College Health Risk Behavior Survey reported that 35% of American college students are overweight<sup>1</sup>. This is not surprising considering that more than two thirds of American adult population are classified as overweight<sup>2</sup>, making weight gains America's leading health problem. Motor performance can be defined as a capacity to performance motor skills and qualities make up majority of motor performance test pattern include speed, power agility reaction time hand eye coordination balance and other physical fitness parameter such as endurance strength. Martin<sup>3</sup> described motor fitness like motor ability is gauged by performance made up of many elements that are relatively static and enduring in contrast to the factors which Copper more dynamic and changeable. It is heavily weighted with endurance strength, flexibility and power. The dominant abilities would be enduring and persist ever a long period at time since they became a part of muscle. All the factors mentioned under the components of movement concern with motor ability. Each contributes interdependently in the successful performance of fundamental skills in hand ball. This promoted us to undertake this study with the aim to determine the muscular endurance and running speed among cricket players.

### Methodology

**Selection of subjects:** For the purpose of present study, One Hundred Seventy Seven (N=177), Male District, State and National Level Cricket Players between the age group of 21-25 years (Mean  $\pm$  SD: age 22.89 $\pm$ 1.76 years, height 176.04 $\pm$ 4.18 cm, body mass 73.76 $\pm$ 4.63 kg) were selected. The subjects were purposively assigned into three groups: Group-A: District Level Cricket Players (n<sub>1</sub>=80), Group-B: State Level Cricket Players (n<sub>2</sub>=65), Group-C: National Level Cricket Players (n<sub>3</sub>=32)

Subject's Demographics of District Level Cricket Players (n<sub>1</sub>=80), State Level Cricket Players (n<sub>2</sub>=65) and National Level Cricket Players (n<sub>3</sub>=32) are displayed in table-1.

**Selection of variables:** With the above criteria's in mind, following the following variables was selected for the present study: **Muscular Endurance and Running Speed.**

**Statistical technique employed:** The Statistical Package for the Social Sciences (SPSS) version 14.0 was used for all analyses. In all the analyses, the 5% critical level (p<0.05) was considered to indicate statistical significance. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of Variance (ANOVA). For further analysis Post-Hoc Test (Scheffe's Test) was applied.

**Table-1**  
**Subject's Demographics of District Level Cricket Players (n<sub>1</sub>=80), State Level Cricket Players (n<sub>2</sub>=65) and National Level Cricket Players (n<sub>3</sub>=32)**

Variables	SAMPLE SIZE (N=177)			
	Total (N=177)	District Level Cricket Players (n <sub>1</sub> =80)	State Level Cricket Players (n <sub>2</sub> =65)	National Level Cricket Players (n <sub>3</sub> =32)
Age	22.89±1.76	22.88±1.183	22.72±1.18	23.25±1.060
Body Height	176.04±4.183	175.33±3.94	176.16±4.08	177.87±4.23
Body Mass	73.76±4.63	73.92±4.60	73.6±4.77	73.68±4.38

**Table-2**  
**Analysis of Variance (ANOVA) results with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Muscular Endurance**

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	1363.508	2	681.754	114.439	.000
Within Groups	1036.577	174	5.957		
Total	2400.086	176			

\*Significant at 0.05. F<sub>0.05</sub> (2,174).

**Table-3**  
**Analysis of Scheffe's post hoc test with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Muscular Endurance**

Means	Mean Difference	P-value (Sig.)
District Level Cricket Players (6.0500)	State Level Cricket Players (10.2615)	-4.21154*
	National Level Cricket Players (13.2056)	-7.15562*
State Level Cricket Players (10.2615)	District Level Cricket Players (6.0500)	4.21154*
	National Level Cricket Players (13.2056)	-2.94409*
National Level Cricket Players (13.2056)	District Level Cricket Players (6.0500)	7.15562*
	State Level Cricket Players (10.2615)	2.94409*

\*Significant at 0.05

## Results and Discussion

**Results:** It can be observed from table 2 that significant differences were found with regard to the sub-parameter Muscular Endurance among District, State and National level Cricket Players as the P-value (Sig.) .000 was found smaller than 0.05 level of significance (P<0.05). Since the obtained F-ratio 114.439 was found significant, therefore, Scheffe's post-hoc test was employed to study the direction and significance of differences between paired means among District, State and National level Cricket players on the sub-parameter Muscular Endurance. The results of Scheffe's post hoc test have been presented in Table-3.

From table 3, the following conclusions can be drawn: It has been observed from the table-3 that mean difference between District and State level Cricket Players was found

4.21154\*. The State level Cricket Players (10.2615) had exhibited significantly better on Muscular Endurance than their counterpart District level Cricket Players (6.0500). The mean difference between District and National level Cricket Players was found 7.15562\*. The National level Cricket Players (13.2056) had exhibited significantly better on Muscular Endurance than their counterpart District level Cricket Players (6.0500). The mean difference between State and National level Cricket Players was found 2.94409. The National Level Cricket Players (13.2056) had exhibited significantly better on Muscular Endurance than their counterpart State level Cricket Players (10.2615). The graphical representation of responses has been exhibited in (figure-1).

**Discussions:** The results of table 2 that significant differences were found with regard to the sub-parameter Muscular endurance among District, State and National level Cricket

Players as the P-value (Sig.) .000 was found smaller than 0.05 level of significance ( $P < 0.05$ ). Since the obtained F-ratio 114.439 was found significant, therefore, Scheffe's post-hoc test was employed to study the direction and significance of differences between paired means among District, State and National level Cricket on the sub-parameter Muscular Endurance. In table 3 paired mean value of national level cricket players was found better than other two groups thereby, showing that national level cricket players were exhibited significantly than the district and state level cricket players. The findings of the present study were supported by Dhanula et al.<sup>4</sup> who concluded in his study that Body composition (percentage of body fat), Flexibility (hip and trunk) and muscular endurance (sit-ups test) were found to be statistically significant. In another study conducted by Ghuman and Singh<sup>5</sup> to find out the significant differences of gross motor proficiency on the sub-variables; muscular strength, muscular power, muscular

endurance between district and state level volleyball players. When they compared the mean values of both the groups, it has been found that state level players have performed significantly better on muscular strength, muscular power, and muscular endurance.

The results of Analysis of Variance (ANOVA) in table 4 that significant differences were found with regard to the sub-parameter Running Speed among District, State and National level Cricket Players as the P-value (Sig.) .000 was found smaller than 0.05 level of significance ( $P < 0.05$ ). Since the obtained F-ratio 117.339 was found significant, therefore, Scheffe's post-hoc test was employed to study the direction and significance of differences between paired means among District, State and National level Cricket players on the sub-parameter Running Speed. The results of Scheffe's post hoc test have been presented in table-5.

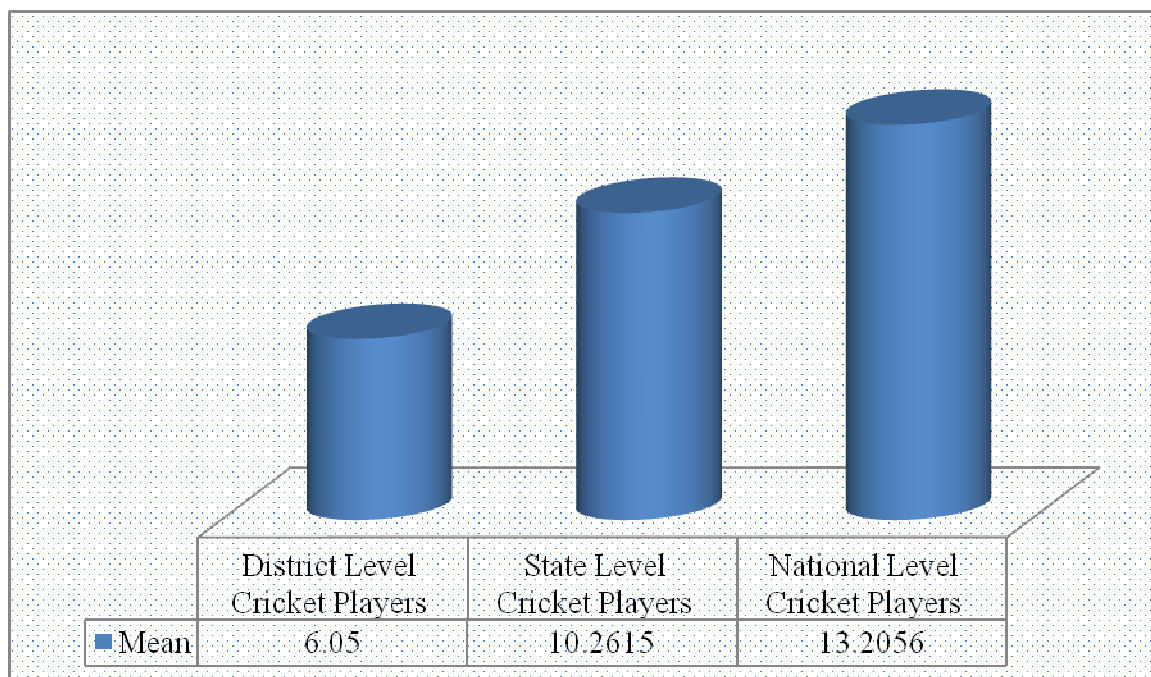


Figure-1

Graphical representation of mean scores with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Muscular Endurance

Table-4

Analysis of Variance (ANOVA) results with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Running Speed

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F-value	P-value (Sig.)
Between Groups	3.889	2	1.944	117.339	.000
Within Groups	2.883	174	.017		
Total	6.772	176			

\*Significant at 0.05  $F_{0.05} (2,174)$

From table 5, the following conclusions can be drawn: It has been observed from the table-5 that mean difference between District and State level Cricket Players was found .25423\*. The State level Cricket Players (4.3108) had exhibited significantly better on Running Speed than their counterpart District level Cricket Players (4.5650). The mean difference between District and National level Cricket Players was found .35875\*. The National level Cricket Players (4.2062) had exhibited significantly better on Running Speed than their counterpart District level Cricket Players (4.5650). The mean difference between State and National level Cricket Players was found .10452. The National Level Cricket Players (4.2062) had exhibited significantly better on running speed than their counterpart State level Cricket Players (4.3108). The graphical representation of responses has been exhibited in (figure- 2).

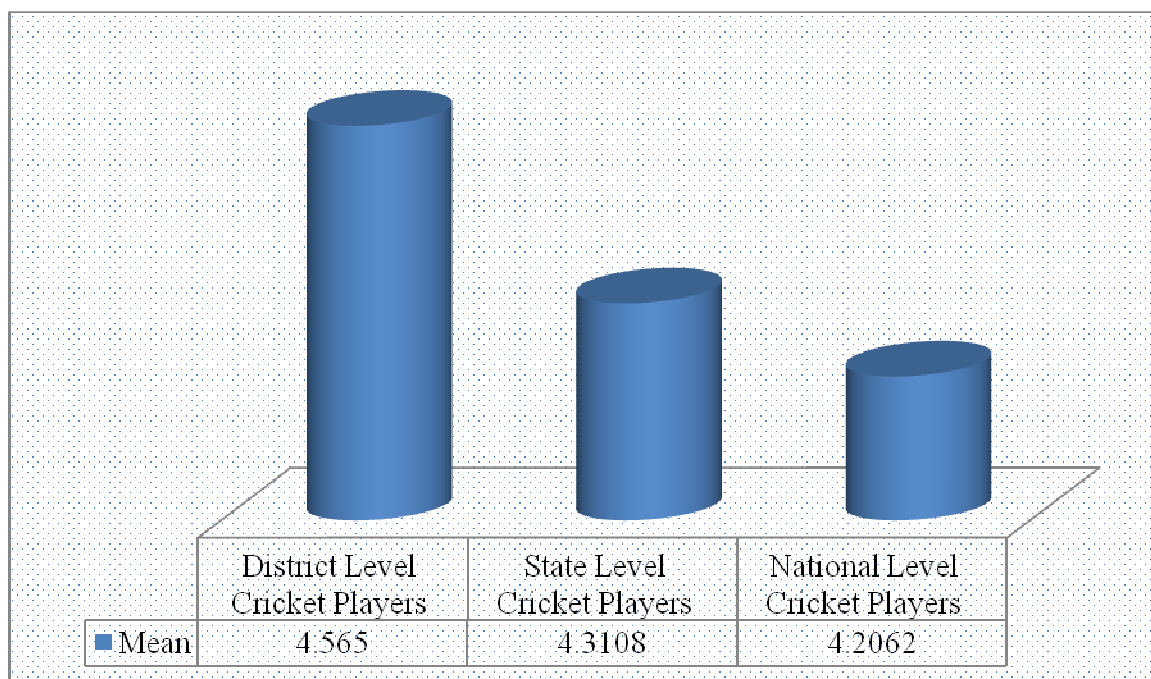
among District, State and National level Cricket Players as the P-value (Sig.) .000 was found smaller than 0.05 level of significance (P<0.05). Since the obtained F-ratio 117.339 was found significant, therefore, Scheffe’s post-hoc test was employed to study the direction and significance of differences between paired means among District, State and National level Cricket on the sub-parameter Running Speed. In table 5 paired mean value of national level cricket players was found better than other two groups thereby, showing that national level cricket players were exhibited significantly than the district and state level cricket players. The findings of the present study were supported by Ghosh and Surajit<sup>6</sup> who concluded in his study that significant difference between Speed and Explosive Leg Strength of the Kho-Kho players were significantly higher than the Kabaddi players. In another study conducted by Kumar<sup>7</sup> who concluded in his study to find out the significant differences of speed and agility in relation to the kho-kho players.

**Discussions:** The results of table 4 that significant differences were found with regard to the sub-parameter Running Speed

**Table-5**  
**Analysis of Scheffe’s post hoc test with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Running Speed**

Means		Mean Difference	P-value (Sig.)
District Level Cricket Players (4.5650)	State Level Cricket Players (4.3108)	.25423*	.000
	National Level Cricket Players (4.2062)	.35875*	.000
State Level Cricket Players (4.3108)	District Level Cricket Players (4.5650)	-.25423*	.000
	National Level Cricket Players (4.2062)	.10452*	.001
National Level Cricket Players (4.2062)	District Level Cricket Players (4.5650)	-.35875*	.000
	State Level Cricket Players (4.3108)	-.10452*	.001

\*Significant at 0.05



**Figure-2**

**Graphical representation of mean scores with regard to Psychomotor Abilities among District, State and National level Cricket Players on the sub-parameter Running Speed**

## Conclusions

Based on the findings of this study, the following conclusions were drawn: It is concluded from the above findings that significant differences were found among district, state and national level cricket players on the sub-variables; muscular endurance, running speed.

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